Doc Code: PA..
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PTO/AIA/82A (07-13)
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| Application Number | Filed concurrently herewith |
| Filing Date | 2013-08-29 |
| First Named Inventor | DU, Jinfa |
| Title | NUCLEOSIDE PHOSPHORAMIDATE PRODRUGS |
| Art Unit | Not yet assigned |
| Examiner Name | Not yet assigned |
| Attorney Docket Number | 03956.053800.3 |

**SIGNATURE of Applicant or Patent Practitioner**

| | | | |
|---|---|---|---|
| Signature | /Alicia A. Russo/ | Date (Optional) | 2013-08-29 |
| Name | Alicia A. Russo | Registration Number | 46,192 |
| Title (if Applicant is a juristic entity) | Attorney | | |
| Applicant Name (if Applicant is a juristic entity) | Gilead Pharmasset LLC | | |

**NOTE:** This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☑ *Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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I hereby revoke all previous powers of attorney given in the application identified in the attached transmittal letter.

☒ I hereby appoint Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A or equivalent):

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| Country | | | | | |
| Telephone | | Email | | | |

I am the Applicant:

☐ Inventor or Joint Inventor

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor

☒ Assignee or Person to Whom the Inventor is Under an Obligation to Assign

☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document)

**SIGNATURE of Applicant for Patent**

| | | | |
|---|---|---|---|
| Signature | | Date | NOV. 12, 2012 |
| Name | J. Elin Hellrum | Telephone | 650-522-1871 |
| Title and Company | Associate General Counsel, Intellectual Property, Gilead Pharmasset LLC | | |

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms for more than one signature, see below *.

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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
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| In re Application of: | ) | |
| | : | Examiner: Unassigned |
| GILEAD PHARMASSET LLC | ) | |
| | : | Group Art Unit: Unassigned |
| Continuation of | ) | |
| Application No.: 13/609,614 | : | |
| | ) | |
| Filed: Concurrently Herewith | : | |
| | ) | |
| For: NUCLEOSIDE | : | |
| PHOSPHORAMIDATE | ) | |
| PRODRUGS | : | August 29, 2013 |

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

**INFORMATION DISCLOSURE STATEMENT**

Sir:

In compliance with the duty of disclosure under 37 C.F.R. § 1.56 and in accordance with the practice under 37 C.F.R. §§ 1.97 and 1.98, the Examiner's attention is directed to the documents listed on the concurrently submitted Forms PTO/SB/08a. References listed on the concurrently submitted Forms PTO/SB/08a have been cited by the Examiner and/or the Applicant during prosecution of related U.S. Patent No. 7,964,580 B2, U.S. Patent No. 8,334,270 B2 and/or U.S. Patent Application No. 13/609,614.

Pursuant to 37 CFR § 1.98(a)(2)(ii) and MPEP § 609.02(A)(2), copies of U.S. patent documents and other documents considered by the Office during examination of related U.S. Patent No. 7,964,580 B2, U.S. Patent No. 8,334,270 B2 and/or U.S. Patent Application No.



Gilead Exhibit 2018
PGR2023-00046 - Page 004

13/609,614 are not provided. The Applicant notes that more than one e-IDS is necessary to file a complete IDS listing all references cited during prosecution of related U.S. Patent No. 7,964,580 B2, U.S. Patent No. 8,334,270 B2 and/or U.S. Patent Application No. 13/609,614. It is respectfully requested that the above-referenced information be considered by the Examiner and that an initialed copy of the concurrently submitted Forms PTO/SB/08a be returned indicating that such information has been considered.

In accordance with 37 C.F.R. § 1.97(h) and MPEP § 2129, the Applicant makes no admission regarding whether the references listed on the concurrently submitted Forms PTO/SB/08a are, or are considered to be, material to patentability.

Pursuant to 37 C.F.R. § 1.97(b), no fee is believed due in connection with this paper. Should the Office determine that any fee is due, the Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, to Deposit Account No. 50-3939.

The Applicant's undersigned attorneys may be reached in their New York office by telephone at (212) 218-2100. All correspondence should be directed to the address given below.

Respectfully submitted,

/Alicia A. Russo/
Alicia A. Russo
Registration No.: 46,192

Erin J.D. Austin
Registration No.: 66,532

Attorneys for Applicants

FITZPATRICK, CELLA, HARPER & SCINTO
1290 Avenue of the Americas
New York, New York 10104
Facsimile: (212) 218-2200

PTO/SB/08a (01-10)
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**INFORMATION DISCLOSURE STATEMENT BY APPLICANT**
**( Not for submission under 37 CFR 1.99)**

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| Application Number | |
| Filing Date | 2013-08-29 |
| First Named Inventor | Jinfa Du |
| Art Unit | NYA |
| Examiner Name | NYA |
| Attorney Docket Number | 03956.053800.3 |

| U.S.PATENTS | | | | | | Remove |
|---|---|---|---|---|---|---|
| Examiner Initial* | Cite No | Patent Number | Kind Code[1] | Issue Date | Name of Patentee or Applicant of cited Document | Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear |
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| INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99) | | |
|---|---|---|
| | Application Number | |
| | Filing Date | 2013-08-29 |
| | First Named Inventor | Jinfa Du |
| | Art Unit | NYA |
| | Examiner Name | NYA |
| | Attorney Docket Number | 03956.053800.3 |

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| INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99) | | |
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| | Examiner Name | NYA |
| | Attorney Docket Number | 03956.053800.3 |

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| INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99) | | |
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| | Art Unit | NYA |
| | Examiner Name | NYA |
| | Attorney Docket Number | 03956.053800.3 |

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| INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99) | | |
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| | Application Number | |
| | Filing Date | 2013-08-29 |
| | First Named Inventor | Jinfa Du |
| | Art Unit | NYA |
| | Examiner Name | NYA |
| | Attorney Docket Number | 03956.053800.3 |

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| INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99) | | |
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| | Application Number | |
| | Filing Date | 2013-08-29 |
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| | Art Unit | NYA |
| | Examiner Name | NYA |
| | Attorney Docket Number | 03956.053800.3 |

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| INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99) | | |
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| | Filing Date | 2013-08-29 |
| | First Named Inventor | Jinfa Du |
| | Art Unit | NYA |
| | Examiner Name | NYA |
| | Attorney Docket Number | 03956.053800.3 |

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| | 41 | 01/90121 | WO | A2 | 2001-11-29 | NOVIRIO PHARMACEUTICALS, LTD. | | ☐ |

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| | Filing Date | 2013-08-29 |
| | First Named Inventor | Jinfa Du |
| | Art Unit | NYA |
| | Examiner Name | NYA |
| | Attorney Docket Number | 03956.053800.3 |

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|---|---|---|---|---|---|---|---|---|
| | 42 | 01/81359 | WO | A1 | 2001-11-01 | SCHERING CORP. | | ☐ |
| | 43 | 01/91737 | WO | A2 | 2001-12-06 | NOVIRIO PHARMACEUTICALS, LTD. | | ☐ |
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Doc code: IDS
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**INFORMATION DISCLOSURE STATEMENT BY APPLICANT**
**( Not for submission under 37 CFR 1.99)**

| | |
|---|---|
| Application Number | |
| Filing Date | 2013-08-29 |
| First Named Inventor | Jinfa Du |
| Art Unit | NYA |
| Examiner Name | NYA |
| Attorney Docket Number | 03956.053800.3 |

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|---|---|---|---|---|---|---|
| | 1 | 7202224 | B2 | 2007-04-10 | Merck & Co., Inc.<br>ISIS Pharmaceuticals, Inc. | |
| | 2 | 7390791 | B2 | 2008-06-24 | Gilead Sciences, Inc. | |
| | 3 | 7879815 | B2 | 2011-02-01 | Merck Sharp & Dohme Corp.;<br>Istituto di Ricerche di | |
| | 4 | 7964580 | B2 | 2011-06-21 | Pharmasset, Inc. | |
| | 5 | 8148349 | B2 | 2012-04-03 | Istituto di Ricerche di Biologia Molecolare P. Ang | |

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| | 1 | 20020198173 | A1 | 2002-12-26 | Schinazi et al. | |

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| | Application Number | |
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|---|---|---|---|---|---|---|
| | 2 | 20020058635 | A1 | 2002-05-16 | Averett | |
| | 3 | 20010034440 | A1 | 2001-10-25 | Shepard et al. | |
| | 4 | 20100137576 | A1 | 2010-06-03 | Stec et al. | |
| | 5 | 20100152128 | A1 | 2010-06-17 | Attenni et al. | |
| | 6 | 20100173863 | A1 | 2010-07-08 | Schinazi et al. | |
| | 7 | 20100227801 | A1 | 2010-09-09 | Hopkins et al. | |
| | 8 | 20100316594 | A1 | 2010-12-16 | Sommadossi et al. | |
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| | 1 | 02/32414 | WO | A2 | 2002-04-25 | SCHERRING CORPORATION | | ☐ |

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| | Filing Date | 2013-08-29 |
| | First Named Inventor | Jinfa Du |
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| | Examiner Name | NYA |
| | Attorney Docket Number | 03956.053800.3 |

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| | 1 | U.S. Application No. 12/553,483, Pending claims filed on 02/22/2010 | ☐ |
| | 2 | U.S. Application No. 12/645,710, filed on 12/23/2009, Group Art Unit 1614 | ☐ |
| | 3 | U.S. Application No. 12/645,765, filed on 12/23/2009, Group Art Unit 1614 | ☐ |
| | 4 | U.S. Application No. 12/645,821, filed on 12/23/2009, Group Art Unit 1636 | ☐ |
| | 5 | U.S. Application No. 13/099,671, claims filed September 4, 2012 | ☐ |

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☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

**SIGNATURE**

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

| Signature | /Alicia A. Russo/ | Date (YYYY-MM-DD) | 2013-08-29 |
|---|---|---|---|
| Name/Print | Alicia A. Russo | Registration Number | 46192 |

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**( Not for submission under 37 CFR 1.99)**

| | |
|---|---|
| Application Number | |
| Filing Date | 2013-08-29 |
| First Named Inventor | Jinfa Du |
| Art Unit | NYA |
| Examiner Name | NYA |
| Attorney Docket Number | 03956.053800.3 |

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| | 1 | 8334270 | B2 | 2012-12-18 | GILEAD PHARMASSET LLC | |
| | 2 | 8173621 | B2 | 2012-05-08 | GILEAD PHARMASSET LLC | |

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| | 1 | 20100081628 | A1 | 2010-04-01 | PHARMASSET, INC. | |
| | 2 | 20100279973 | A1 | 2010-11-04 | PHARMASSET, INC. | |
| | 3 | 20110015146 | A1 | 2011-01-20 | PHARMASSET, INC. | |
| | 4 | 20100298257 | A1 | 2010-11-25 | PHARMASSET, INC. | |

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|---|---|---|
| | Application Number | |
| | Filing Date | 2013-08-29 |
| | First Named Inventor | Jinfa Du |
| | Art Unit | NYA |
| | Examiner Name | NYA |
| | Attorney Docket Number | 03956.053800.3 |

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|---|---|---|---|---|---|---|
| | 5 | 20110251152 | A1 | 2011-10-13 | PHARMASSET, INC. | |
| | 6 | 20100286083 | A1 | 2010-11-11 | PHARMASSET, INC. | |
| | 7 | 20120107278 | A1 | 2012-05-03 | PHARMASSET, INC. | |
| | 8 | 20110245484 | A1 | 2011-10-10 | PHARMASSET, INC. | |

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|---|---|---|---|---|---|---|---|---|
| | 1 | 2006/050161 | WO | A2 | 2006-05-11 | BIOCRYST PHARMACEUTICALS, INC. | | ☐ |
| | 2 | 2007/095269 | WO | A2 | 2007-08-23 | MERCK & CO., INC. | | ☐ |

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|---|---|---|---|
| | 1 | GUDMUNDSSON, Kristjan S., et al., "Phosphoramidate Protides of Carbocyclic 2',3'-Dideoxy-2',3'-Didehydro-7-Deazaadenosine with Potent Activity Against HIV and HBV," Nucleosides, Nucleotides & Nucleic Acids (2004) 23(12): 1929-1937 | ☐ |

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| | Examiner Name | NYA |
| | Attorney Docket Number | 03956.053800.3 |

| | | | |
|---|---|---|---|
| | 2 | SIDDIQUI, Adam Q., et al., "The Presence of Substituents on the Aryl Moiety of the Aryl Phosphoramidate Derivatives of d4T Enhances Anti-HIV Efficacy in Cell Culture: A Structure-Activity Relationship," J. Med. Chem. (1999) 42:393-399. | ☐ |
| | 3 | DUMEZ, Darin, et al., "Large-Scale Synthesis and Formulation of GMP-Grade Stampidine, a New Anti-HIV Agent," Arzneim.-Forsch./Drug Res. (2006) 56(2a):136-151. | ☐ |
| | 4 | GUDMUNDSSON, Kristjan S., et al., "Phosphoramidate Protides of 2',3'-Dideoxy-3'-fluoroadenosine and Related Nucleosides with Potent Activity Against HIV and HBV," Nucleosides, Nucleotides & Nucleic Acids (2003) 22 (10):1953-1961. | ☐ |
| | 5 | NAKAYAMA, Kensaku, et al., "A Highly Enantioselective Synthesis of Phosphate Triesters," J. Am. Chem. Soc. (1990) 112:6936-6942. | ☐ |
| | 6 | WOZNIAK, Lucyna A., et al., "The stereospecific synthesis of P-chiral biophosphates and their analogues by the Stec reaction," Chem. Soc. Rev. (2003) 32:158-169. | ☐ |
| | 7 | UCHIYAMA, Mamoru, et al., "O-Selective Phosphorylation of Nucleosides without N-Protection," J. Org. Chem. (1993) 58:373-379. | ☐ |

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**SIGNATURE**

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

| Signature | /Alicia A. Russo/ | Date (YYYY-MM-DD) | 2013-08-29 |
|---|---|---|---|
| Name/Print | Alicia A. Russo | Registration Number | 46192 |

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3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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**INFORMATION DISCLOSURE STATEMENT BY APPLICANT**
**( Not for submission under 37 CFR 1.99)**

| | |
|---|---|
| Application Number | |
| Filing Date | 2013-08-29 |
| First Named Inventor | Jinfa Du |
| Art Unit | NYA |
| Examiner Name | NYA |
| Attorney Docket Number | 03956.053800.3 |

**U.S.PATENTS** Remove

| Examiner Initial* | Cite No | Patent Number | Kind Code[1] | Issue Date | Name of Patentee or Applicant of cited Document | Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear |
|---|---|---|---|---|---|---|
| | 1 | | | | | |

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| Examiner Initial* | Cite No | Publication Number | Kind Code[1] | Publication Date | Name of Patentee or Applicant of cited Document | Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear |
|---|---|---|---|---|---|---|
| | 1 | 20130029929 | A1 | 2013-01-31 | GILEAD PHARMASSET LLC | |

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**FOREIGN PATENT DOCUMENTS** Remove

| Examiner Initial* | Cite No | Foreign Document Number[3] | Country Code[2] | Kind Code[4] | Publication Date | Name of Patentee or Applicant of cited Document | Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear | T[5] |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2006/116557 | WO | A1 | 2006-11-02 | GENELABS TECHNOLOGIES, INC. | | ☐ |

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**NON-PATENT LITERATURE DOCUMENTS** Remove

| Examiner Initials* | Cite No | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published. | T[5] |
|---|---|---|---|

| INFORMATION DISCLOSURE STATEMENT BY APPLICANT ( Not for submission under 37 CFR 1.99) | | |
|---|---|---|
| | Application Number | |
| | Filing Date | 2013-08-29 |
| | First Named Inventor | Jinfa Du |
| | Art Unit | NYA |
| | Examiner Name | NYA |
| | Attorney Docket Number | 03956.053800.3 |

| | | | |
|---|---|---|---|
| | 1 | Written Opinion of the International Searching Authority issued in International Application No. PCT/US2004/012472 (7 pages) (Nov. 30, 2005) | ☐ |
| | 2 | International Preliminary Report on Patentability and Written Opinion of the International Searching Authority issued in International Application No. PCT/US2004/012472 (8 pages) (Dec. 1, 2005) | ☐ |
| | 3 | International Preliminary Report on Patentability and Written Opinion of the International Searching Authority issued in International Application No. PCT/US2005/025916 (5 pages) (Jan. 23, 2007) | ☐ |
| | 4 | International Preliminary Report on Patentability and Written Opinion of the International Searching Authority issued in International Application No. PCT/US2005/032406 (4 pages) (Mar. 10, 2009) | ☐ |
| | 5 | International Preliminary Report on Patentability and Written Opinion of the International Searching Authority issued in International Application No. PCT/EP2006/069060 (7 pages) (Nov. 5, 2008) | ☐ |
| | 6 | Written Opinion of the International Searching Authority issued in the International Application No. PCT/US/2008/058183 (16 pages) (Apr. 1, 2010) | ☐ |
| | 7 | International Search Report issued in International Application No. PCT/US2009/046619 (4 pages) (Sept. 23, 2010) | ☐ |
| | 8 | Partial International Search Report issued in International Application No. PCT/US2009/069475 (7 pages) (Mar. 5, 2010) | ☐ |
| | 9 | International Search Report and Written Opinion of the International Searching Authority issued in International Application No. PCT/US2009/069475 (21 pages) (May 10, 2010) | ☐ |
| | 10 | Invitation to Pay Additional Fees & Partial International Search Report issued in International Application No. PCT/US2010/035641 (10 pages) (July 23, 2010) | ☐ |
| | 11 | International Search Report and Written Opinion of the International Searching Authority issued in PCT/US2010/035641 (23 pages) (Nov. 20, 2011) | ☐ |

| INFORMATION DISCLOSURE STATEMENT BY APPLICANT ( Not for submission under 37 CFR 1.99) | | |
|---|---|---|
| | Application Number | |
| | Filing Date | 2013-08-29 |
| | First Named Inventor | Jinfa Du |
| | Art Unit | NYA |
| | Examiner Name | NYA |
| | Attorney Docket Number | 03956.053800.3 |

| | | | |
|---|---|---|---|
| | 12 | MURAKAMI, E., et al., "The Mechanism of Action of beta-D-2'-Deoxy-2'-fluoro-2'-C-methylcytidine Involves a Second Metabolic Pathway Leading to beta-D-2'-Deoxy-2'-fluoro-2'-C-methyluridine 5'-Triphosphate, a Potent Inhibitor of the HCV RNA-Dependent RNA Polymerase," 14th International Symposium on Hepatitis C Virus and Related Viruses, Glasgow, Scotland (September 2007) | ☐ |
| | 13 | STEPHEN G. GILLESPIE, et al., "Stereoselective Inhibition of Cholesterol Esterase by Enantiomeric Phosphonates," Phosphorous, Sulfur and Silicon, 1997, 122: 205-208 | ☐ |

If you wish to add additional non-patent literature document citation information please click the Add button Add

**EXAMINER SIGNATURE**

| Examiner Signature | | Date Considered | |
|---|---|---|---|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

| INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99) | | |
|---|---|---|
| | Application Number | |
| | Filing Date | 2013-08-29 |
| | First Named Inventor | Jinfa Du |
| | Art Unit | NYA |
| | Examiner Name | NYA |
| | Attorney Docket Number | 03956.053800.3 |

**CERTIFICATION STATEMENT**

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

**OR**

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

**SIGNATURE**

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

| Signature | /Alicia A. Russo/ | Date (YYYY-MM-DD) | 2013-08-29 |
|---|---|---|---|
| Name/Print | Alicia A. Russo | Registration Number | 46,192 |

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

## Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | 03956.053800.3 |
|---|---|---|
| | Application Number | |
| Title of Invention | NUCLEOSIDE PHOSPHORAMIDATE PRODRUGS | |

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

## Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

## Inventor Information:

**Inventor 1** Remove

**Legal Name**

| Prefix | Given Name | Middle Name | Family Name | Suffix |
|---|---|---|---|---|
| | Jinfa | | Du | |

**Residence Information (Select One)** ◉ US Residency ○ Non US Residency ○ Active US Military Service

| City | Redwood City | State/Province | CA | Country of Residence i | US |
|---|---|---|---|---|---|

**Mailing Address of Inventor:**

| Address 1 | c/o Gilead Sciences, Inc. | | |
|---|---|---|---|
| Address 2 | 333 Lakeside Drive | | |
| City | Foster City | State/Province | CA |
| Postal Code | 94404 | Country i | US |

**Inventor 2** Remove

**Legal Name**

| Prefix | Given Name | Middle Name | Family Name | Suffix |
|---|---|---|---|---|
| | Dhanapalan | | Nagarathnam | |

**Residence Information (Select One)** ◉ US Residency ○ Non US Residency ○ Active US Military Service

| City | Bethany | State/Province | CT | Country of Residence i | US |
|---|---|---|---|---|---|

**Mailing Address of Inventor:**

| Address 1 | c/o Gilead Sciences, Inc. | | |
|---|---|---|---|
| Address 2 | 333 Lakeside Drive | | |
| City | Foster City | State/Province | CA |
| Postal Code | 94404 | Country i | US |

**Inventor 3** Remove

**Legal Name**

| Prefix | Given Name | Middle Name | Family Name | Suffix |
|---|---|---|---|---|
| | Michael | Joseph | Sofia | |

**Residence Information (Select One)** ◉ US Residency ○ Non US Residency ○ Active US Military Service

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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | 03956.053800.3 |
|---|---|---|
| | Application Number | |
| Title of Invention | NUCLEOSIDE PHOSPHORAMIDATE PRODRUGS | |

| City | Doylestown | State/Province | PA | Country of Residence i | US |
|---|---|---|---|---|---|

**Mailing Address of Inventor:**

| Address 1 | c/o Gilead Sciences, Inc. | | |
|---|---|---|---|
| Address 2 | 333 Lakeside Drive | | |
| City | Foster City | State/Province | CA |
| Postal Code | 94404 | Country i | US |

**Inventor 4** Remove

**Legal Name**

| Prefix | Given Name | Middle Name | Family Name | Suffix |
|---|---|---|---|---|
| | Peiyuan | | Wang | |

**Residence Information (Select One)** (•) US Residency ( ) Non US Residency ( ) Active US Military Service

| City | Totowa | State/Province | NJ | Country of Residence i | US |
|---|---|---|---|---|---|

**Mailing Address of Inventor:**

| Address 1 | c/o Gilead Sciences, Inc. | | |
|---|---|---|---|
| Address 2 | 333 Lakeside Drive | | |
| City | Foster City | State/Province | CA |
| Postal Code | 94404 | Country i | US |

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

## Correspondence Information:

**Enter either Customer Number or complete the Correspondence Information section below.**
**For further information see 37 CFR 1.33(a).**

☐ **An Address is being provided for the correspondence Information of this application.**

| Customer Number | 104538 | | |
|---|---|---|---|
| Email Address | | Add Email | Remove Email |

## Application Information:

| Title of the Invention | NUCLEOSIDE PHOSPHORAMIDATE PRODRUGS | | |
|---|---|---|---|
| Attorney Docket Number | 03956.053800.3 | Small Entity Status Claimed | ☐ |
| Application Type | Nonprovisional | | |
| Subject Matter | Utility | | |
| Total Number of Drawing Sheets (if any) | 0 | Suggested Figure for Publication (if any) | |

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| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | 03956.053800.3 |
|---|---|---|
| | Application Number | |
| Title of Invention | NUCLEOSIDE PHOSPHORAMIDATE PRODRUGS | |

## Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

## Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

| Please Select One: | ◉ Customer Number | ○ US Patent Practitioner | ○ Limited Recognition (37 CFR 11.9) |
|---|---|---|---|
| Customer Number | 104538 | | |

## Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

| Prior Application Status | Pending | | Remove |
|---|---|---|---|
| Application Number | Continuity Type | Prior Application Number | Filing Date (YYYY-MM-DD) |
| | Continuation of | 13609614 | 2012-09-11 |

| Prior Application Status | Patented | | | | Remove |
|---|---|---|---|---|---|
| Application Number | Continuity Type | Prior Application Number | Filing Date (YYYY-MM-DD) | Patent Number | Issue Date (YYYY-MM-DD) |
| 13609614 | Continuation of | 13099671 | 2011-05-03 | 8334270 | 2012-12-18 |

| Prior Application Status | Patented | | | | Remove |
|---|---|---|---|---|---|
| Application Number | Continuity Type | Prior Application Number | Filing Date (YYYY-MM-DD) | Patent Number | Issue Date (YYYY-MM-DD) |
| 13099671 | Continuation of | 12053015 | 2008-03-21 | 7964580 | 2011-06-21 |

| Prior Application Status | Expired | | Remove |
|---|---|---|---|
| Application Number | Continuity Type | Prior Application Number | Filing Date (YYYY-MM-DD) |
| 12053015 | non provisional of | 60982309 | 2007-10-24 |

| Prior Application Status | Expired | | Remove |
|---|---|---|---|
| Application Number | Continuity Type | Prior Application Number | Filing Date (YYYY-MM-DD) |
| 12053015 | non provisional of | 60909315 | 2007-03-30 |

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| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | 03956.053800.3 |
|---|---|---|
| | Application Number | |
| Title of Invention | NUCLEOSIDE PHOSPHORAMIDATE PRODRUGS | |

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

## Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(d). When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) [i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(h)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

| Application Number | Country [i] | Filing Date (YYYY-MM-DD) | Access Code [i] (if applicable) |
|---|---|---|---|
| | | | |

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button. Add

## Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.

## Authorization to Permit Access:

☐ Authorization to Permit Access to the Instant Application by the Participating Offices

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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | 03956.053800.3 |
|---|---|---|
| | Application Number | |
| Title of Invention | NUCLEOSIDE PHOSPHORAMIDATE PRODRUGS | |

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

## Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

**Applicant 1** Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

| | | |
|---|---|---|
| (•) Assignee | ( ) Legal Representative under 35 U.S.C. 117 | ( ) Joint Inventor |
| ( ) Person to whom the inventor is obligated to assign. | ( ) Person who shows sufficient proprietary interest | |

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor :

If the Applicant is an Organization check here. [X]

| | | | |
|---|---|---|---|
| Organization Name | Gilead Pharmasset LLC | | |
| **Mailing Address Information:** | | | |
| **Address 1** | c/o Gilead Sciences, Inc. | | |
| Address 2 | 333 Lakeside Drive | | |
| **City** | Foster City | **State/Province** | CA |
| **Country** [i] | US | Postal Code | 94404 |
| Phone Number | | Fax Number | |

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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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|---|---|---|
| | Application Number | |
| Title of Invention | NUCLEOSIDE PHOSPHORAMIDATE PRODRUGS | |

| Email Address | |
|---|---|

Additional Applicant Data may be generated within this form by selecting the Add button. Add

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Providing assignment information in this section does not subsitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

**Assignee 1**

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Remove

If the Assignee is an Organization check here. ☒

| Organization Name | Gilead Pharmasset LLC |
|---|---|

**Mailing Address Information:**

| **Address 1** | c/o Gilead Sciences, Inc. |
|---|---|
| Address 2 | 333 Lakeside Drive |

| **City** | Foster City | **State/Province** | CA |
|---|---|---|---|
| **Country** i | US | Postal Code | 94404 |
| Phone Number | | Fax Number | |
| Email Address | | | |

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## Signature:

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| **Signature** | /Alicia A. Russo/ | | | Date (YYYY-MM-DD) | 2013-08-29 |
|---|---|---|---|---|---|
| First Name | Alicia A. | Last Name | Russo | Registration Number | 46192 |

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| **Application Data Sheet 37 CFR 1.76** | Attorney Docket Number | 03956.053800.3 |
|---|---|---|
| | Application Number | |
| Title of Invention | NUCLEOSIDE PHOSPHORAMIDATE PRODRUGS | |

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

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PGR2023-00046 - Page 0077

| Electronic Patent Application Fee Transmittal | |
|---|---|
| **Application Number:** | |
| **Filing Date:** | |
| **Title of Invention:** | NUCLEOSIDE PHOSPHORAMIDATE PRODRUGS |
| **First Named Inventor/Applicant Name:** | Jinfa Du |
| **Filer:** | Erin Julia Daida Austin/Maria Miglio |
| **Attorney Docket Number:** | 03956.053800.3 |
| Filed as Large Entity | |

**Utility under 35 USC 111(a) Filing Fees**

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Basic Filing:** | | | | |
| Utility application filing | 1011 | 1 | 280 | 280 |
| Utility Search Fee | 1111 | 1 | 600 | 600 |
| Utility Examination Fee | 1311 | 1 | 720 | 720 |
| **Pages:** | | | | |
| **Claims:** | | | | |
| **Miscellaneous-Filing:** | | | | |
| **Petition:** | | | | |
| **Patent-Appeals-and-Interference:** | | | | |

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| Post-Allowance-and-Post-Issuance: | | | | |
| Extension-of-Time: | | | | |
| Miscellaneous: | | | | |
| | | | **Total in USD ($)** | **1600** |

| Electronic Acknowledgement Receipt | |
|---|---|
| **EFS ID:** | 16718995 |
| **Application Number:** | 14013237 |
| **International Application Number:** | |
| **Confirmation Number:** | 7005 |
| **Title of Invention:** | NUCLEOSIDE PHOSPHORAMIDATE PRODRUGS |
| **First Named Inventor/Applicant Name:** | Jinfa Du |
| **Customer Number:** | 104538 |
| **Filer:** | Erin Julia Daida Austin/DAVID NGUY |
| **Filer Authorized By:** | Erin Julia Daida Austin |
| **Attorney Docket Number:** | 03956.053800.3 |
| **Receipt Date:** | 29-AUG-2013 |
| **Filing Date:** | |
| **Time Stamp:** | 12:22:50 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

| | |
|---|---|
| Submitted with Payment | yes |
| Payment Type | Credit Card |
| Payment was successfully received in RAM | $1600 |
| RAM confirmation Number | 16289 |
| Deposit Account | 503939 |
| Authorized User | NGUY, DAVID |

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| **File Listing:** | | | | | |
| **Document Number** | **Document Description** | **File Name** | **File Size(Bytes)/ Message Digest** | **Multi Part /.zip** | **Pages (if appl.)** |
| 1 | Transmittal of New Application | 039560538003-UtilityTransmittal.pdf | 275421<br>907e43a1ad113f417b142b0f0ca16add3c0f97c6d | no | 2 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 2 | | 039560538003-SpecClaimsAbs.pdf | 23232940<br>71a7f69f874da70d62cba619e37ec2fc53ff74b80 | yes | 736 |
| | **Multipart Description/PDF files in .zip description** | | | | |
| | **Document Description** | | **Start** | **End** | |
| | Specification | | 1 | 679 | |
| | Claims | | 680 | 735 | |
| | Abstract | | 736 | 736 | |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 3 | Power of Attorney | 039560538003_POA.pdf | 1098134<br>b727daaa7e1bfa515a07baa86d0f7ada98819724c | no | 3 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 4 | Transmittal Letter | 039560538003_IDSTransmittal.pdf | 85085<br>08b5d1f19e841fdb255c2b72901f250ab1100e1 | no | 2 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 5 | Information Disclosure Statement (IDS) Form (SB08) | 039560538003_PTOSB08a_Part1.pdf | 619943<br>4a66fe9d11bf9cbee911f15da4ef0eeb0251880 | no | 17 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 6 | Information Disclosure Statement (IDS) Form (SB08) | 039560538003_PTOSB08a_Part2.pdf | 618901<br>c92011107de472f886bd48aae62e93ef94716cb81 | no | 17 |
| **Warnings:** | | | | | |

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|---|---|---|---|---|---|
| **Information:** | | | | | |
| 7 | Information Disclosure Statement (IDS) Form (SB08) | 039560538003_PTOSB08a_Part 3.pdf | 619605 | no | 17 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 8 | Information Disclosure Statement (IDS) Form (SB08) | 039560538003_PTOSB08a_Part 4.pdf | 617428 | no | 15 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 9 | Information Disclosure Statement (IDS) Form (SB08) | 039560538003_PTOSB08a_Part 5.pdf | 613330 | no | 5 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 10 | Information Disclosure Statement (IDS) Form (SB08) | 039560538003_PTOSB08a_Part 6.pdf | 613729 | no | 5 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 11 | Information Disclosure Statement (IDS) Form (SB08) | 039560538003_PTOSB08a_Part 7.pdf | 613482 | no | 5 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 12 | Application Data Sheet | 03956053800-3ADS.PDF | 1504451 | no | 8 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 13 | Fee Worksheet (SB06) | fee-info.pdf | 32980 | no | 2 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| | | **Total Files Size (in bytes):** | 30545429 | | |

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# UTILITY PATENT APPLICATION TRANSMITTAL

*(Only for new nonprovisional applications under 37 CFR 1.53(b))*

| | |
|---|---|
| *Attorney Docket No.* | 03956.053800.3 |
| *First Named Inventor* | Jinfa Du |
| *Title* | NUCLEOSIDE PHOSPHORAMIDATE PRODRUGS |
| *Express Mail Label No.* | |

## APPLICATION ELEMENTS

*See MPEP chapter 600 concerning utility patent application contents.*

1. ☐ **Fee Transmittal Form** (PTO/SB/17 or equivalent)
2. ☐ **Applicant asserts small entity status.** See 37 CFR 1.27
3. ☐ **Applicant certifies micro entity status.** See 37 CFR 1.29. Applicant must attach form PTO/SB/15A or B or equivalent.
4. ☑ **Specification** [*Total Pages* 736] Both the claims and abstract must start on a new page. *(See MPEP § 608.01(a) for information on the preferred arrangement)*
5. ☐ **Drawing(s)** (35 U.S.C. 113) [*Total Sheets* ____]
6. **Inventor's Oath or Declaration** [*Total Pages* ____] *(including substitute statements under 37 CFR 1.64 and assignments serving as an oath or declaration under 37 CFR 1.63(e))*
   a. ☐ Newly executed (original or copy)
   b. ☐ A copy from a prior application (37 CFR 1.63(d))
7. ☑ **Application Data Sheet** ** See note below.* See 37 CFR 1.76 (PTO/AIA/14 or equivalent)
8. **CD-ROM or CD-R** in duplicate, large table, or Computer Program (*Appendix*)
   ☐ Landscape Table on CD
9. **Nucleotide and/or Amino Acid Sequence Submission** (*if applicable, items a. – c. are required*)
   a. ☐ Computer Readable Form (CRF)
   b. ☐ Specification Sequence Listing on:
      i. ☐ CD-ROM or CD-R (2 copies); or
      ii. ☐ Paper
   c. ☐ Statements verifying identity of above copies

*ADDRESS TO:* **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450**

## ACCOMPANYING APPLICATION PAPERS

10. ☐ **Assignment Papers** (cover sheet & document(s)) Name of Assignee ____
11. ☐ **37 CFR 3.73(c) Statement** (*when there is an assignee*) ☑ **Power of Attorney**
12. ☐ **English Translation Document** (*if applicable*)
13. ☑ **Information Disclosure Statement** (PTO/SB/08 or PTO-1449)
    ☐ Copies of citations attached
14. ☐ **Preliminary Amendment**
15. ☐ **Return Receipt Postcard** (*MPEP § 503*) (*Should be specifically itemized*)
16. ☐ **Certified Copy of Priority Document(s)** (*if foreign priority is claimed*)
17. ☐ **Nonpublication Request** Under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent.
18. ☐ **Other:** ____

***Note:** (1) Benefit claims under 37 CFR 1.78 and foreign priority claims under 1.55 **must** be included in an Application Data Sheet (ADS).
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☑ The address associated with Customer Number: 104538 **OR** ☐ Correspondence address below

| | | | | | |
|---|---|---|---|---|---|
| Name | | | | | |
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| City | | State | | Zip Code | |
| Country | | Telephone | | Email | |

| | | | |
|---|---|---|---|
| Signature | /Alicia A. Russo/ | Date | 2013-08-29 |
| Name (Print/Type) | Alicia A. Russo | Registration No. (Attorney/Agent) | 46,192 |

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3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

# NUCLEOSIDE PHOSPHORAMIDATE PRODRUGS

## Field of Invention

The present invention pertains to nucleoside phosphoramidates and their use as agents for treating viral diseases. These compounds are inhibitors of RNA-dependent RNA viral replication and are useful as inhibitors of HCV NS5B polymerase, as inhibitors of HCV replication and for treatment of hepatitis C infection in mammals. The invention provides novel chemical compounds, and the use of these compounds alone or in combination with other antiviral agents for treating HCV infection.

## Background

Hepatitis C virus (HCV) infection is a major health problem that leads to chronic liver disease, such as cirrhosis and hepatocellular carcinoma, in a substantial number of infected individuals, estimated to be 2-15% of the world's population. There are an estimated 4.5 million infected people in the United States alone, according to the U.S. Center for Disease Control. According to the World Health Organization, there are more than 200 million infected individuals worldwide, with at least 3 to 4 million people being infected each year. Once infected, about 20% of people clear the virus, but the rest can harbor HCV the rest of their lives. Ten to twenty percent of chronically infected individuals eventually develop liver-destroying cirrhosis or cancer. The viral disease is transmitted parenterally by contaminated blood and blood products, contaminated needles, or sexually and vertically from infected mothers or carrier mothers to their offspring. Current treatments for HCV infection, which are restricted to immunotherapy

with recombinant interferon-α alone or in combination with the nucleoside analog ribavirin, are of limited clinical benefit. Moreover, there is no established vaccine for HCV. Consequently, there is an urgent need for improved therapeutic agents that effectively combat chronic HCV infection.

The HCV virion is an enveloped positive-strand RNA virus with a single oligoribonucleotide genomic sequence of about 9600 bases which encodes a polyprotein of about 3,010 amino acids. The protein products of the HCV gene consist of the structural proteins C, E1, and E2, and the non-structural proteins NS2, NS3, NS4A and NS4B, and NS5A and NS5B. The nonstructural (NS) proteins are believed to provide the catalytic machinery for viral replication. The NS3 protease releases NS5B, the RNA-dependent RNA polymerase from the polyprotein chain. HCV NS5B polymerase is required for the synthesis of a double-stranded RNA from a single-stranded viral RNA that serves as a template in the replication cycle of HCV. Therefore, NS5B polymerase is considered to be an essential component in the HCV replication complex (K. Ishi, et al, *Heptology*, 1999, 29: 1227-1235; V. Lohmann, et al., *Virology*, 1998, 249: 108-118). Inhibition of HCV NS5B polymerase prevents formation of the double-stranded HCV RNA and therefore constitutes an attractive approach to the development of HCV-specific antiviral therapies.

HCV belongs to a much larger family of viruses that share many common features.

*Flaviviridae Viruses*



Gilead Exhibit 2018
PGR2023-00046 - Page 0087

The Flaviviridae family of viruses comprises at least three distinct genera: *pestiviruses*, which cause disease in cattle and pigs; *flavivruses*, which are the primary cause of diseases such as dengue fever and yellow fever; and *hepaciviruses*, whose sole member is HCV. The flavivirus genus includes more than 68 members separated into groups on the basis of serological relatedness (Calisher et al., *J. Gen. Virol*, 1993,70,37-43). Clinical symptoms vary and include fever, encephalitis and hemorrhagic fever (*Fields Virology*, Editors: Fields, B. N., Knipe, D. M., and Howley, P. M., Lippincott-Raven Publishers, Philadelphia, PA, 1996, Chapter 31, 931-959). Flaviviruses of global concern that are associated with human disease include the Dengue Hemorrhagic Fever viruses (DHF), yellow fever virus, shock syndrome and Japanese encephalitis virus (Halstead, S. B., *Rev. Infect. Dis.*, 1984, 6, 251-264; Halstead, S. B., *Science*, 239:476-481, 1988; Monath, T. P., *New Eng. J. Med*, 1988, 319, 64 1-643).

The pestivirus genus includes bovine viral diarrhea virus (BVDV), classical swine fever virus (CSFV, also called hog cholera virus) and border disease virus (BDV) of sheep (Moennig, V. et al. *Adv. Vir. Res.* 1992, 41, 53-98). Pestivirus infections of domesticated livestock (cattle, pigs and sheep) cause significant economic losses worldwide. BVDV causes mucosal disease in cattle and is of significant economic importance to the livestock industry (Meyers, G. and Thiel, H.J., Advances in Virus Research, 1996, 47, 53-118; Moennig V., et al, Adv. Vir. Res. 1992, 41, 53-98). Human pestiviruses have not been as extensively characterized as the animal pestiviruses. However, serological surveys indicate considerable pestivirus exposure in humans.

Pestiviruses and hepaciviruses are closely related virus groups within the Flaviviridae family. Other closely related viruses in this family include the GB virus A,



Gilead Exhibit 2018
PGR2023-00046 - Page 0088

GB virus A-like agents, GB virus-B and GB virus-C (also called hepatitis G virus, HGV). The hepacivirus group (hepatitis C virus; HCV) consists of a number of closely related but genotypically distinguishable viruses that infect humans. There are at least 6 HCV genotypes and more than 50 subtypes. Due to the similarities between pestiviruses and hepaciviruses, combined with the poor ability of hepaciviruses to grow efficiently in cell culture, bovine viral diarrhea virus (BVDV) is often used as a surrogate to study the HCV virus.

The genetic organization of pestiviruses and hepaciviruses is very similar. These positive stranded RNA viruses possess a single large open reading frame (ORF) encoding all the viral proteins necessary for virus replication. These proteins are expressed as a polyprotein that is co- and post-translationally processed by both cellular and virus-encoded proteinases to yield the mature viral proteins. The viral proteins responsible for the replication of the viral genome RNA are located within approximately the carboxy-terminal. Two-thirds of the ORF are termed nonstructural (NS) proteins. The genetic organization and polyprotein processing of the nonstructural protein portion of the ORF for pestiviruses and hepaciviruses is very similar. For both the pestiviruses and hepaciviruses, the mature nonstructural (NS) proteins, in sequential order from the amino-terminus of the nonstructural protein coding region to the carboxy-terminus of the ORF, consist of p7, NS2, NS3, NS4A, NS4B, NS5A, and NS5B.

The NS proteins of pestiviruses and hepaciviruses share sequence domains that are characteristic of specific protein functions. For example, the NS3 proteins of viruses in both groups possess amino acid sequence motifs characteristic of serine proteinases and of helicases (Gorbalenya et al., *Nature,* 1988, 333, 22; Bazan and Fletterick *Virology*



Gilead Exhibit 2018
PGR2023-00046 - Page 0089

, 1989,171,637-639; Gorbalenya et al., *Nucleic Acid Res.*, 1989, 17, 3889-3897). Similarly, the NS5B proteins of pestiviruses and hepaciviruses have the motifs characteristic of RNA-directed RNA polymerases (Koonin, E.V. and Dolja, V.V., *Crir. Rev. Biochem. Molec. Biol.* 1993, 28, 375-430).

The actual roles and functions of the NS proteins of pestiviruses and hepaciviruses in the lifecycle of the viruses are directly analogous. In both cases, the NS3 serine proteinase is responsible for all proteolytic processing of polyprotein precursors downstream of its position in the ORF (Wiskerchen and Collett, *Virology*, 1991, 184, 341-350; Bartenschlager et al., *J. Virol.* 1993, 67, 3835-3844; Eckart et al. *Biochem. Biophys. Res. Comm.* 1993,192, 399-406; Grakoui et al., *J. Virol.* 1993, 67, 2832-2843; Grakoui et al., *Proc. Natl. Acad Sci. USA* 1993, 90, 10583-10587; Hijikata et al., *J. Virol.* 1993, 67, 4665-4675; Tome et al., *J. Virol.*, 1993, 67, 4017-4026). The NS4A protein, in both cases, acts as a cofactor with the NS3 serine protease (Bartenschlager et al., *J. Virol.* 1994, 68, 5045-5055; Failla et al., *J. Virol.* 1994, 68, 3753-3760; Xu et al., *J. Virol.*, 1997, 71:53 12-5322). The NS3 protein of both viruses also functions as a helicase (Kim et al., *Biochem. Biophys. Res. Comm.*, 1995, 215, 160-166; Jin and Peterson, *Arch. Biochem. Biophys.*, 1995, 323, 47-53; Warrener and Collett, *J. Virol.* 1995, 69,1720-1726). Finally, the NS5B proteins of pestiviruses and hepaciviruses have the predicted RNA-directed RNA polymerases activity (Behrens et al., EMBO, 1996, 15, 12-22; Lechmann et al., *J. Virol.*, 1997, 71, 8416-8428; Yuan et al., *Biochem. Biophys. Res. Comm.* 1997, 232, 231-235; Hagedorn, PCT WO 97/12033; Zhong et al, *J. Virol.*, 1998, 72, 9365-9369).



Gilead Exhibit 2018
PGR2023-00046 - Page 0090

Currently, there are limited treatment options for individuals infected with hepatitis C virus. The current approved therapeutic option is the use of immunotherapy with recombinant interferon-α alone or in combination with the nucleoside analog ribavirin. This therapy is limited in its clinical effectiveness and only 50% of treated patients respond to therapy. Therefore, there is significant need for more effective and novel therapies to address the unmet medical need posed by HCV infection.

A number of potential molecular targets for drug development of direct acting antivirals as anti -HCV therapeutics have now been identified including, but not limited to, the NS2-NS3 autoprotease, the N3 protease, the N3 helicase and the NS5B polymerase. The RNA-dependent RNA polymerase is absolutely essential for replication of the single-stranded, positive sense, RNA genome and this enzyme has elicited significant interest among medicinal chemists.

Inhibitors of HCV NS5B as potential therapies for HCV infection have been reviewed: Tan, S.-L., et al., *Nature Rev. Drug Discov.*, 2002, 1, 867-881; Walker, M.P. et al., *Exp. Opin. Investigational Drugs*, 2003, 12, 1269-1280; Ni, Z-J., et al., *Current Opinion in Drug Discovery and Development*, 2004, 7, 446-459; Beaulieu, P. L., et al., *Current Opinion in Investigational Drugs*, 2004, 5, 838-850; Wu, J., et al., *Current Drug Targets-Infectious Disorders*, 2003, 3, 207-219; Griffith, R.C., et al, *Annual Reports in Medicinal Chemistry*, 2004, 39, 223-237; Carrol, S., et al., *Infectious Disorders-Drug Targets*, 2006, 6, 17-29. The potential for the emergence of resistant HCV strains and the need to identify agents with broad genotype coverage supports the need for continuing efforts to identify novel and more effective nucleosides as HCV NS5B inhibitors.



Gilead Exhibit 2018
PGR2023-00046 - Page 0091

Nucleoside inhibitors of NS5B polymerase can act either as a non-natural substrate that results in chain termination or as a competitive inhibitor which competes with nucleotide binding to the polymerase. To function as a chain terminator the nucleoside analog must be taken up by the cell and converted *in vivo* to a triphosphate to compete for the polymerase nucleotide binding site. This conversion to the triphosphate is commonly mediated by cellular kinases which imparts additional structural requirements on a potential nucleoside polymerase inhibitor. Unfortunately, this limits the direct evaluation of nucleosides as inhibitors of HCV replication to cell-based assays capable of *in situ* phosphorylation.

In some cases, the biological activity of a nucleoside is hampered by its poor substrate characteristics for one or more of the kinases needed to convert it to the active triphosphate form. Formation of the monophosphate by a nucleoside kinase is generally viewed as the rate limiting step of the three phosphorylation events. To circumvent the need for the initial phosphorylation step in the metabolism of a nucleoside to the active triphosphate analog, the preparation of stable phosphate prodrugs has been reported. Nucleoside phosphoramidate prodrugs have been shown to be precursors of the active nucleoside triphosphate and to inhibit viral replication when administered to viral infected whole cells (McGuigan, C., et al., *J. Med. Chem.*, 1996, 39, 1748-1753; Valette, G., et al., *J. Med. Chem.*, 1996, 39, 1981-1990; Balzarini, J., et al., *Proc. National Acad Sci USA*, 1996, 93, 7295-7299; Siddiqui, A. Q., et al., *J. Med. Chem.*, 1999, 42, 4122-4128; Eisenberg, E. J., et al., *Nucleosides, Nucleotides and Nucleic Acids*, 2001, 20, 1091-1098; Lee, W.A., et al., *Antimicrobial Agents and Chemotherapy*, 2005, 49, 1898); US 2006/0241064; and WO 2007/095269.

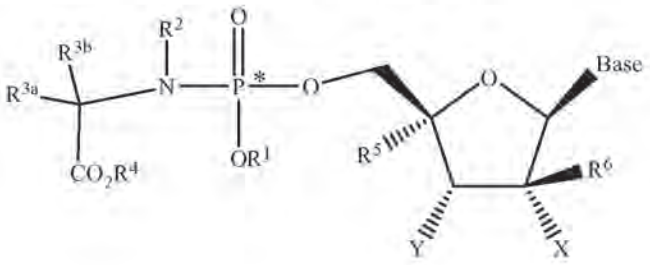


Gilead Exhibit 2018
PGR2023-00046 - Page 0092

Also limiting the utility of nucleosides as viable therapeutic agents is their sometimes poor physicochemical and pharmacokinetic properties. These poor properties can limit the intestinal absorption of an agent and limit uptake into the target tissue or cell. To improve on their properties prodrugs of nucleosides have been employed. It has been demonstrated that preparation of nucleoside phosphoramidates improves the systemic absorption of a nucleoside and furthermore, the phosphoramidate moiety of these "pronucleotides" is masked with neutral lipophilic groups to obtain a suitable partition coefficient to optimize uptake and transport into the cell dramatically enhancing the intracellular concentration of the nucleoside monophosphate analog relative to administering the parent nucleoside alone. Enzyme-mediated hydrolysis of the phosphate ester moiety produces a nucleoside monophosphate wherein the rate limiting initial phosphorylation is unnecessary.

## SUMMARY OF THE INVENTION

The present invention is directed toward novel phosphoramidate prodrugs of nucleoside derivatives for the treatment of viral infections in mammals, which is a compound, its stereoisomers, salts (acid or basic addition salts), hydrates, solvates, or crystalline forms thereof, represented by the following structure:




I

wherein



Gilead Exhibit 2018
PGR2023-00046 - Page 0093

(a) $R^1$ is hydrogen, n-alkyl; branched alkyl; cycloalkyl; or aryl, which includes, but is not limited to, phenyl or naphthyl, where phenyl or naphthyl are optionally substituted with at least one of $C_{1-6}$ alkyl, $C_{2-6}$ alkenyl, $C_{2-6}$ alkynyl, $C_{1-6}$ alkoxy, F, Cl, Br, I, nitro, cyano, $C_{1-6}$ haloalkyl, $-N(R^{1'})_2$, $C_{1-6}$ acylamino, $-NHSO_2C_{1-6}$ alkyl, $-SO_2N(R^{1'})_2$, $COR^{1''}$, and $-SO_2C_{1-6}$ alkyl; ($R^{1'}$ is independently hydrogen or alkyl, which includes, but is not limited to, $C_{1-20}$ alkyl, $C_{1-10}$ alkyl, or $C_{1-6}$ alkyl, $R^{1''}$ is –OR' or $-N(R^{1'})_2$);

(b) $R^2$ is hydrogen, $C_{1-10}$ alkyl, $R^{3a}$ or $R^{3b}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms, $C(O)CR^{3a}R^{3b}NHR^1$, where n is 2 to 4 and $R^1$, $R^{3a}$, and $R^{3b}$;

(c) $R^{3a}$ and $R^{3b}$ are (i) independently selected from hydrogen, $C_{1-10}$ alkyl, cycloalkyl, $-(CH_2)_c(NR^{3'})_2$, $C_{1-6}$ hydroxyalkyl, $-CH_2SH$, $-(CH_2)_2S(O)_dMe$, $-(CH_2)_3NHC(=NH)NH_2$, (1H-indol-3-yl)methyl, (1H-imidazol-4-yl)methyl, $-(CH_2)_eCOR^{3''}$, aryl and aryl $C_{1-3}$ alkyl, said aryl groups optionally substituted with a group selected from hydroxyl, $C_{1-10}$ alkyl, $C_{1-6}$ alkoxy, halogen, nitro and cyano; (ii) $R^{3a}$ and $R^{3b}$ both are $C_{1-6}$ alkyl; (iii) $R^{3a}$ and $R^{3b}$ together are$(CH_2)_f$ so as to form a spiro ring; (iv) $R^{3a}$ is hydrogen and $R^{3b}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms (v) $R^{3b}$ is hydrogen and $R^{3a}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms, where c is 1 to 6, d is 0 to 2, e is 0 to 3, f is 2 to 5, n is 2 to 4, and where $R^{3'}$ is independently hydrogen or $C_{1-6}$ alkyl and $R^{3''}$ is -OR' or $–N(R^{3'})_2$); (vi) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH_2CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl; or (viii) $R^{3a}$ is $CH_3$, $-CH_2CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl and $R^{3b}$ is H, where $R^{3'}$ is independently hydrogen or



Gilead Exhibit 2018
PGR2023-00046 - Page 0094

alkyl, which includes, but is not limited to, $C_{1-20}$ alkyl, $C_{1-10}$ alkyl, or $C_{1-6}$ alkyl, $R^{3"}$ is –OR' or -N($R^{3"}$)$_2$);

(d) $R^4$ is hydrogen, $C_{1-10}$ alkyl, $C_{1-10}$ alkyl optionally substituted with a lower alkyl, alkoxy, di(lower alkyl)-amino, or halogen, $C_{1-10}$ haloalkyl, $C_{3-10}$ cycloalkyl, cycloalkyl alkyl, cycloheteroalkyl, aminoacyl, aryl, such as phenyl, heteroaryl, such as, pyridinyl, substituted aryl, or substituted heteroaryl;

(e) $R^5$ is H, a lower alkyl, CN, vinyl, O-(lower alkyl), hydroxyl lower alkyl, i.e., -$(CH_2)_p$OH, where p is 1 -6, including hydroxyl methyl ($CH_2$OH), $CH_2F$, $N_3$, $CH_2CN$, $CH_2NH_2$, $CH_2NHCH_3$, $CH_2N(CH_3)_2$, alkyne (optionally substituted), or halogen, including F, Cl, Br, or I, with the provisos that when X is OH, base is cytosine and $R^6$ is H, $R^5$ cannot be $N_3$ and when X is OH, $R^6$ is $CH_3$ or $CH_2F$ and B is a purine base, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;

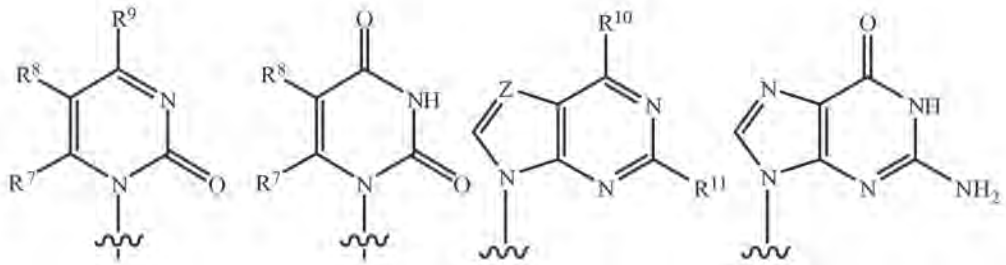
(g) X is H, OH, F, OMe, halogen, $NH_2$, or $N_3$;

(h) Y is OH, H, $C_{1-4}$ alkyl, $C_{2-4}$ alkenyl, $C_{2-4}$ alkynyl, vinyl, $N_3$, CN, Cl, Br, F, I, $NO_2$, OC(O)O($C_{1-4}$ alkyl), OC(O)O($C_{1-4}$ alkyl), OC(O)O($C_{2-4}$ alkynyl), OC(O)O($C_{2-4}$ alkenyl), O$C_{1-10}$ haloalkyl, O(aminoacyl), O($C_{1-10}$ acyl), O($C_{1-4}$ alkyl), O($C_{2-4}$ alkenyl), S($C_{1-4}$ acyl), S($C_{1-4}$ alkyl), S($C_{2-4}$ alkynyl), S($C_{2-4}$ alkenyl), SO($C_{1-4}$ acyl), SO($C_{1-4}$ alkyl), SO($C_{2-4}$ alkynyl), SO($C_{2-4}$ alkenyl), $SO_2$($C_{1-4}$ acyl), $SO_2$($C_{1-4}$ alkyl), $SO_2$($C_{2-4}$ alkynyl), $SO_2$($C_{2-4}$ alkenyl), OS(O)$_2$($C_{1-4}$ acyl), OS(O)$_2$($C_{1-4}$ alkyl), OS(O)$_2$($C_{2-4}$ alkenyl), $NH_2$, NH($C_{1-4}$ alkyl), NH($C_{2-4}$ alkenyl), NH($C_{2-4}$ alkynyl), NH($C_{1-4}$ acyl), N($C_{1-4}$ alkyl)$_2$, N($C_{1-18}$ acyl)$_2$, wherein alkyl, alkynyl, alkenyl and vinyl are optionally substituted by $N_3$, CN, one to three halogen (Cl, Br, F, I), $NO_2$, C(O)O($C_{1-4}$ alkyl), C(O)O($C_{1-4}$ alkyl), C(O)O($C_{2-4}$ alkynyl), C(O)O($C_{2-4}$ alkenyl), O($C_{1-4}$ acyl), O($C_{1-4}$ alkyl), O($C_{2-4}$ alkenyl), S($C_{1-4}$ acyl), S($C_{1-4}$ alkyl), S($C_{2-4}$ alkynyl), S($C_{2-4}$ alkenyl), SO($C_{1-4}$ acyl), SO($C_{1-4}$ alkyl), SO($C_{2-4}$ alkynyl), SO($C_{2-4}$ alkenyl), $SO_2$($C_{1-4}$ acyl), $SO_2$($C_{1-4}$ alkyl), $SO_2$($C_{2-4}$ alkynyl), $SO_2$($C_{2-4}$ alkenyl), OS(O)$_2$($C_{1-4}$ acyl), OS(O)$_2$($C_{1-4}$ alkyl), OS(O)$_2$($C_{2-4}$ alkenyl), $NH_2$, NH($C_{1-4}$ alkyl), NH($C_{2-4}$ alkenyl), NH($C_{2-4}$ alkynyl), NH($C_{1-4}$ acyl), N($C_{1-4}$ alkyl)$_2$, N($C_{1-4}$ acyl)$_2$;



Gilead Exhibit 2018
PGR2023-00046 - Page 0095

the base is a naturally occurring or modified purine or pyrimidine base represented by the following structures:



**a** **b** **c** **d**

wherein

Z is N or $CR^{12}$;

$R^7$, $R^8$,$R^9$, $R^{10}$, and $R^{11}$are independently H, F, Cl, Br, I, OH, OR', SH, SR', $NH_2$, NHR', $NR'_2$, lower alkyl of $C_1$-$C_6$, halogenated (F, Cl, Br, I) lower alkyl of $C_1$-$C_6$, lower alkenyl of $C_2$-$C_6$, halogenated (F, Cl, Br, I) lower alkenyl of $C_2$-$C_6$, lower alkynyl of $C_2$-$C_6$ such as C≡CH, halogenated (F, Cl, Br, I) lower alkynyl of $C_2$-$C_6$, lower alkoxy of $C_1$-$C_6$, halogenated (F, Cl, Br, I) lower alkoxy of $C_1$-$C_6$, $CO_2H$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$,

wherein R' is an optionally substituted alkyl , which includes, but is not limited to, an optionally substituted $C_{1-20}$ alkyl, an optionally substituted $C_{1-10}$ alkyl, an optionally substituted lower alkyl; an optionally substituted cycloalkyl; an optionally substituted alkynyl of $C_2$-$C_6$, an optionally substituted lower alkenyl of $C_2$-$C_6$, or optionally substituted acyl, which includes but is not limited to C(O) alkyl, C(O)($C_{1-20}$ alkyl), C(O)($C_{1-10}$ alkyl), or C(O)(lower alkyl) or alternatively, in the instance of $NR'_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and



Gilead Exhibit 2018
PGR2023-00046 - Page 0096

$R^{12}$ is H, halogen (including F, Cl, Br, I), OH, OR', SH, SR', $NH_2$, NHR', $NR'_2$, $NO_2$ lower alkyl of $C_1$-$C_6$, halogenated (F, Cl, Br, I) lower alkyl of $C_1$-$C_6$, lower alkenyl of $C_2$-$C_6$, halogenated (F, Cl, Br, I) lower alkenyl of $C_2$-$C_6$ , lower alkynyl of $C_2$-$C_6$, halogenated (F, Cl, Br, I) lower alkynyl of $C_2$-$C_6$, lower alkoxy of $C_1$-$C_6$, halogenated (F, Cl, Br, I) lower alkoxy of $C_1$-$C_6$, $CO_2H$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$; with the proviso that when base is represented by the structure c with $R^{11}$ being hydrogen, $R^{12}$ is not a: (i) $-C\equiv C-H$, (ii) $-C=CH_2$, or (iii) $-NO_2$.

## DEFINITIONS

The phrase "a" or "an" entity as used herein refers to one or more of that entity; for example, a compound refers to one or more compounds or at least one compound. As such, the terms "a" (or "an"), "one or more", and "at least one" can be used interchangeably herein.

The phrase "as defined herein above" refers to the first definition provided in the Summary of the Invention.

The terms "optional" or "optionally" as used herein means that a subsequently described event or circumstance may but need not occur, and that the description includes instances where the event or circumstance occurs and instances in which it does not. For example, "optional bond" means that the bond may or may not be present, and that the description includes single, double, or triple bonds.

The term "independently" is used herein to indicate that a variable is applied in any one instance without regard to the presence or absence of a variable having that same or a different definition within the same compound. Thus, in a compound in which R appears twice and is defined as "independently carbon or nitrogen", both R's can be carbon, both R's can be nitrogen, or one R' can be carbon and the other nitrogen.

The term "alkenyl" refers to an unsubstituted hydrocarbon chain radical having from 2 to 10 carbon atoms having one or two olefinic double bonds, preferably one olefinic double bond. The term "$C_{2\text{-}N}$ alkenyl" refers to an alkenyl comprising 2 to N



Gilead Exhibit 2018
PGR2023-00046 - Page 0097

carbon atoms, where N is an integer having the following values: 3, 4, 5, 6, 7, 8, 9, or 10. The term "$C_{2-10}$ alkenyl" refers to an alkenyl comprising 2 to 10 carbon atoms. The term "$C_{2-4}$ alkenyl" refers to an alkenyl comprising 2 to 4 carbon atoms. Examples include, but are not limited to, vinyl, 1-propenyl, 2-propenyl (allyl) or 2-butenyl (crotyl).

The term "halogenated alkenyl" refers to an alkenyl comprising at least one of F, Cl, Br, and I.

The term "alkyl" refers to an unbranched or branched chain, saturated, monovalent hydrocarbon residue containing 1 to 30 carbon atoms. The term "$C_{1-M}$ alkyl" refers to an alkyl comprising 1 to M carbon atoms, where M is an integer having the following values: 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, or 30. The term "$C_{1-4}$ alkyl" refers to an alkyl containing 1 to 4 carbon atoms. The term "lower alkyl" denotes a straight or branched chain hydrocarbon residue comprising 1 to 6 carbon atoms. "$C_{1-20}$ alkyl" as used herein refers to an alkyl comprising 1 to 20 carbon atoms. "$C_{1-10}$ alkyl" as used herein refers to an alkyl comprising 1 to 10 carbons. Examples of alkyl groups include, but are not limited to, lower alkyl groups include methyl, ethyl, propyl, *i*-propyl, *n*-butyl, *i*-butyl, *t*-butyl or pentyl, isopentyl, neopentyl, hexyl, heptyl, and octyl. The term (ar)alkyl or (heteroaryl)alkyl indicate the alkyl group is optionally substituted by an aryl or a heteroaryl group respectively.

The term "cycloalkyl" refers to an unsubstituted or substituted carbocycle, in which the carbocycle contains 3 to 10 carbon atoms; preferably 3 to 8 carbon atoms; more preferably 3 to 6 carbon atoms (i.e., lower cycloalkyls). Examples of cycloalkyl groups include, but are not limited to, cyclopropyl, 2-methyl-cyclopropyl, cyclobutyl, cyclopentyl, and cyclohexyl.

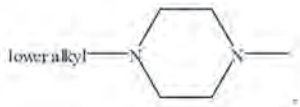
The term "cycloalkyl alkyl" refers to an additionally unsubstituted or substituted alkyl substituted by a lower cycloalkyl. Examples of cycloalkyl alkyls include, but are not limited to, any one of methyl, ethyl, propyl, i-propyl, n-butyl, i-butyl, t-butyl or pentyl, isopentyl, neopentyl, hexyl, heptyl, and octyl that is substituted with cyclopropyl, 2-methyl-cyclopropyl, cyclobutyl, cyclopentyl, and cyclohexyl.



Gilead Exhibit 2018
PGR2023-00046 - Page 0098

The term "cycloheteroalkyl" refers to an unsubstituted or substituted heterocycle, in which the heterocycle contains 2 to 9 carbon atoms; preferably 2 to 7 carbon atoms; more preferably 2 to 5 carbon atoms. Examples of cycloheteroalkyls include, but are not limited to, aziridin-2-yl, *N*-$C_{1-3}$-alkyl-aziridin-2-yl, azetidinyl, *N*-$C_{1-3}$-alkyl-azetidin-m'-yl, pyrrolidin-m'-yl, *N*-$C_{1-3}$-alkyl-pyrrolidin-m'-yl, piperidin-m'-yl, and *N*-$C_{1-3}$-alkyl-piperidin-m'-yl, where m' is 2, 3, or 4 depending on the cycloheteroalkyl. Specific examples of N-$C_{1-3}$-alkyl-cycloheteroalkyls include, but are not limited to, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-2-yl, N-methyl-piperidin-3-yl, and N-methyl-piperidin-4-yl. In the instance of $R^4$, the point of attachment between the cycloheteroalkyl ring carbon and the oxygen occurs at any one of m'

The term "heterocycle" refers to an unsubstituted or substituted heterocycle containing carbon, hydrogen, and at least one of N, O, and S, where the C and N can be trivalent or tetravalent, i.e., $sp^2$- or $sp^3$-hybridized. Examples of heterocycles include, but are not limited to, aziridine, azetidine, pyrrolidine, piperidine, imidazole, oxazole, piperazine, etc. In the instance of piperazine, as related to $R^{10}$ for $NR'_2$, the corresponding opposite nitrogen atom of the piperazinyl is substituted by a lower alkyl represented by the following structure:




Preferably, the opposite nitrogen of the piperazinyl is substituted by a methyl group.

The term "halogenated alkyl" (or "haloalkyl") refers to an unbranched or branched chain alkyl comprising at least one of F, Cl, Br, and I. The term "$C_{1-M}$ haloalkyl" refers to an alkyl comprising 1 to M carbon atoms that comprises at least one of F, Cl, Br, and I, where M is an integer having the following values: 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, or 30. "$C_{1-3}$ haloalkyl" refers to a haloalkyl comprising 1 to 3 carbons and at least one of F, Cl, Br, and I. The term "halogenated lower alkyl" (or "lower haloalkyl") refers to a haloalkyl comprising 1 to 6



Gilead Exhibit 2018
PGR2023-00046 - Page 0099

carbon atoms and at least one of F, Cl, Br, and I. Examples include, but are not limited to, fluoromethyl, chloromethyl, bromomethyl, iodomethyl, difluoromethyl, dichloromethyl, dibromomethyl, diiodomethyl, trifluoromethyl, trichloromethyl, tribromomethyl, triiodomethyl, 1-fluoroethyl, 1-chloroethyl, 1-bromoethyl, 1-iodoethyl, 2-fluoroethyl, 2-chloroethyl, 2-bromoethyl, 2-iodoethyl, 2,2-difluoroethyl, 2,2-dichloroethyl, 2,2-dibromomethyl, 2-2-diiodomethyl, 3-fluoropropyl, 3-chloropropyl, 3-bromopropyl, 2,2,2-trifluoroethyl or 1,1,2,2,2-pentafluoroethyl.

The term "alkynyl" refers to an unbranched or branched hydrocarbon chain radical having from 2 to 10 carbon atoms, preferably 2 to 5 carbon atoms, and having one triple bond. The term "$C_{2\text{-}N}$ alkynyl" refers to an alkynyl comprising 2 to N carbon atoms, where N is an integer having the following values: 3, 4, 5, 6, 7, 8, 9, or 10. The term "C $C_{2\text{-}4}$ alkynyl" refers to an alkynyl comprising 2 to 4 carbon atoms. The term "$C_{2\text{-}10}$ alkynyl" refers to an alkynyl comprising 2 to 10 carbons. Examples include, but are limited to, ethynyl, 1-propynyl, 2-propynyl, 1-butynyl, 2-butynyl or 3-butynyl.

The term "halogenated alkynyl" refers to an unbranched or branched hydrocarbon chain radical having from 2 to 10 carbon atoms, preferably 2 to 5 carbon atoms, and having one triple bond and at least one of F, Cl, Br, and I.

The term "cycloalkyl" refers to a saturated carbocyclic ring comprising 3 to 8 carbon atoms, i.e. cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cycloheptyl or cyclooctyl. The term "$C_{3\text{-}7}$ cycloalkyl" as used herein refers to a cycloalkyl comprising 3 to 7 carbons in the carbocyclic ring.

The term "alkoxy" refers to an -O-alkyl group or an –O-cycloalkyl group, wherein alkyl and cycloalkyl are as defined above. Examples of –O-alkyl groups include, but are not limited to, methoxy, ethoxy, *n*-propyloxy, *i*-propyloxy, *n*-butyloxy, *i*-butyloxy, *t*-butyloxy. "Lower alkoxy" as used herein denotes an alkoxy group with a "lower alkyl" group as previously defined. "$C_{1\text{-}10}$ alkoxy" refers to an-O-alkyl wherein alkyl is $C_{1\text{-}10}$. Examples of –O-cycloalkyl groups include, but are not limited to, -O-*c*-propyl, -O-*c*-butyl, -O-*c*-pentyl, and –O-*c*-hexyl.



Gilead Exhibit 2018
PGR2023-00046 - Page 00100

The term "halogenated alkoxy" refers to an –O-alkyl group in which the alkyl group comprises at least one of F, Cl, Br, and I.

The term "halogenated lower alkoxy" refers to an –O-(lower alkyl) group in which the lower alkyl group comprises at least one of F, Cl, Br, and I.

The term "amino acid" includes naturally occurring and synthetic α, β γ or δ amino acids, and includes but is not limited to, amino acids found in proteins, i.e. glycine, alanine, valine, leucine, isoleucine, methionine, phenylalanine, tryptophan, proline, serine, threonine, cysteine, tyrosine, asparagine, glutamine, aspartate, glutamate, lysine, arginine and histidine. In a preferred embodiment, the amino acid is in the L-configuration. Alternatively, the amino acid can be a derivative of alanyl, valinyl, leucinyl, isoleucinyl, prolinyl, phenylalaninyl, tryptophanyl, methioninyl, glycinyl, serinyl, threoninyl, cysteinyl, tyrosinyl, asparaginyl, glutaminyl, aspartoyl, glutaroyl, lysinyl, argininyl, histidinyl, β-alanyl, β-valinyl, β-leucinyl, β-isoleucinyl, β-prolinyl, β-phenylalaninyl, β-tryptophanyl, β-methioninyl, β-glycinyl, β-serinyl, β-threoninyl, β-cysteinyl, β-tyrosinyl, β-asparaginyl, β-glutaminyl, β-aspartoyl, β-glutaroyl, β-lysinyl, β-argininyl or β-histidinyl. When the term amino acid is used, it is considered to be a specific and independent disclosure of each of the esters of α, β γ or δ glycine, alanine, valine, leucine, isoleucine, methionine, phenylalanine, tryptophan, proline, serine, threonine, cysteine, tyrosine, asparagine, glutamine, aspartate, glutamate, lysine, arginine and histidine in the D and L-configurations.

The term "aminoacyl" includes N,N-unsubstituted, N,N-monosubstituted, and N,N-disubstituted derivatives of naturally occurring and synthetic α, β γ or δ amino acyls, where the amino acyls are derived from amino acids. The amino-nitrogen can be substituted or unsubstituted. When the amino-nitrogen is substituted, the nitrogen is either mono- or di-substituted, where the substituent bound to the amino-nitrogen is a lower alkyl or an alkaryl. In the instance of its use for Y, the expression "O(aminoacyl)" is used. It is understood that the C3' carbon of the ribose is bound to the oxygen "O", which is then bound to the carbonyl carbon of the aminoacyl.



Gilead Exhibit 2018
PGR2023-00046 - Page 00101

The terms "alkylamino" or "arylamino" refer to an amino group that has one or two alkyl or aryl substituents, respectively.

The term "protected," as used herein and unless otherwise defined, refers to a group that is added to an oxygen, nitrogen, or phosphorus atom to prevent its further reaction or for other purposes. A wide variety of oxygen and nitrogen protecting groups are known to those skilled in the art of organic synthesis. Non-limiting examples include: C(O)-alkyl, C(O)Ph, C(O)aryl, $CH_3$, $CH_2$-alkyl, $CH_2$-alkenyl, $CH_2Ph$, $CH_2$-aryl, $CH_2O$-alkyl, $CH_2O$-aryl, $SO_2$-alkyl, $SO_2$-aryl, *tert*-butyldimethylsilyl, *tert*-butyldiphenylsilyl, and 1,3-(1,1,3,3-tetraisopropyldisiloxanylidene).

The term "aryl," as used herein, and unless otherwise specified, refers to substituted or unsubstituted phenyl (Ph), biphenyl, or naphthyl, preferably the term aryl refers to substituted or unsubstituted phenyl. The aryl group can be substituted with one or more moieties selected from among hydroxyl, F, Cl, Br, I, amino, alkylamino, arylamino, alkoxy, aryloxy, nitro, cyano, sulfonic acid, sulfate, phosphonic acid, phosphate, and phosphonate, either unprotected, or protected as necessary, as known to those skilled in the art, for example, as taught in T.W. Greene and P.G. M. Wuts, "Protective Groups in Organic Synthesis," 3rd ed., John Wiley & Sons, 1999.

The terms "alkaryl" or "alkylaryl" refer to an alkyl group with an aryl substituent, such as benzyl. The terms "aralkyl" or "arylalkyl" refer to an aryl group with an alkyl substituent.

The term "di(lower alkyl)amino-lower alkyl" refers to a lower alkyl substituted by an amino group that is itself substituted by two lower alkyl groups. Examples include, but are not limited to, $(CH_3)_2NCH_2$, $(CH_3)_2NCH_2CH_2$, $(CH_3)_2NCH_2CH_2CH_2$, etc. The examples above show lower alkyls substituted at the terminus carbon atom with an N,N-dimethyl-amino substituent. These are intended as examples only and are not intended to limit the meaning of the term "di(lower alkyl)amino-lower alkyl" so as to require the same. It is contemplated that the lower alkyl chain can be substituted with an N,N-di(lower alkyl)-amino at any point along the chain, e.g., $CH_3CH$(N-(lower alkyl)$_2$)$CH_2CH_2$.



Gilead Exhibit 2018
PGR2023-00046 - Page 00102

The term "halo," as used herein, includes chloro, bromo, iodo and fluoro.

The term "acyl" refers to a substituent containing a carbonyl moiety and a non-carbonyl moiety. The carbonyl moiety contains a double-bond between the carbonyl carbon and a heteroatom, where the heteroatom is selected from among O, N and S. When the heteroatom is N, the N is substituted by a lower alkyl. The non-carbonyl moiety is selected from straight, branched, and cyclic alkyl, which includes, but is not limited to, a straight, branched, or cyclic $C_{1-20}$ alkyl, $C_{1-10}$ alkyl, or lower alkyl; alkoxyalkyl, including methoxymethyl; aralkyl, including benzyl; aryloxyalkyl, such as phenoxymethyl; or aryl, including phenyl optionally substituted with halogen (F, Cl, Br, I), hydroxyl, $C_1$ to $C_4$ alkyl, or $C_1$ to $C_4$ alkoxy, sulfonate esters, such as alkyl or aralkyl sulphonyl, including methanesulfonyl, the mono, di or triphosphate ester, trityl or monomethoxytrityl, substituted benzyl, trialkylsilyl (e.g. dimethyl-t-butylsilyl) or diphenylmethylsilyl. When at least one aryl group is present in the non-carbonyl moiety, it is preferred that the aryl group comprises a phenyl group.

The term "lower acyl" refers to an acyl group in which the non-carbonyl moiety is lower alkyl.

The term "purine" or "pyrimidine" base includes, but is not limited to, adenine, $N^6$-alkylpurines, $N^6$-acylpurines (wherein acyl is C(O)(alkyl, aryl, alkylaryl, or arylalkyl), $N^6$-benzylpurine, $N^6$-halopurine, $N^6$-vinylpurine, $N^6$-acetylenic purine, $N^6$-acyl purine, $N^6$-hydroxyalkyl purine, $N^6$-allcylaminopurine, $N^6$-thioallcyl purine, $N^2$-alkylpurines, $N^2$-alkyl-6-thiopurines, thymine, cytosine, 5-fluorocytosine, 5-methylcytosine, 6-azapyrimidine, including 6-azacytosine, 2- and/or 4-mercaptopyrmidine, uracil, 5-halouracil, including 5-fluorouracil, $C^5$-alkylpyrimidines, $C^5$-benzylpyrimidines, $C^5$-halopyrimidines, $C^5$-vinylpyrimidine, $C^5$-acetylenic pyrimidine, $C^5$-acyl pyrimidine, $C^5$-hydroxyalkyl purine, $C^5$-amidopyrimidine, $C^5$-cyanopyrimidine, ,$C^5$-iodopyrimidine, $C^6$-lodo-pyrimidine, $C^5$-Br-vinyl pyrimidine, $C^6$-Br-vinyl pyrimidine, $C^5$-nitropyrimidine, $C^5$-amino-pyrimidine, $N^2$-alkylpurines, $N^2$-alkyl-6-thiopurines, 5-azacytidinyl, 5-azauracilyl, triazolopyridinyl, imidazolopyridinyl, pyrrolopyrimidinyl, and pyrazolopyrimidinyl. Purine bases include, but are not limited to, guanine, adenine,



Gilead Exhibit 2018
PGR2023-00046 - Page 00103

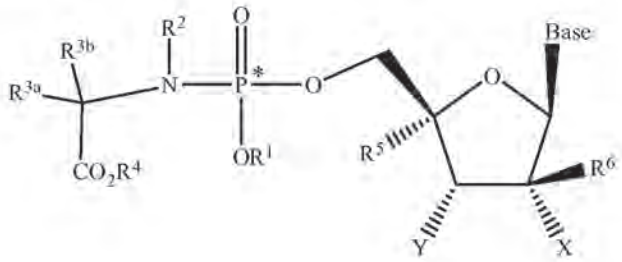
hypoxanthine, 2,6-diaminopurine, and 6-chloropurine. Functional oxygen and nitrogen groups on the base can be protected as necessary or desired. Suitable protecting groups are well known to those skilled in the art, and include trimethylsilyl, dimethylhexylsilyl, *t*-butyldimethylsilyl, and *t*-butyldiphenylsilyl, trityl, alkyl groups, and acyl groups such as acetyl and propionyl, methanesulfonyl, and p-toluenesulfonyl.

The term "tautomerism" and "tautomers" have their accepted plain meanings.

The term "P*" means that the phosphorous atom is chiral and that it has a corresponding Cahn-Ingold-Prelog designation of "R" or "S" which have their accepted plain meanings. It is contemplated that compounds of the formula I are racemic because the chirality at phosphorous. Applicants contemplate use of the racemate and/or the resolved enantiomers. In some instances, an asterisk does not appear next to the phosphoroamidate phosphorous atom. In these instances, it is understood that the phosphorous atom is chiral and that one of ordinary skill understands this to be so unless the substituents bound to the phosphorous exclude the possibility of chirality at phosphorous, such as in $P(O)Cl_3$.

## DETAILED DESCRIPTION OF THE INVENTION

An aspect of the invention is directed to a compound, its salts, hydrates, solvates, crystalline forms, and the like represented by formula I:




wherein

(a) $R^1$ is hydrogen, n-alkyl; branched alkyl; cycloalkyl; or aryl, which includes, but is not limited to, phenyl or naphthyl, where phenyl or naphthyl are



Gilead Exhibit 2018
PGR2023-00046 - Page 00104

optionally substituted with at least one of $C_{1-6}$ alkyl, $C_{2-6}$ alkenyl, $C_{2-6}$ alkynyl, $C_{1-6}$ alkoxy, F, Cl, Br, I, nitro, cyano, $C_{1-6}$ haloalkyl, $-N(R^{1'})_2$, $C_{1-6}$ acylamino, $-NHSO_2C_{1-6}$ alkyl, $-SO_2N(R^{1'})_2$, $COR^{1''}$, and $-SO_2C_{1-6}$ alkyl; ($R^{1'}$ is independently hydrogen or alkyl, which includes, but is not limited to, $C_{1-20}$ alkyl, $C_{1-10}$ alkyl, or $C_{1-6}$ alkyl, $R^{1''}$ is –OR' or $-N(R^{1'})_2$);

(b) $R^2$ is hydrogen, $C_{1-10}$ alkyl, $R^{3a}$ or $R^{3b}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms, $C(O)CR^{3a}R^{3b}NHR^1$, where n is 2 to 4 and $R^1$, $R^{3a}$, and $R^{3b}$;

(c) $R^{3a}$ and $R^{3b}$ are (i) independently selected from hydrogen, $C_{1-10}$ alkyl, cycloalkyl, $-(CH_2)_c(NR^{3'})_2$, $C_{1-6}$ hydroxyalkyl, $-CH_2SH$, $-(CH_2)_2S(O)_dMe$, $-(CH_2)_3NHC(=NH)NH_2$, (1H-indol-3-yl)methyl, (1H-imidazol-4-yl)methyl, $-(CH_2)_eCOR^{3''}$, aryl and aryl $C_{1-3}$ alkyl, said aryl groups optionally substituted with a group selected from hydroxyl, $C_{1-10}$ alkyl, $C_{1-6}$ alkoxy, halogen, nitro and cyano; (ii) $R^{3a}$ and $R^{3b}$ both are $C_{1-6}$ alkyl; (iii) $R^{3a}$ and $R^{3b}$ together are$(CH_2)_f$ so as to form a spiro ring; (iv) $R^{3a}$ is hydrogen and $R^{3b}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms (v) $R^{3b}$ is hydrogen and $R^{3a}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms, where c is 1 to 6, d is 0 to 2, e is 0 to 3, f is 2 to 5, n is 2 to 4, and where $R^{3'}$ is independently hydrogen or $C_{1-6}$ alkyl and $R^{3''}$ is -OR' or $–N(R^{3'})_2$); (vi) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH_2CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl; or (viii) $R^{3a}$ is $CH_3$, $-CH_2CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl and $R^{3b}$ is H, where $R^{3'}$ is independently hydrogen or alkyl, which includes, but is not limited to, $C_{1-20}$ alkyl, $C_{1-10}$ alkyl, or $C_{1-6}$ alkyl, $R^{3''}$ is –OR' or $-N(R^{3'})_2$);



Gilead Exhibit 2018
PGR2023-00046 - Page 00105

(d) $R^4$ is hydrogen, $C_{1-10}$ alkyl, $C_{1-10}$ alkyl optionally substituted with a lower alkyl, alkoxy, di(lower alkyl)-amino, or halogen, $C_{1-10}$ haloalkyl, $C_{3-10}$ cycloalkyl, cycloalkyl alkyl, cycloheteroalkyl, aminoacyl, aryl, such as phenyl, heteroaryl, such as, pyridinyl, substituted aryl, or substituted heteroaryl;

(e) $R^5$ is H, a lower alkyl, CN, vinyl, O-(lower alkyl), hydroxyl lower alkyl, i.e., $-(CH_2)_pOH$, where p is 1 -6, including hydroxyl methyl ($CH_2OH$), $CH_2F$, $N_3$, $CH_2CN$, $CH_2NH_2$, $CH_2NHCH_3$, $CH_2N(CH_3)_2$, alkyne (optionally substituted), or halogen, including F, Cl, Br, or I, with the provisos that when X is OH, base is cytosine and $R^6$ is H, $R^5$ cannot be $N_3$ and when X is OH, $R^6$ is $CH_3$ or $CH_2F$ and B is a purine base, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;

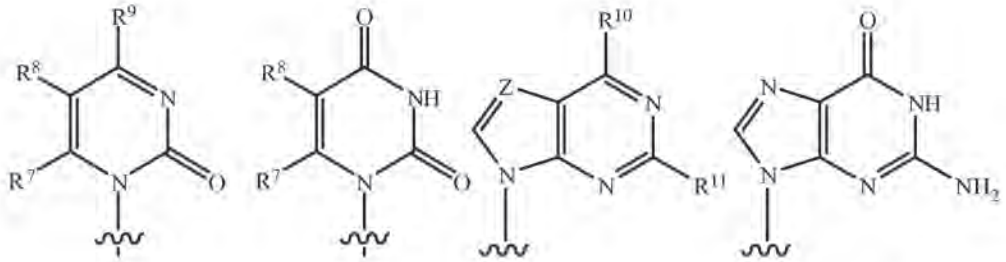
(g) X is H, OH, F, OMe, halogen, $NH_2$, or $N_3$;

(h) Y is OH, H, $C_{1-4}$ alkyl, $C_{2-4}$ alkenyl, $C_{2-4}$ alkynyl, vinyl, $N_3$, CN, Cl, Br, F, I, $NO_2$, $OC(O)O(C_{1-4}$ alkyl), $OC(O)O(C_{1-4}$ alkyl), $OC(O)O(C_{2-4}$ alkynyl), $OC(O)O(C_{2-4}$ alkenyl), $OC_{1-10}$ haloalkyl, O(aminoacyl), $O(C_{1-10}$ acyl), $O(C_{1-4}$ alkyl), $O(C_{2-4}$ alkenyl), $S(C_{1-4}$ acyl), $S(C_{1-4}$ alkyl), $S(C_{2-4}$ alkynyl), $S(C_{2-4}$ alkenyl), $SO(C_{1-4}$ acyl), $SO(C_{1-4}$ alkyl), $SO(C_{2-4}$ alkynyl), $SO(C_{2-4}$ alkenyl), $SO_2(C_{1-4}$ acyl), $SO_2(C_{1-4}$ alkyl), $SO_2(C_{2-4}$ alkynyl), $SO_2(C_{2-4}$ alkenyl), $OS(O)_2(C_{1-4}$ acyl), $OS(O)_2(C_{1-4}$ alkyl), $OS(O)_2(C_{2-4}$ alkenyl), $NH_2$, $NH(C_{1-4}$ alkyl), $NH(C_{2-4}$ alkenyl), $NH(C_{2-4}$ alkynyl), $NH(C_{1-4}$ acyl), $N(C_{1-4}$ alkyl)$_2$, $N(C_{1-18}$ acyl)$_2$, wherein alkyl, alkynyl, alkenyl and vinyl are optionally substituted by $N_3$, CN, one to three halogen (Cl, Br, F, I), $NO_2$, $C(O)O(C_{1-4}$ alkyl), $C(O)O(C_{1-4}$ alkyl), $C(O)O(C_{2-4}$ alkynyl), $C(O)O(C_{2-4}$ alkenyl), $O(C_{1-4}$ acyl), $O(C_{1-4}$ alkyl), $O(C_{2-4}$ alkenyl), $S(C_{1-4}$ acyl), $S(C_{1-4}$ alkyl), $S(C_{2-4}$ alkynyl), $S(C_{2-4}$ alkenyl), $SO(C_{1-4}$ acyl), $SO(C_{1-4}$ alkyl), $SO(C_{2-4}$ alkynyl), $SO(C_{2-4}$ alkenyl), $SO_2(C_{1-4}$ acyl), $SO_2(C_{1-4}$ alkyl), $SO_2(C_{2-4}$ alkynyl), $SO_2(C_{2-4}$ alkenyl), $OS(O)_2(C_{1-4}$ acyl), $OS(O)_2(C_{1-4}$ alkyl), $OS(O)_2(C_{2-4}$ alkenyl), $NH_2$, $NH(C_{1-4}$ alkyl), $NH(C_{2-4}$ alkenyl), $NH(C_{2-4}$ alkynyl), $NH(C_{1-4}$ acyl), $N(C_{1-4}$ alkyl)$_2$, $N(C_{1-4}$ acyl)$_2$;

the base is a naturally occurring or modified purine or pyrimidine base represented by the following structures:



Gilead Exhibit 2018
PGR2023-00046 - Page 00106



a b c d

wherein

Z is N or $CR^{12}$;

$R^7$, $R^8$,$R^9$, $R^{10}$, and $R^{11}$are independently H, F, Cl, Br, I, OH, OR', SH, SR', $NH_2$, NHR', $NR'_2$, lower alkyl of $C_1$-$C_6$, halogenated (F, Cl, Br, I) lower alkyl of $C_1$-$C_6$, lower alkenyl of $C_2$-$C_6$, halogenated (F, Cl, Br, I) lower alkenyl of $C_2$-$C_6$, lower alkynyl of $C_2$-$C_6$ such as C≡CH, halogenated (F, Cl, Br, I) lower alkynyl of $C_2$-$C_6$, lower alkoxy of $C_1$-$C_6$, halogenated (F, Cl, Br, I) lower alkoxy of $C_1$-$C_6$, $CO_2H$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$,

wherein R' is an optionally substituted alkyl , which includes, but is not limited to, an optionally substituted $C_{1-20}$ alkyl, an optionally substituted $C_{1-10}$ alkyl, an optionally substituted lower alkyl; an optionally substituted cycloalkyl; an optionally substituted alkynyl of $C_2$-$C_6$, an optionally substituted lower alkenyl of $C_2$-$C_6$, or optionally substituted acyl, which includes but is not limited to C(O) alkyl, C(O)($C_{1-20}$ alkyl), C(O)($C_{1-10}$ alkyl), or C(O)(lower alkyl) or alternatively, in the instance of $NR'_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

$R^{12}$ is H, halogen (including F, Cl, Br, I), OH, OR', SH, SR', $NH_2$, NHR', $NR'_2$, $NO_2$ lower alkyl of $C_1$-$C_6$, halogenated (F, Cl, Br, I) lower alkyl of $C_1$-$C_6$, lower alkenyl of $C_2$-$C_6$, halogenated (F, Cl, Br, I) lower alkenyl of $C_2$-$C_6$ , lower alkynyl of $C_2$-$C_6$,

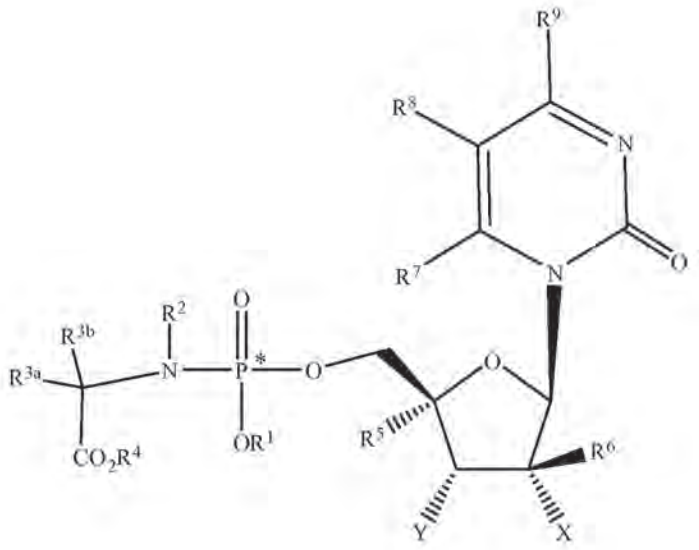


Gilead Exhibit 2018
PGR2023-00046 - Page 00107

halogenated (F, Cl, Br, I) lower alkynyl of $C_2$-$C_6$, lower alkoxy of $C_1$-$C_6$, halogenated (F, Cl, Br, I) lower alkoxy of $C_1$-$C_6$, $CO_2H$, $CO_2R'$, $CONH_2$, $CONHR'$, $CONR'_2$, $CH{=}CHCO_2H$, or $CH{=}CHCO_2R'$; with the proviso that when base is represented by the structure c with $R^{11}$ being hydrogen, $R^{12}$ is not a: (i) $-C{\equiv}C-H$, (ii) $-C{=}CH_2$, or (iii) $-NO_2$.

As can be appreciated from the structure represented by formula **I** above, there are myriad ways to express the several embodiments and aspects of each embodiment of the present invention. As seen below, the inventors have disclosed certain embodiments directed to the compound of formula **I**, each having several aspects, based on the identity of the modified purine or pyrimidine base. This is not intended to be an explicit or implicit admission that the three embodiments are independent or distinct nor should it be interpreted as such. Rather, it is intended to convey information so that the full breadth of the present invention can be understood. Furthermore, the following embodiments, and aspects thereof, are not meant to be limiting on the full breadth of the invention as recited by the structure of formula **I**.

A first embodiment of the invention is directed to a compound represented by formula **I-1**:



**I-1**



Gilead Exhibit 2018
PGR2023-00046 - Page 00108

wherein

(a) $R^1$ is hydrogen, n-alkyl; branched alkyl; cycloalkyl; or aryl, which includes, but is not limited to, phenyl or naphthyl, where phenyl or naphthyl are optionally substituted with at least one of $C_{1-6}$ alkyl, $C_{2-6}$ alkenyl, $C_{2-6}$ alkynyl, $C_{1-6}$ alkoxy, F, Cl, Br, I, nitro, cyano, $C_{1-6}$ haloalkyl, $-N(R^{1'})_2$, $C_{1-6}$ acylamino, $-NHSO_2C_{1-6}$ alkyl, $-SO_2N(R^{1'})_2$, $COR^{1''}$, and $-SO_2C_{1-6}$ alkyl; ($R^{1'}$ is independently hydrogen or alkyl, which includes, but is not limited to, $C_{1-20}$ alkyl, $C_{1-10}$ alkyl, or $C_{1-6}$ alkyl, $R^{1''}$ is –OR' or $-N(R^{1'})_2$);

(b) $R^2$ is hydrogen, $C_{1-10}$ alkyl, $R^{3a}$ or $R^{3b}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms, $C(O)CR^{3a}R^{3b}NHR^1$, where n is 2 to 4 and $R^1$, $R^{3a}$, and $R^{3b}$;

(c) $R^{3a}$ and $R^{3b}$ are (i) independently selected from hydrogen, $C_{1-10}$ alkyl, cycloalkyl, $-(CH_2)_c(NR^{3'})_2$, $C_{1-6}$ hydroxyalkyl, $-CH_2SH$, $-(CH_2)_2S(O)_dMe$, $-(CH_2)_3NHC(=NH)NH_2$, (1H-indol-3-yl)methyl, (1H-imidazol-4-yl)methyl, $-(CH_2)_eCOR^{3''}$, aryl and aryl $C_{1-3}$ alkyl, said aryl groups optionally substituted with a group selected from hydroxyl, $C_{1-10}$ alkyl, $C_{1-6}$ alkoxy, halogen, nitro and cyano; (ii) $R^{3a}$ and $R^{3b}$ both are $C_{1-6}$ alkyl; (iii) $R^{3a}$ and $R^{3b}$ together are$(CH_2)_f$ so as to form a spiro ring; (iv) $R^{3a}$ is hydrogen and $R^{3b}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms (v) $R^{3b}$ is hydrogen and $R^{3a}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms, where c is 1 to 6, d is 0 to 2, e is 0 to 3, f is 2 to 5, n is 2 to 4, and where $R^{3'}$ is independently hydrogen or $C_{1-6}$ alkyl and $R^{3''}$ is -OR' or $–N(R^{3'})_2$); (vi) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH_2CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl; or (viii) $R^{3a}$ is $CH_3$, $-CH_2CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-



Gilead Exhibit 2018
PGR2023-00046 - Page 00109

Ph), $CH_2SH$, or lower cycloalkyl and $R^{3b}$ is H, where $R^{3'}$ is independently hydrogen or alkyl, which includes, but is not limited to, $C_{1-20}$ alkyl, $C_{1-10}$ alkyl, or $C_{1-6}$ alkyl, $R^{3''}$ is –OR' or -$N(R^{3'})_2$);

(d) $R^4$ is hydrogen, $C_{1-10}$ alkyl, $C_{1-10}$ alkyl optionally substituted with a lower alkyl, alkoxy, di(lower alkyl)-amino, or halogen, $C_{1-10}$ haloalkyl, $C_{3-10}$ cycloalkyl, cycloalkyl alkyl, cycloheteroalkyl, aminoacyl, di(lower alkyl)-amino, aryl, such as phenyl, heteroaryl, such as, pyridinyl, substituted aryl, or substituted heteroaryl;

(e) $R^5$ is H, a lower alkyl, CN, vinyl, O-(lower alkyl), hydroxyl lower alkyl, i.e., -$(CH_2)_pOH$, where p is 1 -6, including hydroxyl methyl ($CH_2OH$), $CH_2F$, $N_3$, $CH_2CN$, $CH_2NH_2$, $CH_2NHCH_3$, $CH_2N(CH_3)_2$, alkyne (optionally substituted), or halogen, including F, Cl, Br, or I, with the provisos that when X is OH, base is cytosine and $R^6$ is H, $R^5$ cannot be $N_3$ and when X is OH, $R^6$ is $CH_3$ or $CH_2F$ and B is a purine base, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;

(g) X is H, OH, F, OMe, Cl, Br, I, $NH_2$, or $N_3$;

(h) Y is OH, H, $C_{1-4}$ alkyl, $C_{2-4}$ alkenyl, $C_{2-4}$ alkynyl, vinyl, $N_3$, CN, Cl, Br, F, I, $NO_2$, $OC(O)O(C_{1-4}$ alkyl), $OC(O)O(C_{1-4}$ alkyl), $OC(O)O(C_{2-4}$ alkynyl), $OC(O)O(C_{2-4}$ alkenyl), $OC_{1-10}$ haloalkyl, O(aminoacyl), $O(C_{1-10}$ acyl), $O(C_{1-4}$ alkyl), $O(C_{2-4}$ alkenyl), $S(C_{1-4}$ acyl), $S(C_{1-4}$ alkyl), $S(C_{2-4}$ alkynyl), $S(C_{2-4}$ alkenyl), $SO(C_{1-4}$ acyl), $SO(C_{1-4}$ alkyl), $SO(C_{2-4}$ alkynyl), $SO(C_{2-4}$ alkenyl), $SO_2(C_{1-4}$ acyl), $SO_2(C_{1-4}$ alkyl), $SO_2(C_{2-4}$ alkynyl), $SO_2(C_{2-4}$ alkenyl), $OS(O)_2(C_{1-4}$ acyl), $OS(O)_2(C_{1-4}$ alkyl), $OS(O)_2(C_{2-4}$ alkenyl), $NH_2$, $NH(C_{1-4}$ alkyl), $NH(C_{2-4}$ alkenyl), $NH(C_{2-4}$ alkynyl), $NH(C_{1-4}$ acyl), $N(C_{1-4}$ alkyl)$_2$, $N(C_{1-18}$ acyl)$_2$, wherein alkyl, alkynyl, alkenyl and vinyl are optionally substituted by $N_3$, CN, one to three halogen (Cl, Br, F, I), $NO_2$, $C(O)O(C_{1-4}$ alkyl), $C(O)O(C_{1-4}$ alkyl), $C(O)O(C_{2-4}$ alkynyl), $C(O)O(C_{2-4}$ alkenyl), $O(C_{1-4}$ acyl), $O(C_{1-4}$ alkyl), $O(C_{2-4}$ alkenyl), $S(C_{1-4}$ acyl), $S(C_{1-4}$ alkyl), $S(C_{2-4}$ alkynyl), $S(C_{2-4}$ alkenyl), $SO(C_{1-4}$ acyl), $SO(C_{1-4}$ alkyl), $SO(C_{2-4}$ alkynyl), $SO(C_{2-4}$ alkenyl), $SO_2(C_{1-4}$ acyl), $SO_2(C_{1-4}$ alkyl), $SO_2(C_{2-4}$ alkynyl), $SO_2(C_{2-4}$



Gilead Exhibit 2018
PGR2023-00046 - Page 00110

alkenyl), $OS(O)_2(C_{1-4}$ acyl), $OS(O)_2(C_{1-4}$ alkyl), $OS(O)_2(C_{2-4}$ alkenyl), $NH_2$, $NH(C_{1-4}$ alkyl), $NH(C_{2-4}$ alkenyl), $NH(C_{2-4}$ alkynyl), $NH(C_{1-4}$ acyl), $N(C_{1-4}$ alkyl)$_2$, $N(C_{1-4}$ acyl)$_2$;

(i) $R^7$, $R^8$,$R^9$ are independently H, F, Cl, Br, I, OH, OR', SH, SR', $NH_2$, NHR', NR'$_2$, lower alkyl, halogenated (F, Cl, Br, I) lower alkyl, lower alkenyl of $C_2$-$C_6$, $CO_2H$, $CO_2R'$, $CONH_2$, CONHR', CONR'$_2$, wherein R' is a $C_{1-20}$ alkyl; a $C_{1-20}$ cycloalkyl; a $C_2$-$C_6$ alkenyl, a $C_2$-$C_6$ alkynyl.

A first aspect of the first embodiment is directed to a compound represented by formula **I-1**

wherein

(a) $R^1$ is hydrogen, n-alkyl or aryl, which includes, but is not limited to, phenyl or naphthyl, where phenyl or naphthyl are optionally substituted with at least one of $C_{1-6}$ alkyl, $C_{1-6}$ alkoxy, F, Cl, Br, I, nitro, cyano, $C_{1-6}$ haloalkyl;

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ and $R^{3b}$ are independently (i) $R^{3a}$ is hydrogen and $R^{3b}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms (v) $R^{3b}$ is hydrogen and $R^{3a}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms, where c is 1 to 6, d is 0 to 2, e is 0 to 3, f is 3 to 5, n is 2 to 4, and where $R^{3'}$ is independently hydrogen or $C_{1-6}$ alkyl and $R^{3''}$ is -OR' or $-N(R^{3'})_2$); (vi) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl; or (viii) $R^{3a}$ is $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), or $CH_2SH$ and $R^{3b}$ is H;



Gilead Exhibit 2018
PGR2023-00046 - Page 00111

(d) $R^4$ is hydrogen, $C_{1-10}$ alkyl, $C_{1-10}$ alkyl optionally substituted with a lower alkyl, alkoxy, di(lower alkyl)-amino, or halogen, $C_{1-10}$ haloalkyl, $C_{3-10}$ cycloalkyl, cycloalkyl alkyl, cycloheteroalkyl, aminoacyl, aryl, such as phenyl, heteroaryl, such as, pyridinyl, substituted aryl, or substituted heteroaryl;

(e) $R^5$ is H, CN, $CH_3$, vinyl, $OCH_3$, $OCH_2CH_3$, $CH_2OH$, $CH_2$(halo), such as $CH_2F$, $N_3$, $CH_2CN$, $CH_2N_3$, $CH_2NH_2$, $CH_2NHCH_3$, $CH_2N(CH_3)_2$, halogen, including F, Cl, Br, or I, with the provisos that when X is OH , base is cytosine and $R^6$ is H, $R^5$ cannot be $N_3$;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;

(g) X is H, OH, F, OMe, Cl, Br, I, $NH_2$, or $N_3$;

(h) Y is OH, H, $C_{1-4}$ alkyl, vinyl, $N_3$, CN, Cl, Br, F, I, O($C_{1-6}$ acyl), O($C_{1-4}$ alkyl), $NH_2$, NH($C_{1-4}$ alkyl), NH($C_{2-4}$ alkenyl), NH($C_{2-4}$ alkynyl), NH($C_{1-4}$ acyl), N($C_{1-4}$ alkyl)$_2$, N($C_{1-18}$ acyl)$_2$, wherein alkyl, alkynyl, alkenyl and vinyl are optionally substituted by $N_3$, CN, one to three halogen (Cl, Br, F, I), $NO_2$, OC(O)O($C_{1-4}$ alkyl), OC(O)O($C_{1-4}$ alkyl), OC(O)O($C_{2-4}$ alkynyl), OC(O)O($C_{2-4}$ alkenyl), O$C_{1-4}$ haloalkyl, O(aminoacyl), O($C_{1-4}$ acyl), O($C_{1-4}$ alkyl), O($C_{2-4}$ alkenyl), S($C_{1-4}$ acyl), S($C_{1-4}$ alkyl), S($C_{2-4}$ alkynyl), S($C_{2-4}$ alkenyl), SO($C_{1-4}$ acyl), SO($C_{1-4}$ alkyl), SO($C_{2-4}$ alkynyl), SO($C_{2-4}$ alkenyl), $SO_2$($C_{1-4}$ acyl), $SO_2$($C_{1-4}$ alkyl), $SO_2$($C_{2-4}$ alkynyl), $SO_2$($C_{2-4}$ alkenyl), OS(O)$_2$($C_{1-4}$ acyl), OS(O)$_2$($C_{1-4}$ alkyl), OS(O)$_2$($C_{2-4}$ alkenyl), $NH_2$, NH($C_{1-4}$ alkyl), NH($C_{2-4}$ alkenyl), NH($C_{2-4}$ alkynyl), NH($C_{1-4}$ acyl), N($C_{1-4}$ alkyl)$_2$, or N($C_{1-4}$ acyl)$_2$;

(i) $R^7$, $R^8$,$R^9$ are independently H, F, Cl, Br, I, OH, OR', SH, SR', $NH_2$, NHR', NR'$_2$, lower alkyl, halogenated (F, Cl, Br, I) lower alkyl, lower alkenyl of $C_2$-$C_6$, $CO_2H$, $CO_2R'$, $CONH_2$, CONHR', CONR'$_2$, wherein R' is a $C_{1-20}$ alkyl; a $C_{1-20}$ cycloalkyl; a $C_2$-$C_6$ alkenyl, a $C_2$-$C_6$ alkynyl.

A second aspect of the first embodiment is directed to a compound represented by formula **I-1**

wherein



Gilead Exhibit 2018
PGR2023-00046 - Page 00112

(a) $R^1$ is hydrogen, n-alkyl or a substituted or unsubstituted phenyl, where the substitutent of the substituted phenyl is at least one of a $C_{1-3}$ alkyl, a $C_{1-3}$ alkoxy, F, Cl, Br, I, nitro, cyano, and a $C_{1-3}$ haloalkyl;

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ and $R^{3b}$ are independently (i) $R^{3a}$ is hydrogen and $R^{3b}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms (v) $R^{3b}$ is hydrogen and $R^{3a}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms, where c is 1 to 6, d is 0 to 2, e is 0 to 3, f is 3 to 5, n is 2 to 4, and where $R^{3'}$ is independently hydrogen or $C_{1-6}$ alkyl and $R^{3''}$ is -OR' or $-N(R^{3'})_2$); (vi) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl; or (viii) $R^{3a}$ is $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), or $CH_2SH$ and $R^{3b}$ is H;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, di(lower alkyl)amino-lower alkyl, or aminoacyl;

(e) $R^5$ is H, CN, $CH_3$, $OCH_3$, $CH_2OH$, $CH_2$(halo), such as $CH_2F$, $N_3$, $CH_2CN$, $CH_2N_3$, $CH_2NH_2$, $CH_2NHCH_3$, $CH_2N(CH_3)_2$, halogen, including F, Cl, Br, or I, with the provisos that when X is OH , base is cytosine and $R^6$ is H, $R^5$ cannot be $N_3$;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;

(g) X is H, OH, F, $OCH_3$, $NH_2$, or $N_3$;



Gilead Exhibit 2018
PGR2023-00046 - Page 00113

(h) Y is OH, H, $CH_3$, vinyl, $N_3$, CN, Cl, Br, F, I, $OC(O)CH_3$, $OCH_3$, $NH_2$, $NHCH_3$, NH(vinyl), NH(acetyl), $NH(C(O)CH_3)$, $N(CH_3)_2$, $N(C(O)CH_3)_2$, or O(aminoacyl);

(i) $R^7$ and $R^8$ are independently H, F, Cl, Br, I, OH, $OCH_3$, SH, $SCH_3$, $NH_2$, $NHCH_3$, $N(CH_3)_2$, $CH_3$, $CH_{3-q}X_q$, where X is F, Cl, Br, or I and q is 1 to 3, vinyl, $CO_2H$, $CO_2CH_3$, $CONH_2$, $CONHCH_3$, or $CON(CH_3)_2$; and

(j) $R^9$ is selected from among OH, $OCH_3$, SH, $SCH_3$, $NH_2$, $NHCH_3$, $N(CH_3)_2$, OC(O)(C1-20 alkyl), which include but are not limited to $OC(O)(CH_2)_sCH_3$, NHC(O)(C1-20 alkyl), which include but are not limited to $NHC(O)(CH_2)_sCH_3$, and $N(C(O)(CH_2)_sCH_3)_2$, which include but is not limited to $N(C(O)(CH_2)_sCH_3)_2$, where s is an integer selected from 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, and 19.

A third aspect of the first embodiment is directed to a compound represented by formula **I-1**

wherein

(a) $R^1$ is hydrogen, n-alkyl or a substituted or unsubstituted phenyl, where the substitutent of the substituted phenyl is at least one of a $CH_3$, $OCH_3$, F, Cl, Br, I, nitro, cyano, and a $CH_{3-q}X_q$, where X is F, Cl, Br, or I, and q is 1-3;

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl or $R^{3a}$ is $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl and $R^{3b}$ is H;



Gilead Exhibit 2018
PGR2023-00046 - Page 00114

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, lower haloalkyl, di(lower alkyl)amino-lower alkyl, or aminoacyl;

(e) $R^5$ is H, CN, $CH_3$, $OCH_3$, $CH_2OH$, $CH_2$(halo), such as $CH_2F$, $N_3$, $CH_2CN$, $CH_2N_3$, $CH_2NH_2$, $CH_2NHCH_3$, $CH_2N(CH_3)_2$, halogen, including F, Cl, Br, or I, with the provisos that when X is OH , base is cytosine and $R^6$ is H, $R^5$ cannot be $N_3$;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;

(g) X is H, OH, F, $OCH_3$, $NH_2$, or $N_3$;

(h) Y is OH, H, $CH_3$, vinyl, $N_3$, CN, Cl, Br, F, I, $OC(O)CH_3$, $OCH_3$, $NH_2$, $NHCH_3$, NH(vinyl), NH(acetyl), $NH(C(O)CH_3)$, $N(CH_3)_2$, $N(C(O)CH_3)_2$, or O(aminoacyl);

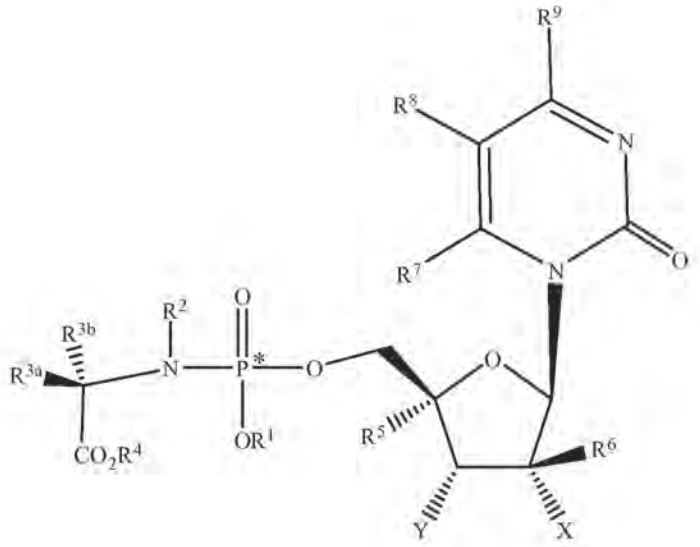
(i) $R^7$ and $R^8$ are independently H, F, Cl, Br, I, OH, $OCH_3$, SH, $SCH_3$, $NH_2$, $NHCH_3$, $N(CH_3)_2$, $CH_3$, $CH_{3-q}X_q$, where X is F, Cl, Br, or I and q is 1 to 3, vinyl, $CO_2H$, $CO_2CH_3$, $CONH_2$, $CONHCH_3$, or $CON(CH_3)_2$, wherein R' is a $C_{1-20}$ alkyl; a $C_{1-20}$ cycloalkyl; a $C_2$-$C_6$ alkenyl, a $C_2$-$C_6$ alkynyl'; and

(j) $R^9$ is selected from among OH, $OCH_3$, SH, $SCH_3$, $NH_2$, $NHCH_3$, $N(CH_3)_2$, OC(O)(C1-20 alkyl), which include but are not limited to $OC(O)(CH_2)_sCH_3$, NHC(O)(C1-20 alkyl), which include but are not limited to $NHC(O)(CH_2)_sCH_3$, and $N(C(O)(CH_2)_sCH_3)_2$, which include but is not limited to $N(C(O)(CH_2)_sCH_3)_2$, where s is an integer selected from 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, and 19.

A fourth aspect of the first embodiment is directed to a compound represented by formula **I-2**



Gilead Exhibit 2018
PGR2023-00046 - Page 00115



**I-2**

wherein

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, or a substituted or unsubstituted phenyl, where the substitutent of the substituted phenyl is at least one of a $CH_3$, $OCH_3$, F, Cl, Br, I, nitro, cyano, and a $CH_{3-q}X_q$, where X is F, Cl, Br, or I, and q is 1-3;

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl or $R^{3a}$ is $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl and $R^{3b}$ is H;



Gilead Exhibit 2018
PGR2023-00046 - Page 00116

(d) $R^4$ is hydrogen, $C_{1-10}$ alkyl, $C_{1-10}$ alkyl optionally substituted with a lower alkyl, alkoxy or halogen, $C_{1-10}$ haloalkyl, $C_{3-10}$ cycloalkyl, cycloalkyl alkyl, cycloheteroalkyl, aminoacyl, di(lower alkyl)amino-lower alkyl, aryl, such as phenyl, heteroaryl, such as, pyridinyl, substituted aryl, or substituted heteroaryl;

(e) $R^5$ is H, CN, $CH_3$, $OCH_3$, $CH_2OH$, $CH_2F$, $N_3$, $CH_2CN$, $CH_2N_3$, $CH_2NH_2$, $CH_2NHCH_3$, $CH_2N(CH_3)_2$, halogen, including F, Cl, Br, or I, with the provisos that when X is OH , base is cytosine and $R^6$ is H, $R^5$ cannot be $N_3$;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;

(g) X is H, OH, F, $OCH_3$, Cl, Br, I, $NH_2$, or $N_3$;

(h) Y is OH, H, $CH_3$, vinyl, $N_3$, CN, Cl, Br, F, I, $OC(O)CH_3$, $OCH_3$, $NH_2$, $NHCH_3$, NH(vinyl), NH(acetyl), $NH(C(O)CH_3)$, $N(CH_3)_2$, $N(C(O)CH_3)_2$, or O(aminoacyl);

(i) $R^7$ and $R^8$ are independently H, F, Cl, Br, I, OH, $OCH_3$, SH, $SCH_3$, $NH_2$, $NHCH_3$, $N(CH_3)_2$, $CH_3$, $CH_{3-q}X_q$, where X is F, Cl, Br, or I and q is 1 to 3, vinyl, $CO_2H$, $CO_2CH_3$, $CONH_2$, $CONHCH_3$, or $CON(CH_3)_2$, wherein R' is a $C_{1-20}$ alkyl; a $C_{1-20}$ cycloalkyl; a $C_2$-$C_6$ alkenyl, a $C_2$-$C_6$ alkynyl; and

(j) $R^9$ is selected from among OH, $OCH_3$, SH, $SCH_3$, $NH_2$, $NHCH_3$, $N(CH_3)_2$, OC(O)(C1-20 alkyl), which include but are not limited to $OC(O)(CH_2)_sCH_3$, NHC(O)(C1-20 alkyl), which include but are not limited to $NHC(O)(CH_2)_sCH_3$, and and $N(C(O)(CH_2)_sCH_3$, which include but is not limited to $N(C(O)(CH_2)_sCH_3)_2$, where s is an integer selected from 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, and 19.

A fifth aspect of the first embodiment is directed to a compound represented by formula **I-2**

wherein

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;



Gilead Exhibit 2018
PGR2023-00046 - Page 00117

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, lower haloalkyl, di(lower alkyl)amino-lower alkyl, or aminoacyl;

(e) $R^5$ is H, CN, $CH_3$, $OCH_3$, $CH_2OH$, $CH_2F$, halogen, including F, Cl, Br, or I;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;

(g) X is H, OH, F, $OCH_3$, $NH_2$, or $N_3$;

(h) Y is OH, H, $CH_3$, vinyl, $N_3$, CN, Cl, Br, F, I, $OC(O)CH_3$, $OCH_3$, or O(aminoacyl);

(i) $R^7$ and $R^8$ are independently H, F, Cl, Br, I, OH, $OCH_3$, SH, $SCH_3$, $NH_2$, $NHCH_3$, $N(CH_3)_2$, $CH_3$, $CH_{3-q}X_q$, where X is F, Cl, Br, or I and q is 1 to 3, vinyl, $CO_2H$, $CO_2CH_3$, $CONH_2$, $CONHCH_3$, or $CON(CH_3)_2$, wherein R' is a $C_{1-20}$ alkyl; a $C_{1-20}$ cycloalkyl; a $C_2$-$C_6$ alkenyl, a $C_2$-$C_6$ alkynyl; and

(j) $R^9$ is selected from among OH, $OCH_3$, SH, $SCH_3$, $NH_2$, $NHCH_3$, $N(CH_3)_2$, $OC(O)(C_{1-20}$ alkyl), which include but are not limited to $OC(O)(CH_2)_sCH_3$, $NHC(O)(C_{1-20}$ alkyl), which include but are not limited to $NHC(O)(CH_2)_sCH_3$, and $N(C(O)(CH_2)_sCH_3)_2$, which include but is not limited to $N(C(O)(CH_2)_sCH_3)_2$, where s is an integer selected from 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, and 19.

A sixth aspect of the first embodiment is directed to a compound represented by formula **I-2**



Gilead Exhibit 2018
PGR2023-00046 - Page 00118

wherein

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $C_{1\text{-}10}$ alkyl, $C_{1\text{-}10}$ alkyl optionally substituted with a lower alkyl, alkoxy or halogen, $C_{1\text{-}10}$ haloalkyl, $C_{3\text{-}10}$ cycloalkyl, cycloalkyl alkyl, cycloheteroalkyl, aminoacyl, di(lower alkyl)amino-lower alkyl, aryl, such as phenyl, heteroaryl, such as, pyridinyl, substituted aryl, or substituted heteroaryl;

(e) $R^5$ is H, OMe, CN, $CH_2F$, F, Cl, Br, or I;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

(g) X is H, OH, F, $OCH_3$, F, Cl, Br, I, or $N_3$;

(h) Y is H, OH, $CH_3$, F, Cl, Br, I, or $N_3$, $OCH_3$, $OC(O)CH_3$, or O(aminoacyl);

(i) $R^7$ and $R^8$ are independently H, F, Br, $SCH_3$, $CH_3$, $CH_{3-q}X_q$, where X is F, Cl, Br, or I and q is 1 to 3, vinyl, $CO_2CH_3$, $CONH_2$, $CONHCH_3$, or $CON(CH_3)_2$; and

(j) $R^9$ is selected from among OH, $OCH_3$, SH, $SCH_3$, $NH_2$, $NHCH_3$, $N(CH_3)_2$, $OC(O)(C_{1\text{-}20}$ alkyl), which include but are not limited to $OC(O)(CH_2)_sCH_3$, $NHC(O)(C_{1\text{-}20}$ alkyl), which include but are not limited to $NHC(O)(CH_2)_sCH_3$, and $N(C(O)(CH_2)_sCH_3)_2$, which include but is not limited to $N(C(O)(CH_2)_sCH_3)_2$, where s is an integer selected from 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, and 19.

A seventh aspect of the first embodiment is directed to a compound represented by formula **I-2**

wherein



Gilead Exhibit 2018
PGR2023-00046 - Page 00119

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

(g) X is H, OH, $OCH_3$, F, or $N_3$;

(h) Y is OH, $OCH_3$, $OC(O)CH_3$, or O(aminoacyl);

(i) $R^7$ and $R^8$ are independently H, F, Br, $SCH_3$, $CH_3$, $CH_{3-q}X_q$, where X is F, Cl, Br, or I and q is 1 to 3, vinyl, $CO_2CH_3$, $CONH_2$, $CONHCH_3$, or $CON(CH_3)_2$; and

(j) $R^9$ is selected from among OH, $OCH_3$, $NH_2$, $NHCH_3$, $N(CH_3)_2$, $OC(O)(C_{1-20}$ alkyl), which include but are not limited to $OC(O)(CH_2)_sCH_3$, $NHC(O)(C_{1-20}$ alkyl), which include but are not limited to $NHC(O)(CH_2)_sCH_3$, and $N(C(O)(CH_2)_sCH_3)_2$, which include but is not limited to $N(C(O)(CH_2)_sCH_3)_2$, where s is an integer selected from among 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, and 19.

An eighth aspect of the first embodiment is directed to a compound represented by formula **I-2**

wherein



Gilead Exhibit 2018
PGR2023-00046 - Page 00120

(a) $R^1$ is hydrogen, methyl, phenyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

(g) X is H, OH, $OCH_3$, F, or $N_3$;

(h) Y is OH, $OCH_3$, $OC(O)CH_3$, or O(aminoacyl);

(i) $R^7$ and $R^8$ are independently H, F, Br, $SCH_3$, $CH_3$, $CH_{3-q}X_q$, where X is F, Cl, Br, or I and q is 1 to 3, vinyl, $CO_2CH_3$, $CONH_2$, $CONHCH_3$, or $CON(CH_3)_2$;

(j) $R^9$ is selected from among OH, $OCH_3$, $NH_2$, $NHCH_3$, $N(CH_3)_2$, $OC(O)(C_{1-20}$ alkyl), which include but are not limited to $OC(O)(CH_2)_sCH_3$, $NHC(O)(C_{1-20}$ alkyl), which include but are not limited to $NHC(O)(CH_2)_sCH_3$, and $N(C(O)(CH_2)_sCH_3)_2$, which include but is not limited to $N(C(O)(CH_2)_sCH_3)_2$, where s is an integer selected from among 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, and 19.

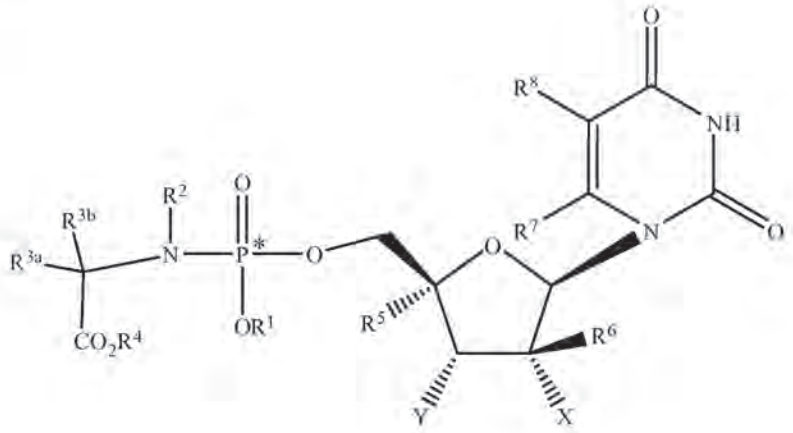
A second embodiment of the invention is directed to a compound represented by formula **I** in which the base is a structure represented by formula **b** above, wherein $R^1$, $R^2$, $R^{3a}$, $R^{3b}$, $R^4$, $R^5$, $R^6$, X, Y, $R^7$, and $R^8$are defined in the Summary of the Invention section above.

A first aspect of the second embodiment is directed to a compound represented by



Gilead Exhibit 2018
PGR2023-00046 - Page 00121

formula **I-3**



**I-3**

wherein

(a) $R^1$ is hydrogen, n-alkyl; branched alkyl; cycloalkyl; or aryl, which includes, but is not limited to, phenyl or naphthyl, where phenyl or naphthyl are optionally substituted with at least one of $C_{1-6}$ alkyl, $C_{2-6}$ alkenyl, $C_{2-6}$ alkynyl, $C_{1-6}$ alkoxy, F, Cl, Br, I, nitro, cyano, $C_{1-6}$ haloalkyl, $-N(R^{1'})_2$, $C_{1-6}$ acylamino, $-NHSO_2C_{1-6}$ alkyl, $-SO_2N(R^{1'})_2$, $COR^{1''}$, and $-SO_2C_{1-6}$ alkyl; ($R^{1'}$ is independently hydrogen or alkyl, which includes, but is not limited to, $C_{1-20}$ alkyl, $C_{1-10}$ alkyl, or $C_{1-6}$ alkyl, $R^{1''}$ is $-OR'$ or $-N(R^{1'})_2$);

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ and $R^{3b}$ are (i) independently selected from hydrogen, $C_{1-10}$ alkyl, cycloalkyl, $-(CH_2)_e(NR^{3'})_2$, $C_{1-6}$ hydroxyalkyl, $-CH_2SH$, $-(CH_2)_2S(O)_dMe$, $-(CH_2)_3NHC(=NH)NH_2$, (1H-indol-3-yl)methyl, (1H-imidazol-4-yl)methyl, $-(CH_2)_eCOR^{3''}$, aryl and aryl $C_{1-3}$ alkyl, said aryl groups optionally substituted with a group selected from hydroxyl, $C_{1-10}$ alkyl, $C_{1-6}$ alkoxy, halogen, nitro and cyano; (ii) $R^{3a}$ and $R^{3b}$ both are $C_{1-6}$ alkyl; (iii) $R^{3a}$ and $R^{3b}$ together are$(CH_2)_f$ so as to form a spiro ring; (iv) $R^{3a}$ is hydrogen and $R^{3b}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms (v) $R^{3b}$ is hydrogen and $R^{3a}$ and $R^2$ together are



Gilead Exhibit 2018
PGR2023-00046 - Page 00122

$(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms, where c is 1 to 6, d is 0 to 2, e is 0 to 3, f is 2 to 5, n is 2 to 4, and where $R^{3'}$ is independently hydrogen or $C_{1-6}$ alkyl and $R^{3''}$ is -OR' or $-N(R^{3'})_2$); (vi) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH_2CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl; or (viii) $R^{3a}$ is $CH_3$, $-CH_2CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl and $R^{3b}$ is H, where $R^{3'}$ is independently hydrogen or alkyl, which includes, but is not limited to, $C_{1-20}$ alkyl, $C_{1-10}$ alkyl, or $C_{1-6}$ alkyl, $R^{3''}$ is –OR' or $-N(R^{3'})_2$);

(d) $R^4$ is hydrogen, $C_{1-10}$ alkyl, $C_{1-10}$ alkyl optionally substituted with a lower alkyl, alkoxy or halogen, $C_{1-10}$ haloalkyl, $C_{3-10}$ cycloalkyl, cycloalkyl alkyl, cycloheteroalkyl, aminoacyl, di(lower alkyl)amino-lower alkyl, aryl, such as phenyl, heteroaryl, such as, pyridinyl, substituted aryl, or substituted heteroaryl;

(e) $R^5$ is H, a lower alkyl, CN, vinyl, O-(lower alkyl), hydroxyl lower alkyl, i.e., $-(CH_2)_pOH$, where p is 1 -6, including hydroxyl methyl ($CH_2OH$), $CH_2F$, $N_3$, $CH_2CN$, $CH_2NH_2$, $CH_2NHCH_3$, $CH_2N(CH_3)_2$, alkyne (optionally substituted), or halogen, including F, Cl, Br, or I, with the provisos that when X is OH, base is cytosine and $R^6$ is H, $R^5$ cannot be $N_3$ and when X is OH, $R^6$ is $CH_3$ or $CH_2F$ and B is a purine base, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;

(g) X is H, OH, F, OMe, Cl, Br, I, $NH_2$, or $N_3$;

(h) Y is OH, H, $C_{1-4}$ alkyl, $C_{2-4}$ alkenyl, $C_{2-4}$ alkynyl, vinyl, $N_3$, CN, Cl, Br, F, I, $NO_2$, $OC(O)O(C_{1-4}$ alkyl), $OC(O)O(C_{1-4}$ alkyl), $OC(O)O(C_{2-4}$ alkynyl), $OC(O)O(C_{2-4}$ alkenyl), $OC_{1-10}$ haloalkyl, O(aminoacyl), $O(C_{1-10}$ acyl), $O(C_{1-4}$ alkyl), $O(C_{2-4}$ alkenyl),



Gilead Exhibit 2018
PGR2023-00046 - Page 00123

$S(C_{1-4}$ acyl), $S(C_{1-4}$ alkyl), $S(C_{2-4}$ alkynyl), $S(C_{2-4}$ alkenyl), $SO(C_{1-4}$ acyl), $SO(C_{1-4}$ alkyl), $SO(C_{2-4}$ alkynyl), $SO(C_{2-4}$ alkenyl), $SO_2(C_{1-4}$ acyl), $SO_2(C_{1-4}$ alkyl), $SO_2(C_{2-4}$ alkynyl), $SO_2(C_{2-4}$ alkenyl), $OS(O)_2(C_{1-4}$ acyl), $OS(O)_2(C_{1-4}$ alkyl), $OS(O)_2(C_{2-4}$ alkenyl), $NH_2$, $NH(C_{1-4}$ alkyl), $NH(C_{2-4}$ alkenyl), $NH(C_{2-4}$ alkynyl), $NH(C_{1-4}$ acyl), $N(C_{1-4}$ alkyl)$_2$, or $N(C_{1-18}$ acyl)$_2$, wherein alkyl, alkynyl, alkenyl and vinyl are optionally substituted by $N_3$, CN, one to three halogen (Cl, Br, F, I), $NO_2$, $C(O)O(C_{1-4}$ alkyl), $C(O)O(C_{1-4}$ alkyl), $C(O)O(C_{2-4}$ alkynyl), $C(O)O(C_{2-4}$ alkenyl), $O(C_{1-4}$ acyl), $O(C_{1-4}$ alkyl), $O(C_{2-4}$ alkenyl), $S(C_{1-4}$ acyl), $S(C_{1-4}$ alkyl), $S(C_{2-4}$ alkynyl), $S(C_{2-4}$ alkenyl), $SO(C_{1-4}$ acyl), $SO(C_{1-4}$ alkyl), $SO(C_{2-4}$ alkynyl), $SO(C_{2-4}$ alkenyl), $SO_2(C_{1-4}$ acyl), $SO_2(C_{1-4}$ alkyl), $SO_2(C_{2-4}$ alkynyl), $SO_2(C_{2-4}$ alkenyl), $OS(O)_2(C_{1-4}$ acyl), $OS(O)_2(C_{1-4}$ alkyl), $OS(O)_2(C_{2-4}$ alkenyl), $NH_2$, $NH(C_{1-4}$ alkyl), $NH(C_{2-4}$ alkenyl), $NH(C_{2-4}$ alkynyl), $NH(C_{1-4}$ acyl), $N(C_{1-4}$ alkyl)$_2$, or $N(C_{1-4}$ acyl)$_2$;

(i) $R^7$ and $R^8$ are independently H, F, Cl, Br, I, OH, OR', SH, SR', $NH_2$, NHR', NR'$_2$, lower alkyl, halogenated (F, Cl, Br, I) lower alkyl, lower alkenyl of $C_2$-$C_6$, $CO_2H$, $CO_2R'$, $CONH_2$, CONHR', CONR'$_2$, wherein R' is a $C_{1-20}$ alkyl; a $C_{1-20}$ cycloalkyl; a $C_2$-$C_6$ alkenyl, a $C_2$-$C_6$ alkynyl.

The second aspect of the second embodiment is directed to a compound represented by formula **I-3**

wherein

(a) $R^1$ is hydrogen, n-alkyl or aryl, which includes, but is not limited to, phenyl or naphthyl, where phenyl or naphthyl are optionally substituted with at least one of $C_{1-6}$ alkyl, $C_{1-6}$ alkoxy, F, Cl, Br, I, nitro, cyano, $C_{1-6}$ haloalkyl;

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ and $R^{3b}$ are independently (i) $R^{3a}$ is hydrogen and $R^{3b}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms (v) $R^{3b}$ is hydrogen and $R^{3a}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms, where c is 1 to 6, d is 0 to 2, e is 0 to 3, f is 3 to 5, n is 2 to 4, and where $R^{3'}$ is independently hydrogen or $C_{1-6}$ alkyl and $R^{3''}$ is -OR' or $-N(R^{3'})_2$); (vi)



Gilead Exhibit 2018
PGR2023-00046 - Page 00124

$R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl; or (viii) $R^{3a}$ is $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), or $CH_2SH$ and $R^{3b}$ is H;

(d) $R^4$ is hydrogen, $C_{1-10}$ alkyl, $C_{1-10}$ alkyl optionally substituted with a lower alkyl, alkoxy or halogen, $C_{1-10}$ haloalkyl, $C_{3-10}$ cycloalkyl, cycloalkyl alkyl, cycloheteroalkyl, aminoacyl, di(lower alkyl)amino-lower alkyl, aryl, such as phenyl, heteroaryl, such as, pyridinyl, substituted aryl, or substituted heteroaryl;

(e) $R^5$ is H, CN, $CH_3$, vinyl, $OCH_3$, $OCH_2CH_3$, $CH_2OH$, $CH_2$(halo), such as $CH_2F$, $N_3$, $CH_2CN$, $CH_2N_3$, $CH_2NH_2$, $CH_2NHCH_3$, $CH_2N(CH_3)_2$, halogen, including F, Cl, Br, or I;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;

(g) X is H, OH, F, OMe, halogen, $NH_2$, or $N_3$;

(h) Y is OH, H, $C_{1-4}$ alkyl, vinyl, $N_3$, CN, Cl, Br, F, I, O($C_{1-6}$ acyl), O($C_{1-4}$ alkyl), $NH_2$, NH($C_{1-4}$ alkyl), NH($C_{2-4}$ alkenyl), NH($C_{2-4}$ alkynyl), NH($C_{1-4}$ acyl), N($C_{1-4}$ alkyl)$_2$, N($C_{1-18}$ acyl)$_2$, wherein alkyl, alkynyl, alkenyl and vinyl are optionally substituted by $N_3$, CN, one to three halogen (Cl, Br, F, I), $NO_2$, OC(O)O($C_{1-4}$ alkyl), OC(O)O($C_{1-4}$ alkyl), OC(O)O($C_{2-4}$ alkynyl), OC(O)O($C_{2-4}$ alkenyl), $OC_{1-10}$ haloalkyl, O(aminoacyl), O($C_{1-4}$ acyl), O($C_{1-4}$ alkyl), O($C_{2-4}$ alkenyl), S($C_{1-4}$ acyl), S($C_{1-4}$ alkyl), S($C_{2-4}$ alkynyl), S($C_{2-4}$ alkenyl), SO($C_{1-4}$ acyl), SO($C_{1-4}$ alkyl), SO($C_{2-4}$ alkynyl), SO($C_{2-4}$ alkenyl), $SO_2$($C_{1-4}$ acyl), $SO_2$($C_{1-4}$ alkyl), $SO_2$($C_{2-4}$ alkynyl), $SO_2$($C_{2-4}$ alkenyl), $OS(O)_2$($C_{1-4}$ acyl), $OS(O)_2$($C_{1-4}$ alkyl), $OS(O)_2$($C_{2-4}$ alkenyl), $NH_2$, NH($C_{1-4}$ alkyl), NH($C_{2-4}$ alkenyl), NH($C_{2-4}$ alkynyl), NH($C_{1-4}$ acyl), N($C_{1-4}$ alkyl)$_2$, N($C_{1-4}$ acyl)$_2$;



Gilead Exhibit 2018
PGR2023-00046 - Page 00125

(i) $R^7$ and $R^8$ are independently H, F, Cl, Br, I, OH, OR', SH, SR', $NH_2$, NHR', NR'$_2$, lower alkyl, halogenated (F, Cl, Br, I) lower alkyl, lower alkenyl of $C_2$-$C_6$, $CO_2H$, $CO_2R'$, $CONH_2$, CONHR', CONR'$_2$, wherein R' is a $C_{1-20}$ alkyl; a $C_{1-20}$ cycloalkyl; a $C_2$-$C_6$ alkenyl, a $C_2$-$C_6$ alkynyl.

The third aspect of the second embodiment is directed to a compound represented by formula **I-3**

wherein

(a) $R^1$ is hydrogen, n-alkyl or a substituted or unsubstituted phenyl, where the substitutent of the substituted phenyl is at least one of a $C_{1-3}$ alkyl, a $C_{1-3}$ alkoxy, F, Cl, Br, I, nitro, cyano, and a $C_{1-3}$ haloalkyl;

(b) $R^2$ is hydrogen, $CH_3$, $R^{3a}$ or $R^{3b}$ and $R^2$ together are $(CH_2)_3$ so as to form a cyclic ring that includes the adjoining N and C atoms, $C(O)CR^{3a}R^{3b}NHR^1$, where n is 2 to 4 and $R^1$, $R^{3a}$, and $R^{3b}$ are as defined herein;

(c) $R^{3a}$ and $R^{3b}$ are independently (i) $R^{3a}$ is hydrogen and $R^{3b}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms (v) $R^{3b}$ is hydrogen and $R^{3a}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms, where c is 1 to 6, d is 0 to 2, e is 0 to 3, f is 3 to 5, n is 2 to 4, and where $R^{3'}$ is independently hydrogen or $C_{1-6}$ alkyl and $R^{3''}$ is -OR' or $-N(R^{3'})_2$); (vi) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl; or (viii) $R^{3a}$ is $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl and $R^{3b}$ is H;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-



Gilead Exhibit 2018
PGR2023-00046 - Page 00126

methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, CN, $CH_3$, $OCH_3$, $CH_2OH$, $CH_2$(halo), such as $CH_2F$, $N_3$, $CH_2CN$, $CH_2N_3$, $CH_2NH_2$, $CH_2NHCH_3$, $CH_2N(CH_3)_2$, halogen, including F, Cl, Br, or I;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;

(g) X is H, OH, F, $OCH_3$, halogen, $NH_2$, or $N_3$

(h) Y is OH, H, $CH_3$, vinyl, $N_3$, CN, Cl, Br, F, I, $OC(O)CH_3$, $OCH_3$, $NH_2$, $NHCH_3$, NH(vinyl), NH(acetyl), $NH(C(O)CH_3)$, $N(CH_3)_2$, $N(C(O)CH_3)_2$;

(i) $R^7$ and $R^8$ are independently H, F, Cl, Br, I, OH, $OCH_3$, SH, $SCH_3$, $NH_2$, $NHCH_3$, $N(CH_3)_2$, $CH_3$, $CH_{3-q}X_q$, where X is F, Cl, Br, or I and q is 1 to 3, vinyl, $CO_2H$, $CO_2CH_3$, $CONH_2$, $CONHCH_3$, or $CON(CH_3)_2$.

The fourth aspect of the second embodiment is directed to a compound represented by formula **I-3**

wherein

(a) $R^1$ is hydrogen, n-alkyl or a substituted or unsubstituted phenyl, where the substitutent of the substituted phenyl is at least one of a $CH_3$, $OCH_3$, F, Cl, Br, I, nitro, cyano, and a $CH_{3-q}X_q$, where X is F, Cl, Br, or I, and q is 1-3;

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl or $R^{3a}$ is $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, -



Gilead Exhibit 2018
PGR2023-00046 - Page 00127

$CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl and $R^{3b}$ is H;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, CN, $CH_3$, $OCH_3$, $CH_2OH$, $CH_2$(halo), such as $CH_2F$, $N_3$, $CH_2CN$, $CH_2N_3$, $CH_2NH_2$, $CH_2NHCH_3$, $CH_2N(CH_3)_2$, halogen, including F, Cl, Br, or I;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;

(g) X is H, OH, F, $OCH_3$, $NH_2$, or $N_3$;

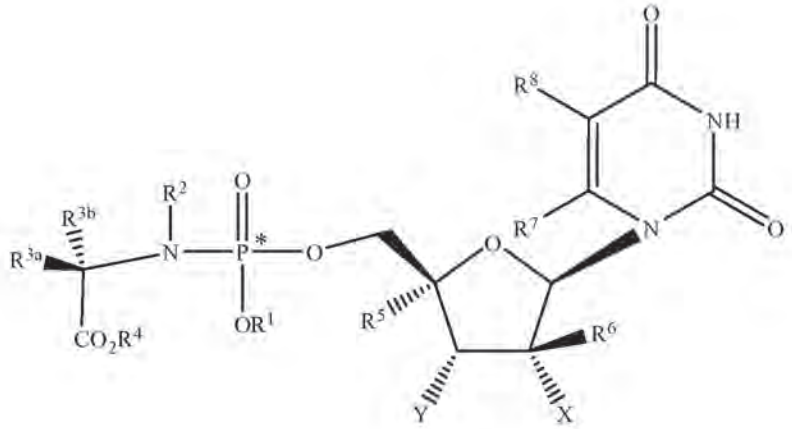
(h) Y is OH, H, $CH_3$, vinyl, $N_3$, CN, Cl, Br, F, I, $OC(O)CH_3$, $OCH_3$, $NH_2$, $NHCH_3$, NH(vinyl), NH(acetyl), $NH(C(O)CH_3)$, $N(CH_3)_2$, $N(C(O)CH_3)_2$;

(i) $R^7$ and $R^8$ are independently H, F, Cl, Br, I, OH, $OCH_3$, SH, $SCH_3$, $NH_2$, $NHCH_3$, $N(CH_3)_2$, $CH_3$, $CH_{3-q}X_q$, where X is F, Cl, Br, or I and q is 1 to 3, vinyl, $CO_2H$, $CO_2CH_3$, $CONH_2$, $CONHCH_3$, or $CON(CH_3)_2$, wherein R' is a $C_{1-20}$ alkyl; a $C_{1-20}$ cycloalkyl; a $C_2$-$C_6$ alkenyl, a $C_2$-$C_6$ alkynyl.

The fifth aspect of the second embodiment is directed to a compound represented by formula **I-4**



Gilead Exhibit 2018
PGR2023-00046 - Page 00128



**I-4**

wherein

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, or a substituted or unsubstituted phenyl, where the substitutent of the substituted phenyl is at least one of a $CH_3$, $OCH_3$, F, Cl, Br, I, nitro, cyano, and a $CH_{3-q}X_q$, where X is F, Cl, Br, or I, and q is 1-3;

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl or $R^{3a}$ is $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl and $R^{3b}$ is H;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;



Gilead Exhibit 2018
PGR2023-00046 - Page 00129

(e) $R^5$ is H, CN, $CH_3$, $OCH_3$, $CH_2OH$, $CH_2F$, $N_3$, $CH_2CN$, $CH_2N_3$, $CH_2NH_2$, $CH_2NHCH_3$, $CH_2N(CH_3)_2$, halogen, including F, Cl, Br, or I;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;

(g) X is H, OH, F, $OCH_3$, Cl, Br, I, $NH_2$, or $N_3$;

(h) Y is OH, H, $CH_3$, vinyl, $N_3$, CN, Cl, Br, F, I, $OC(O)CH_3$, $OCH_3$, $NH_2$, $NHCH_3$, NH(vinyl), NH(acetyl), $NH(C(O)CH_3)$, $N(CH_3)_2$, $N(C(O)CH_3)_2$;

(i) $R^7$ and $R^8$ are independently H, F, Cl, Br, I, OH, $OCH_3$, SH, $SCH_3$, $NH_2$, $NHCH_3$, $N(CH_3)_2$, $CH_3$, $CH_{3-q}X_q$, where X is F, Cl, Br, or I and q is 1 to 3, vinyl, $CO_2H$, $CO_2CH_3$, $CONH_2$, $CONHCH_3$, or $CON(CH_3)_2$, wherein R' is a $C_{1-20}$ alkyl; a $C_{1-20}$ cycloalkyl; a $C_2$-$C_6$ alkenyl, a $C_2$-$C_6$ alkynyl,

The sixth aspect of the second embodiment is directed to a compound represented by formula **I-4**

wherein

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;



Gilead Exhibit 2018
PGR2023-00046 - Page 00130

(e) $R^5$ is H, CN, $CH_3$, $OCH_3$, $CH_2OH$, $CH_2F$, halogen, including F, Cl, Br, or I;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;

(g) X is H, OH, F, $OCH_3$, $NH_2$, or $N_3$;

(h) Y is OH, H, $CH_3$, vinyl, $NH_2$, $N_3$, CN, Cl, Br, F, I, $OC(O)CH_3$, $OCH_3$;

(i) $R^7$ and $R^8$ are independently H, F, Cl, Br, I, OH, $OCH_3$, SH, $SCH_3$, $NH_2$, $NHCH_3$, $N(CH_3)_2$, $CH_3$, $CH_{3-q}X_q$, where X is F, Cl, Br, or I and q is 1 to 3, vinyl, $CO_2H$, $CO_2CH_3$, $CONH_2$, $CONHCH_3$, or $CON(CH_3)_2$, wherein R' is a $C_{1-20}$ alkyl; a $C_{1-20}$ cycloalkyl; a $C_2$-$C_6$ alkenyl, a $C_2$-$C_6$ alkynyl.

The seventh aspect of the second embodiment is directed to a compound represented by formula **I-4**

wherein

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, OMe, CN, $CH_2F$, F, Cl, Br, or I;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

(g) X is H, OH, F, $OCH_3$, F, Cl, Br, I, $NH_2$ or $N_3$;



Gilead Exhibit 2018
PGR2023-00046 - Page 00131

(h) Y is H, OH, $CH_3$, F, Cl, Br, I, $NH_2$ or $N_3$, OCH3, or $OC(O)CH_3$;

(i) $R^7$ and $R^8$ are independently H, F, Br, $SCH_3$, $CH_3$, $CH_{3-q}X_q$, where X is F, Cl, Br, or I and q is 1 to 3, vinyl, $CO_2CH_3$, $CONH_2$, $CONHCH_3$, or $CON(CH_3)_2$;

The eighth aspect of the second embodiment is directed to a compound represented by formula **I-4**

wherein

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

(g) X is H, OH, $OCH_3$, F, $NH_2$ or $N_3$;

(h) Y is OH, $NH_2$, $OCH_3$, or $OC(O)CH_3$;

(i) $R^7$ and $R^8$ are independently H, F, Br, $SCH_3$, $CH_3$, $CH_{3-q}X_q$, where X is F, Cl, Br, or I and q is 1 to 3, vinyl, $CO_2CH_3$, $CONH_2$, $CONHCH_3$, or $CON(CH_3)_2$.

The ninth aspect of the second embodiment is directed to a compound represented by formula **I-4**



Gilead Exhibit 2018
PGR2023-00046 - Page 00132

wherein

(a) $R^1$ is hydrogen, methyl, phenyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

(g) X is H, OH, $OCH_3$, F, or $N_3$;

(h) Y is OH, $OCH_3$, or $OC(O)CH_3$;

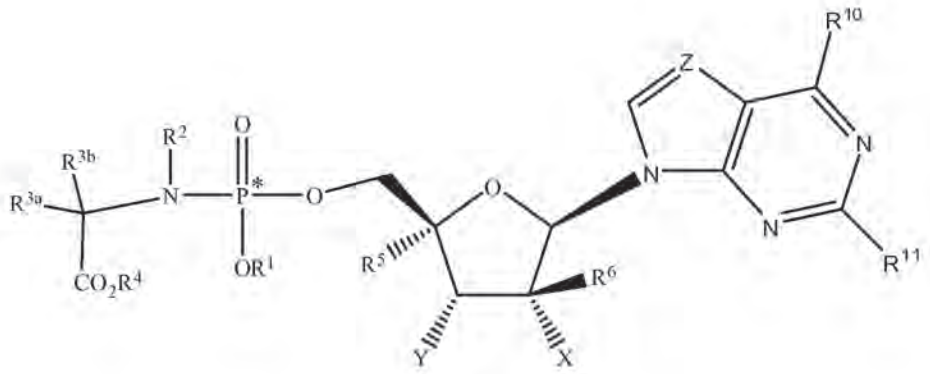
(i) $R^7$ and $R^8$ are independently H, F, Br, $SCH_3$, $CH_3$, $CH_{3-q}X_q$, where X is F, Cl, Br, or I and q is 1 to 3, vinyl, $CO_2CH_3$, $CONH_2$, $CONHCH_3$, or $CON(CH_3)_2$.

A third embodiment of the invention is directed to a compound represented by formula **I** in which the base is a structure represented by formula **c** above, wherein $R^1$, $R^2$, $R^{3a}$, $R^{3b}$, $R^4$, $R^5$, $R^6$, X, Y, Z, $R^{10}$, $R^{11}$, and $R^{12}$ are defined in the Summary of the Invention section above; with the proviso that $R^{11}$ is not H.

A first aspect of the third embodiment is directed to a compound represented by formula **I-5**



Gilead Exhibit 2018
PGR2023-00046 - Page 00133



**I-5**

wherein

(a) $R^1$ is hydrogen, n-alkyl; branched alkyl; cycloalkyl; or aryl, which includes, but is not limited to, phenyl or naphthyl, where phenyl or naphthyl are optionally substituted with at least one of $C_{1-6}$ alkyl, $C_{2-6}$ alkenyl, $C_{2-6}$ alkynyl, $C_{1-6}$ alkoxy, F, Cl, Br, I, nitro, cyano, $C_{1-6}$ haloalkyl, $-N(R^{1'})_2$, $C_{1-6}$ acylamino, $-NHSO_2C_{1-6}$ alkyl, $-SO_2N(R^{1'})_2$, $COR^{1''}$, and $-SO_2C_{1-6}$ alkyl; ($R^{1'}$ is independently hydrogen or alkyl, which includes, but is not limited to, $C_{1-20}$ alkyl, $C_{1-10}$ alkyl, or $C_{1-6}$ alkyl, $R^{1''}$ is –OR' or $-N(R^{1'})_2$);

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ and $R^{3b}$ are (i) independently selected from hydrogen, $C_{1-10}$ alkyl, cycloalkyl, $-(CH_2)_c(NR^{3'})_2$, $C_{1-6}$ hydroxyalkyl, $-CH_2SH$, $-(CH_2)_2S(O)_dMe$, $-(CH_2)_3NHC(=NH)NH_2$, (1H-indol-3-yl)methyl, (1H-imidazol-4-yl)methyl, $-(CH_2)_eCOR^{3''}$, aryl and aryl $C_{1-3}$ alkyl, said aryl groups optionally substituted with a group selected from hydroxyl, $C_{1-10}$ alkyl, $C_{1-6}$ alkoxy, halogen, nitro and cyano; (ii) $R^{3a}$ and $R^{3b}$ both are $C_{1-6}$ alkyl; (iii) $R^{3a}$ and $R^{3b}$ together are$(CH_2)_f$ so as to form a spiro ring; (iv) $R^{3a}$ is hydrogen and $R^{3b}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms (v) $R^{3b}$ is hydrogen and $R^{3a}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms, where c is 1 to 6, d is 0 to 2, e is 0 to 3, f is 2 to 5, n is 2 to 4, and where $R^{3'}$ is independently hydrogen



Gilead Exhibit 2018
PGR2023-00046 - Page 00134

or $C_{1-6}$ alkyl and $R^{3''}$ is -OR' or $-N(R^{3'})_2$); (vi) $R^{3a}$ is H and $R^{3b}$ is from H, $CH_3$, $CH_2CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl; or (viii) $R^{3a}$ is $CH_3$, $-CH_2CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl and $R^{3b}$ is H, where $R^{3'}$ is independently hydrogen or alkyl, which includes, but is not limited to, $C_{1-20}$ alkyl, $C_{1-10}$ alkyl, or $C_{1-6}$ alkyl, $R^{3''}$ is –OR' or $-N(R^{3'})_2$);

(d) $R^4$ is hydrogen, $C_{1-10}$ alkyl, $C_{1-10}$ alkyl optionally substituted with a lower alkyl, alkoxy or halogen, $C_{1-10}$ haloalkyl, $C_{3-10}$ cycloalkyl, cycloalkyl alkyl, cycloheteroalkyl, aminoacyl, di(lower alkyl)amino-lower alkyl, aryl, such as phenyl, heteroaryl, such as, pyridinyl, substituted aryl, or substituted heteroaryl;

(e) $R^5$ is H, a lower alkyl, CN, vinyl, O-(lower alkyl), hydroxyl lower alkyl, i.e., $-(CH_2)_pOH$, where p is 1 -6, including hydroxyl methyl ($CH_2OH$), $CH_2F$, $N_3$, $CH_2CN$, $CH_2NH_2$, $CH_2NHCH_3$, $CH_2N(CH_3)_2$, alkyne (optionally substituted), or halogen, including F, Cl, Br, or I, with the provisos that when X is OH, base is cytosine and $R^6$ is H, $R^5$ cannot be $N_3$ and when X is OH, $R^6$ is $CH_3$ or $CH_2F$ and B is a purine base, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;

(g) X is H, OH, F, OMe, halogen, $NH_2$, or $N_3$;

(h) Y is OH, H, $C_{1-4}$ alkyl, $C_{2-4}$ alkenyl, $C_{2-4}$ alkynyl, vinyl, $N_3$, CN, Cl, Br, F, I, $NO_2$, $OC(O)O(C_{1-4}$ alkyl), $OC(O)O(C_{1-4}$ alkyl), $OC(O)O(C_{2-4}$ alkynyl), $OC(O)O(C_{2-4}$ alkenyl), $OC_{1-10}$ haloalkyl, O(aminoacyl), $O(C_{1-10}$ acyl), $O(C_{1-4}$ alkyl), $O(C_{2-4}$ alkenyl), $S(C_{1-4}$ acyl), $S(C_{1-4}$ alkyl), $S(C_{2-4}$ alkynyl), $S(C_{2-4}$ alkenyl), $SO(C_{1-4}$ acyl), $SO(C_{1-4}$ alkyl), $SO(C_{2-4}$ alkynyl), $SO(C_{2-4}$ alkenyl), $SO_2(C_{1-4}$ acyl), $SO_2(C_{1-4}$ alkyl), $SO_2(C_{2-4}$ alkynyl),



Gilead Exhibit 2018
PGR2023-00046 - Page 00135

$SO_2(C_{2-4}$ alkenyl), $OS(O)_2(C_{1-4}$ acyl), $OS(O)_2(C_{1-4}$ alkyl), $OS(O)_2(C_{2-4}$ alkenyl), $NH_2$, $NH(C_{1-4}$ alkyl), $NH(C_{2-4}$ alkenyl), $NH(C_{2-4}$ alkynyl), $NH(C_{1-4}$ acyl), $N(C_{1-4}$ alkyl)$_2$, $N(C_{1-18}$ acyl)$_2$, wherein alkyl, alkynyl, alkenyl and vinyl are optionally substituted by $N_3$, CN, one to three halogen (Cl, Br, F, I), $NO_2$, $C(O)O(C_{1-4}$ alkyl), $C(O)O(C_{1-4}$ alkyl), $C(O)O(C_{2-4}$ alkynyl), $C(O)O(C_{2-4}$ alkenyl), $O(C_{1-4}$ acyl), $O(C_{1-4}$ alkyl), $O(C_{2-4}$ alkenyl), $S(C_{1-4}$ acyl), $S(C_{1-4}$ alkyl), $S(C_{2-4}$ alkynyl), $S(C_{2-4}$ alkenyl), $SO(C_{1-4}$ acyl), $SO(C_{1-4}$ alkyl), $SO(C_{2-4}$ alkynyl), $SO(C_{2-4}$ alkenyl), $SO_2(C_{1-4}$ acyl), $SO_2(C_{1-4}$ alkyl), $SO_2(C_{2-4}$ alkynyl), $SO_2(C_{2-4}$ alkenyl), $OS(O)_2(C_{1-4}$ acyl), $OS(O)_2(C_{1-4}$ alkyl), $OS(O)_2(C_{2-4}$ alkenyl), $NH_2$, $NH(C_{1-4}$ alkyl), $NH(C_{2-4}$ alkenyl), $NH(C_{2-4}$ alkynyl), $NH(C_{1-4}$ acyl), $N(C_{1-4}$ alkyl)$_2$, $N(C_{1-4}$ acyl)$_2$;

(i) $R^{10}$ and $R^{11}$ are independently H, F, Cl, Br, I, OH, OR', SH, SR', $NH_2$, NHR', NR'$_2$, lower alkyl of $C_1$-$C_6$, halogenated (F, Cl, Br, I) lower alkyl of $C_1$-$C_6$, lower alkenyl of $C_2$-$C_6$, halogenated (F, Cl, Br, I) lower alkenyl of $C_2$-$C_6$, lower alkynyl of $C_2$-$C_6$ such as C≡CH, halogenated (F, Cl, Br, I) lower alkynyl of $C_2$-$C_6$, lower alkoxy of $C_1$-$C_6$, halogenated (F, Cl, Br, I) lower alkoxy of $C_1$-$C_6$, $CO_2H$, $CO_2R'$, $CONH_2$, CONHR', CONR'$_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$, with the proviso that when $R^{10}$ is OH and $R^{11}$ is not $NH_2$;

wherein R' is an optionally substituted alkyl , which includes, but is not limited to, an optionally substituted $C_{1-20}$ alkyl, an optionally substituted $C_{1-10}$ alkyl, an optionally substituted lower alkyl; an optionally substituted cycloalkyl; an optionally substituted alkynyl of $C_2$-$C_6$, an optionally substituted lower alkenyl of $C_2$-$C_6$, or optionally substituted acyl, which includes but is not limited to C(O) alkyl, $C(O)(C_{1-20}$ alkyl), $C(O)(C_{1-10}$ alkyl), or C(O)(lower alkyl) or alternatively, in the instance of NR'$_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

(j) Z is N or $CR^{12}$; and

$R^{12}$ is an H, halogen (including F, Cl, Br, I), OH, OR', SH, SR', $NH_2$, NHR', NR'$_2$, $NO_2$ lower alkyl of $C_1$-$C_6$, halogenated (F, Cl, Br, I) lower alkyl of $C_1$-$C_6$, lower alkenyl of $C_2$-$C_6$, halogenated (F, Cl, Br, I) lower alkenyl of $C_2$-$C_6$ , lower alkynyl of $C_2$-$C_6$, halogenated (F, Cl, Br, I) lower alkynyl of $C_2$-$C_6$, lower alkoxy of $C_1$-$C_6$, halogenated (F,



Gilead Exhibit 2018
PGR2023-00046 - Page 00136

Cl, Br, I) lower alkoxy of $C_1$-$C_6$, $CO_2H$, $CO_2R'$, $CONH_2$, $CONHR'$, $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$.

A second aspect of the third embodiment is directed to a compound represented by formula **I-5**

wherein

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, CN, $CH_3$, $OCH_3$, $CH_2OH$, $CH_2F$, halogen, including F, Cl, Br, or I, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H.

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;

(g) X is H, OH, F, $OCH_3$, Cl, Br, I, $NH_2$, or $N_3$;

(h) Y is OH, H, $CH_3$, vinyl, $NH_2$, $N_3$, CN, Cl, Br, F, I, $OC(O)CH_3$, $OCH_3$;

(i) $R^{10}$ and $R^{11}$ are independently H, F, Br, I, OH, OR', $NH_2$, NHR', $NR'_2$, $CO_2R'$, $CONH_2$, $CONHR'$, $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$, with the proviso that when $R^{10}$ is OH and $R^{11}$ is not $NH_2$;



Gilead Exhibit 2018
PGR2023-00046 - Page 00137

wherein R' is a lower alkyl, a lower cycloalkyl, or C(O)(lower alkyl) or alternatively, in the instance of $NR'_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

(j) Z is N or $CR^{12}$; and

$R^{12}$ is an H, halogen (including F, Cl, Br, I), OR', $NH_2$, NHR', $NR'_2$, $NO_2$, lower alkyl of $C_1$-$C_6$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$.

A third aspect of the third embodiment is directed to a compound represented by formula **I-5**

wherein

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, CN, $CH_2F$, F, Cl, Br, or I; with the proviso that X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

(g) X is H, OH, F, $OCH_3$, F, Cl, Br, I, $NH_2$ or $N_3$;

(h) Y is H, OH, $CH_3$, F, Cl, Br, I, $NH_2$ or $N_3$, $OCH_3$, or $OC(O)CH_3$;



Gilead Exhibit 2018
PGR2023-00046 - Page 00138

(i) $R^{10}$ and $R^{11}$ are independently H, F, Br, I, OH, OR', $NH_2$, NHR', $NR'_2$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$, with the proviso that when $R^{10}$ is OH and $R^{11}$ is not $NH_2$;

wherein R' is a lower alkyl, a lower cycloalkyl, or C(O)(lower alkyl) or alternatively, in the instance of $NR'_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

(j) Z is N or $CR^{12}$; and

$R^{12}$ is an H, halogen (including F, Cl, Br, I), OR', $NH_2$, NHR', $NR'_2$, $NO_2$, lower alkyl of $C_1$-$C_6$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$.

A fourth aspect of the third embodiment is directed to a compound represented by formula **I-5**

wherein

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;



Gilead Exhibit 2018
PGR2023-00046 - Page 00139

(g) X is H, OH, $OCH_3$, F, $NH_2$ or $N_3$;

(h) Y is OH, $NH_2$, $OCH_3$, or $OC(O)CH_3$;

(i) $R^{10}$ and $R^{11}$ are independently H, F, Br, I, OH, OR', $NH_2$, NHR', $NR'_2$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$, with the proviso that when $R^{10}$ is OH and $R^{11}$ is not $NH_2$;

wherein R' is a lower alkyl, a lower cycloalkyl, or C(O)(lower alkyl) or alternatively, in the instance of $NR'_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

(j) Z is N or $CR^{12}$; and

$R^{12}$ is an H, halogen (including F, Cl, Br, I), OR', $NH_2$, NHR', $NR'_2$, $NO_2$, lower alkyl of $C_1$-$C_6$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$.

A fifth aspect of the third embodiment is directed to a compound represented by formula **I-5**

wherein

(a) $R^1$ is hydrogen, methyl, phenyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;



Gilead Exhibit 2018
PGR2023-00046 - Page 00140

(e) $R^5$ is H, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

(g) X is H, OH, $OCH_3$, F, $NH_2$ or $N_3$;

(h) Y is OH, $NH_2$, $OCH_3$, or $OC(O)CH_3$;

(i) $R^{10}$ and $R^{11}$ are independently H, F, Br, I, OH, OR', $NH_2$, NHR', $NR'_2$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$, with the proviso that when $R^{10}$ is OH and $R^{11}$ is not $NH_2$;

wherein R' is a lower alkyl, a lower cycloalkyl, or C(O)(lower alkyl) or alternatively, in the instance of $NR'_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

(j) Z is N or $CR^{12}$; and

$R^{12}$ is an H, halogen (including F, Cl, Br, I), OR', $NH_2$, NHR', $NR'_2$, $NO_2$, lower alkyl of $C_1$-$C_6$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$.

A sixth aspect of the third embodiment is directed to a compound represented by formula **I-5**

wherein

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl;



Gilead Exhibit 2018
PGR2023-00046 - Page 00141

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, CN, $CH_3$, $OCH_3$, $CH_2OH$, $CH_2F$, halogen, including F, Cl, Br, or I, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H.

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;

(g) X is H, OH, F, $OCH_3$, Cl, Br, I, $NH_2$, or $N_3$;

(h) Y is OH, H, $CH_3$, vinyl, $NH_2$, $N_3$, CN, Cl, Br, F, I, $OC(O)CH_3$, $OCH_3$;

(i) $R^{10}$ is $NH_2$ and $R^{11}$ is H, F, Br, I, OH, OR', $NH_2$, NHR', $NR'_2$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$;

wherein R' is a lower alkyl, a lower cycloalkyl, or C(O)(lower alkyl) or alternatively, in the instance of $NR'_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

(j) Z is N or $CR^{12}$; and

$R^{12}$ is an H, halogen (including F, Cl, Br, I), OR', $NH_2$, NHR', $NR'_2$, $NO_2$, lower alkyl of $C_1$-$C_6$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$.

A seventh aspect of the third embodiment is directed to a compound represented by formula **I-5**

wherein

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen or $CH_3$;



Gilead Exhibit 2018
PGR2023-00046 - Page 00142

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, CN, $CH_2F$, F, Cl, Br, or I; with the proviso that X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

(g) X is H, OH, F, $OCH_3$, F, Cl, Br, I, $NH_2$ or $N_3$;

(h) Y is H, OH, $CH_3$, F, Cl, Br, I, $NH_2$ or $N_3$, $OCH_3$, or $OC(O)CH_3$;

(i) $R^{10}$ is $NH_2$ and $R^{11}$ is H, F, Br, I, OH, OR', $NH_2$, NHR', $NR'_2$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$;

wherein R' is a lower alkyl, a lower cycloalkyl, or C(O)(lower alkyl) or alternatively, in the instance of $NR'_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

(j) Z is N or $CR^{12}$; and

$R^{12}$ is an H, halogen (including F, Cl, Br, I), OR', $NH_2$, NHR', $NR'_2$, $NO_2$, lower alkyl of $C_1$-$C_6$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$.

An eighth aspect of the third embodiment is directed to a compound represented by formula **I-5**

wherein

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;



Gilead Exhibit 2018
PGR2023-00046 - Page 00143

(b) $R^2$ is hydrogen;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl;

(e) $R^5$ is H, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

(g) X is H, OH, $OCH_3$, F, $NH_2$ or $N_3$;

(h) Y is OH, $NH_2$, $OCH_3$, or $OC(O)CH_3$;

(i) $R^{10}$ is $NH_2$ and $R^{11}$ is H, F, Br, I, OH, OR', $NH_2$, NHR', NR'$_2$, $CO_2R'$, $CONH_2$, CONHR', CONR'$_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$;

wherein R' is a lower alkyl, a lower cycloalkyl, or C(O)(lower alkyl) or alternatively, in the instance of NR'$_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

(j) Z is N or $CR^{12}$; and

$R^{12}$ is an H, halogen (including F, Cl, Br, I), OR', $NH_2$, NHR', NR'$_2$, $NO_2$, lower alkyl of $C_1$-$C_6$, $CO_2R'$, $CONH_2$, CONHR', CONR'$_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$.

A ninth aspect of the third embodiment is directed to a compound represented by formula **I-5**

wherein



Gilead Exhibit 2018
PGR2023-00046 - Page 00144

(a) $R^1$ is hydrogen, methyl, phenyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, or N-methyl-pyrrolidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

(g) X is H, OH, $OCH_3$, F, $NH_2$ or $N_3$;

(h) Y is OH, $NH_2$, $OCH_3$, or $OC(O)CH_3$;

(i) $R^{10}$ is $NH_2$ and $R^{11}$ is H, F, Br, I, OH, OR', $NH_2$, NHR', $NR'_2$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$;

wherein R' is a lower alkyl, a lower cycloalkyl, or C(O)(lower alkyl) or alternatively, in the instance of $NR'_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

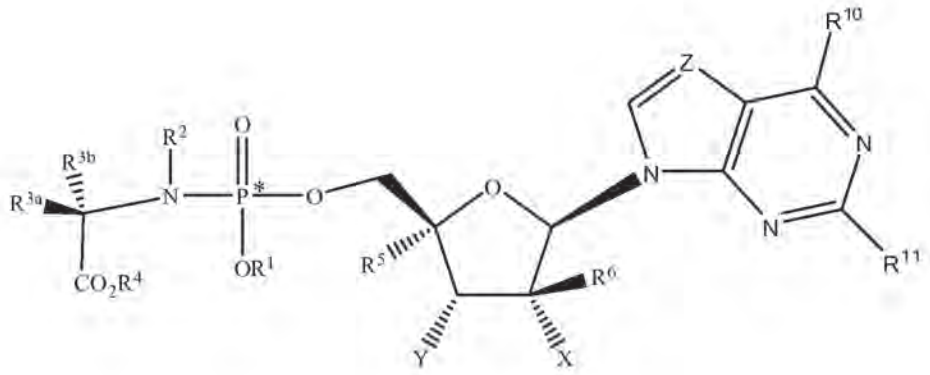
(j) Z is N or $CR^{12}$; and

$R^{12}$ is an H, halogen (including F, Cl, Br, I), OR', $NH_2$, NHR', $NR'_2$, $NO_2$, lower alkyl of $C_1$-$C_6$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$.

A tenth aspect of the third embodiment is directed to a compound represented by formula **I-6**



Gilead Exhibit 2018
PGR2023-00046 - Page 00145



**I-6**

wherein

(a) $R^1$ is hydrogen, n-alkyl; branched alkyl; cycloalkyl; or aryl, which includes, but is not limited to, phenyl or naphthyl, where phenyl or naphthyl are optionally substituted with at least one of $C_{1-6}$ alkyl, $C_{2-6}$ alkenyl, $C_{2-6}$ alkynyl, $C_{1-6}$ alkoxy, F, Cl, Br, I, nitro, cyano, $C_{1-6}$ haloalkyl, $-N(R^{1'})_2$, $C_{1-6}$ acylamino, $-NHSO_2C_{1-6}$ alkyl, $-SO_2N(R^{1'})_2$, $COR^{1''}$, and $-SO_2C_{1-6}$ alkyl; ($R^{1'}$ is independently hydrogen or alkyl, which includes, but is not limited to, $C_{1-20}$ alkyl, $C_{1-10}$ alkyl, or $C_{1-6}$ alkyl, $R^{1''}$ is –OR' or $-N(R^{1'})_2$);

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ and $R^{3b}$ are (i) independently selected from hydrogen, $C_{1-10}$ alkyl, cycloalkyl, $-(CH_2)_c(NR^{3'})_2$, $C_{1-6}$ hydroxyalkyl, $-CH_2SH$, $-(CH_2)_2S(O)_dMe$, $-(CH_2)_3NHC(=NH)NH_2$, (1H-indol-3-yl)methyl, (1H-imidazol-4-yl)methyl, $-(CH_2)_eCOR^{3''}$, aryl and aryl $C_{1-3}$ alkyl, said aryl groups optionally substituted with a group selected from hydroxyl, $C_{1-10}$ alkyl, $C_{1-6}$ alkoxy, halogen, nitro and cyano; (ii) $R^{3a}$ and $R^{3b}$ both are $C_{1-6}$ alkyl; (iii) $R^{3a}$ and $R^{3b}$ together are$(CH_2)_f$ so as to form a spiro ring; (iv) $R^{3a}$ is hydrogen and $R^{3b}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms (v) $R^{3b}$ is hydrogen and $R^{3a}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms, where c is 1 to 6, d is 0 to 2, e is 0 to 3, f is 2 to 5, n is 2 to 4, and where $R^{3'}$ is independently hydrogen



Gilead Exhibit 2018
PGR2023-00046 - Page 00146

or $C_{1-6}$ alkyl and $R^{3''}$ is -OR' or $-N(R^{3'})_2$); (vi) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH_2CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl; or (viii) $R^{3a}$ is $CH_3$, $-CH_2CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl and $R^{3b}$ is H, where $R^{3'}$ is independently hydrogen or alkyl, which includes, but is not limited to, $C_{1-20}$ alkyl, $C_{1-10}$ alkyl, or $C_{1-6}$ alkyl, $R^{3''}$ is –OR' or $-N(R^{3'})_2$);

(d) $R^4$ is hydrogen, $C_{1-10}$ alkyl, $C_{1-10}$ alkyl optionally substituted with a lower alkyl, alkoxy or halogen, $C_{1-10}$ haloalkyl, $C_{3-10}$ cycloalkyl, cycloalkyl alkyl, cycloheteroalkyl, aminoacyl, di(lower alkyl)amino-lower alkyl, aryl, such as phenyl, heteroaryl, such as, pyridinyl, substituted aryl, or substituted heteroaryl;

(e) $R^5$ is H, a lower alkyl, CN, vinyl, O-(lower alkyl), hydroxyl lower alkyl, i.e., $-(CH_2)_pOH$, where p is 1 -6, including hydroxyl methyl ($CH_2OH$), $CH_2F$, $N_3$, $CH_2CN$, $CH_2NH_2$, $CH_2NHCH_3$, $CH_2N(CH_3)_2$, alkyne (optionally substituted), or halogen, including F, Cl, Br, or I, with the provisos that when X is OH, base is cytosine and $R^6$ is H, $R^5$ cannot be $N_3$ and when X is OH, $R^6$ is $CH_3$ or $CH_2F$ and B is a purine base, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;

(g) X is H, OH, F, OMe, Cl, Br, I, $NH_2$, or $N_3$;

(h) Y is OH, H, $C_{1-4}$ alkyl, $C_{2-4}$ alkenyl, $C_{2-4}$ alkynyl, vinyl, $N_3$, CN, Cl, Br, F, I, $NO_2$, $OC(O)O(C_{1-4}$ alkyl), $OC(O)O(C_{1-4}$ alkyl), $OC(O)O(C_{2-4}$ alkynyl), $OC(O)O(C_{2-4}$ alkenyl), $OC_{1-10}$ haloalkyl, O(aminoacyl), $O(C_{1-10}$ acyl), $O(C_{1-4}$ alkyl), $O(C_{2-4}$ alkenyl), $S(C_{1-4}$ acyl), $S(C_{1-4}$ alkyl), $S(C_{2-4}$ alkynyl), $S(C_{2-4}$ alkenyl), $SO(C_{1-4}$ acyl), $SO(C_{1-4}$ alkyl), $SO(C_{2-4}$ alkynyl), $SO(C_{2-4}$ alkenyl), $SO_2(C_{1-4}$ acyl), $SO_2(C_{1-4}$ alkyl), $SO_2(C_{2-4}$ alkynyl),



Gilead Exhibit 2018
PGR2023-00046 - Page 00147

$SO_2(C_{2-4}$ alkenyl), $OS(O)_2(C_{1-4}$ acyl), $OS(O)_2(C_{1-4}$ alkyl), $OS(O)_2(C_{2-4}$ alkenyl), $NH_2$, $NH(C_{1-4}$ alkyl), $NH(C_{2-4}$ alkenyl), $NH(C_{2-4}$ alkynyl), $NH(C_{1-4}$ acyl), $N(C_{1-4}$ alkyl)$_2$, $N(C_{1-18}$ acyl)$_2$, wherein alkyl, alkynyl, alkenyl and vinyl are optionally substituted by $N_3$, CN, one to three halogen (Cl, Br, F, I), $NO_2$, $C(O)O(C_{1-4}$ alkyl), $C(O)O(C_{1-4}$ alkyl), $C(O)O(C_{2-4}$ alkynyl), $C(O)O(C_{2-4}$ alkenyl), $O(C_{1-4}$ acyl), $O(C_{1-4}$ alkyl), $O(C_{2-4}$ alkenyl), $S(C_{1-4}$ acyl), $S(C_{1-4}$ alkyl), $S(C_{2-4}$ alkynyl), $S(C_{2-4}$ alkenyl), $SO(C_{1-4}$ acyl), $SO(C_{1-4}$ alkyl), $SO(C_{2-4}$ alkynyl), $SO(C_{2-4}$ alkenyl), $SO_2(C_{1-4}$ acyl), $SO_2(C_{1-4}$ alkyl), $SO_2(C_{2-4}$ alkynyl), $SO_2(C_{2-4}$ alkenyl), $OS(O)_2(C_{1-4}$ acyl), $OS(O)_2(C_{1-4}$ alkyl), $OS(O)_2(C_{2-4}$ alkenyl), $NH_2$, $NH(C_{1-4}$ alkyl), $NH(C_{2-4}$ alkenyl), $NH(C_{2-4}$ alkynyl), $NH(C_{1-4}$ acyl), $N(C_{1-4}$ alkyl)$_2$, $N(C_{1-4}$ acyl)$_2$;

(i) $R^{10}$ and $R^{11}$ are independently H, F, Br, I, OH, OR', $NH_2$, NHR', NR'$_2$, $CO_2$R', $CONH_2$, CONHR', CONR'$_2$, $CH=CHCO_2H$, or $CH=CHCO_2$R', with the proviso that when $R^{10}$ is OH and $R^{11}$ is not $NH_2$;

wherein R' is a lower alkyl, a lower cycloalkyl, or C(O)(lower alkyl) or alternatively, in the instance of NR'$_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

(j) Z is N or $CR^{12}$; and

$R^{12}$ is an H, halogen (including F, Cl, Br, I), OR', $NH_2$, NHR', NR'$_2$, $NO_2$, lower alkyl of $C_1$-$C_6$, $CO_2$R', $CONH_2$, CONHR', CONR'$_2$, $CH=CHCO_2H$, or $CH=CHCO_2$R'.

An eleventh aspect of the third embodiment is directed to a compound represented by formula **I-6**

wherein

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2$Ph, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$,



Gilead Exhibit 2018
PGR2023-00046 - Page 00148

$CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, CN, $CH_3$, $OCH_3$, $CH_2OH$, $CH_2F$, halogen, including F, Cl, Br, or I, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;

(g) X is H, OH, F, $OCH_3$, Cl, Br, I, $NH_2$, or $N_3$;

(h) Y is OH, H, $CH_3$, vinyl, $NH_2$, $N_3$, CN, Cl, Br, F, I, $OC(O)CH_3$, $OCH_3$;

(i) $R^{10}$ and $R^{11}$ are independently H, F, Br, I, OH, OR', $NH_2$, NHR', $NR'_2$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$, with the proviso that when $R^{10}$ is OH and $R^{11}$ is not $NH_2$;

wherein R' is a lower alkyl, a lower cycloalkyl, or C(O)(lower alkyl) or alternatively, in the instance of $NR'_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

(j) Z is N or $CR^{12}$; and

$R^{12}$ is an H, halogen (including F, Cl, Br, I), OR', $NH_2$, NHR', $NR'_2$, $NO_2$, lower alkyl of $C_1$-$C_6$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$.

A twelvth aspect of the third embodiment is directed to a compound represented by formula **I-6**

wherein



Gilead Exhibit 2018
PGR2023-00046 - Page 00149

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, CN, $CH_2F$, F, Cl, Br, or I, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

(g) X is H, OH, F, $OCH_3$, F, Cl, Br, I, $NH_2$ or $N_3$;

(h) Y is H, OH, $CH_3$, F, Cl, Br, I, $NH_2$ or $N_3$, $OCH_3$, or $OC(O)CH_3$;

(i) $R^{10}$ and $R^{11}$ are independently H, F, Br, I, OH, OR', $NH_2$, NHR', $NR'_2$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$, with the proviso that when $R^{10}$ is OH and $R^{11}$ is not $NH_2$;

wherein R' is a lower alkyl, a lower cycloalkyl, or C(O)(lower alkyl) or alternatively, in the instance of $NR'_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

(j) Z is N or $CR^{12}$; and

$R^{12}$ is a H, halogen (including F, Cl, Br, I), OR', $NH_2$, NHR', $NR'_2$, $NO_2$, lower alkyl of $C_1$-$C_6$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$.

A thirteenth aspect of the third embodiment is directed to a compound represented



Gilead Exhibit 2018
PGR2023-00046 - Page 00150

by formula **I-6**

wherein

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

(g) X is H, OH, $OCH_3$, F, $NH_2$ or $N_3$;

(h) Y is OH, $NH_2$, $OCH_3$, or $OC(O)CH_3$;

(i) $R^{10}$ and $R^{11}$ are independently H, F, Br, I, OH, OR', $NH_2$, NHR', $NR'_2$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH{=}CHCO_2H$, or $CH{=}CHCO_2R'$, with the proviso that when $R^{10}$ is OH and $R^{11}$ is not $NH_2$;

wherein R' is a lower alkyl, a lower cycloalkyl, or C(O)(lower alkyl) or alternatively, in the instance of $NR'_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

(j) Z is N or $CR^{12}$; and



Gilead Exhibit 2018
PGR2023-00046 - Page 00151

$R^{12}$ is an H, halogen (including F, Cl, Br, I), OR', $NH_2$, NHR', NR'$_2$, $NO_2$, lower alkyl of $C_1$-$C_6$, $CO_2R'$, $CONH_2$, CONHR', CONR'$_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$.

A fourteenth aspect of the third embodiment is directed to a compound represented by formula **I-6**

wherein

(a) $R^1$ is hydrogen, methyl, phenyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

(g) X is H, OH, $OCH_3$, F, $NH_2$ or $N_3$;

(h) Y is OH, $NH_2$, $OCH_3$, or $OC(O)CH_3$;

(i) $R^{10}$ and $R^{11}$ are independently H, F, Br, I, OH, OR', $NH_2$, NHR', NR'$_2$, $CO_2R'$, $CONH_2$, CONHR', CONR'$_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$, with the proviso that when $R^{10}$ is OH and $R^{11}$ is not $NH_2$;



Gilead Exhibit 2018
PGR2023-00046 - Page 00152

wherein R' is a lower alkyl, a lower cycloalkyl, or C(O)(lower alkyl) or alternatively, in the instance of $NR'_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

(j) Z is N or $CR^{12}$; and

$R^{12}$ is an H, halogen (including F, Cl, Br, I), OR', $NH_2$, NHR', $NR'_2$, $NO_2$, lower alkyl of $C_1$-$C_6$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$.

A fifteenth aspect of the third embodiment is directed to a compound represented by formula **I-6**

wherein

(a) $R^1$ is hydrogen, n-alkyl; branched alkyl; cycloalkyl; or aryl, which includes, but is not limited to, phenyl or naphthyl, where phenyl or naphthyl are optionally substituted with at least one of $C_{1-6}$ alkyl, $C_{2-6}$ alkenyl, $C_{2-6}$ alkynyl, $C_{1-6}$ alkoxy, F, Cl, Br, I, nitro, cyano, $C_{1-6}$ haloalkyl, $-N(R^{1'})_2$, $C_{1-6}$ acylamino, $-NHSO_2C_{1-6}$ alkyl, $-SO_2N(R^{1'})_2$, $COR^{1''}$, and $-SO_2C_{1-6}$ alkyl; ($R^{1'}$ is independently hydrogen or alkyl, which includes, but is not limited to, $C_{1-20}$ alkyl, $C_{1-10}$ alkyl, or $C_{1-6}$ alkyl, $R^{1''}$ is –OR' or $-N(R^{1'})_2$);

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ and $R^{3b}$ are (i) independently selected from hydrogen, $C_{1-10}$ alkyl, cycloalkyl, $-(CH_2)_c(NR^{3'})_2$, $C_{1-6}$ hydroxyalkyl, $-CH_2SH$, $-(CH_2)_2S(O)_dMe$, $-(CH_2)_3NHC(=NH)NH_2$, (1H-indol-3-yl)methyl, (1H-imidazol-4-yl)methyl, $-(CH_2)_eCOR^{3''}$, aryl and aryl $C_{1-3}$ alkyl, said aryl groups optionally substituted with a group selected from hydroxyl, $C_{1-10}$ alkyl, $C_{1-6}$ alkoxy, halogen, nitro and cyano; (ii) $R^{3a}$ and $R^{3b}$ both are $C_{1-6}$ alkyl; (iii) $R^{3a}$ and $R^{3b}$ together are$(CH_2)_f$ so as to form a spiro ring; (iv) $R^{3a}$ is hydrogen and $R^{3b}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms (v) $R^{3b}$ is hydrogen and $R^{3a}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms, where c is 1 to 6, d is 0 to 2, e is 0 to 3, f is 2 to 5, n is 2 to 4, and where $R^{3'}$ is independently hydrogen



Gilead Exhibit 2018
PGR2023-00046 - Page 00153

or $C_{1-6}$ alkyl and $R^{3''}$ is -OR' or $-N(R^{3'})_2$); (vi) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH_2CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl; or (viii) $R^{3a}$ is $CH_3$, $-CH_2CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl and $R^{3b}$ is H, where $R^{3'}$ is independently hydrogen or alkyl, which includes, but is not limited to, $C_{1-20}$ alkyl, $C_{1-10}$ alkyl, or $C_{1-6}$ alkyl, $R^{3''}$ is –OR' or $-N(R^{3'})_2$);

(d) $R^4$ is hydrogen, $C_{1-10}$ alkyl, $C_{1-10}$ alkyl optionally substituted with a lower alkyl, alkoxy or halogen, $C_{1-10}$ haloalkyl, $C_{3-10}$ cycloalkyl, cycloalkyl alkyl, cycloheteroalkyl, aminoacyl, di(lower alkyl)amino-lower alkyl, aryl, such as phenyl, heteroaryl, such as, pyridinyl, substituted aryl, or substituted heteroaryl;

(e) $R^5$ is H, a lower alkyl, CN, vinyl, O-(lower alkyl), hydroxyl lower alkyl, i.e., $-(CH_2)_pOH$, where p is 1 -6, including hydroxyl methyl ($CH_2OH$), $CH_2F$, $N_3$, $CH_2CN$, $CH_2NH_2$, $CH_2NHCH_3$, $CH_2N(CH_3)_2$, alkyne (optionally substituted), or halogen, including F, Cl, Br, or I, with the provisos that when X is OH, base is cytosine and $R^6$ is H, $R^5$ cannot be $N_3$ and when X is OH, $R^6$ is $CH_3$ or $CH_2F$ and B is a purine base, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;

(g) X is H, OH, F, OMe, halogen, $NH_2$, or $N_3$;

(h) Y is OH, H, $C_{1-4}$ alkyl, $C_{2-4}$ alkenyl, $C_{2-4}$ alkynyl, vinyl, $N_3$, CN, Cl, Br, F, I, $NO_2$, $OC(O)O(C_{1-4}$ alkyl), $OC(O)O(C_{1-4}$ alkyl), $OC(O)O(C_{2-4}$ alkynyl), $OC(O)O(C_{2-4}$ alkenyl), $OC_{1-10}$ haloalkyl, O(aminoacyl), $O(C_{1-10}$ acyl), $O(C_{1-4}$ alkyl), $O(C_{2-4}$ alkenyl), $S(C_{1-4}$ acyl), $S(C_{1-4}$ alkyl), $S(C_{2-4}$ alkynyl), $S(C_{2-4}$ alkenyl), $SO(C_{1-4}$ acyl), $SO(C_{1-4}$ alkyl), $SO(C_{2-4}$ alkynyl), $SO(C_{2-4}$ alkenyl), $SO_2(C_{1-4}$ acyl), $SO_2(C_{1-4}$ alkyl), $SO_2(C_{2-4}$ alkynyl),



Gilead Exhibit 2018
PGR2023-00046 - Page 00154

$SO_2(C_{2-4}$ alkenyl), $OS(O)_2(C_{1-4}$ acyl), $OS(O)_2(C_{1-4}$ alkyl), $OS(O)_2(C_{2-4}$ alkenyl), $NH_2$, $NH(C_{1-4}$ alkyl), $NH(C_{2-4}$ alkenyl), $NH(C_{2-4}$ alkynyl), $NH(C_{1-4}$ acyl), $N(C_{1-4}$ alkyl)$_2$, $N(C_{1-18}$ acyl)$_2$, wherein alkyl, alkynyl, alkenyl and vinyl are optionally substituted by $N_3$, CN, one to three halogen (Cl, Br, F, I), $NO_2$, $C(O)O(C_{1-4}$ alkyl), $C(O)O(C_{1-4}$ alkyl), $C(O)O(C_{2-4}$ alkynyl), $C(O)O(C_{2-4}$ alkenyl), $O(C_{1-4}$ acyl), $O(C_{1-4}$ alkyl), $O(C_{2-4}$ alkenyl), $S(C_{1-4}$ acyl), $S(C_{1-4}$ alkyl), $S(C_{2-4}$ alkynyl), $S(C_{2-4}$ alkenyl), $SO(C_{1-4}$ acyl), $SO(C_{1-4}$ alkyl), $SO(C_{2-4}$ alkynyl), $SO(C_{2-4}$ alkenyl), $SO_2(C_{1-4}$ acyl), $SO_2(C_{1-4}$ alkyl), $SO_2(C_{2-4}$ alkynyl), $SO_2(C_{2-4}$ alkenyl), $OS(O)_2(C_{1-4}$ acyl), $OS(O)_2(C_{1-4}$ alkyl), $OS(O)_2(C_{2-4}$ alkenyl), $NH_2$, $NH(C_{1-4}$ alkyl), $NH(C_{2-4}$ alkenyl), $NH(C_{2-4}$ alkynyl), $NH(C_{1-4}$ acyl), $N(C_{1-4}$ alkyl)$_2$, $N(C_{1-4}$ acyl)$_2$;

(i) $R^{10}$ is $NH_2$ and $R^{11}$ is H, F, Br, I, OH, OR', $NH_2$, NHR', NR'$_2$, $CO_2$R', $CONH_2$, CONHR', CONR'$_2$, $CH=CHCO_2H$, or $CH=CHCO_2$R';

wherein R' is a lower alkyl, a lower cycloalkyl, or C(O)(lower alkyl) or alternatively, in the instance of NR'$_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

(j) Z is N or $CR^{12}$; and

$R^{12}$ is an H, halogen (including F, Cl, Br, I), OR', $NH_2$, NHR', NR'$_2$, $NO_2$, lower alkyl of $C_1$-$C_6$, $CO_2$R', $CONH_2$, CONHR', CONR'$_2$, $CH=CHCO_2H$, or $CH=CHCO_2$R'.

An sixteenth aspect of the third embodiment is directed to a compound represented by formula **I-6**

wherein

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$,



Gilead Exhibit 2018
PGR2023-00046 - Page 00155

$CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, CN, $CH_3$, $OCH_3$, $CH_2OH$, $CH_2F$, halogen, including F, Cl, Br, or I, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;

(g) X is H, OH, F, $OCH_3$, Cl, Br, I, $NH_2$, or $N_3$;

(h) Y is OH, H, $CH_3$, vinyl, $NH_2$, $N_3$, CN, Cl, Br, F, I, $OC(O)CH_3$, $OCH_3$;

(i) $R^{10}$ is $NH_2$ and $R^{11}$ is H, F, Br, I, OH, OR', $NH_2$, NHR', $NR'_2$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$;

wherein R' is a lower alkyl, a lower cycloalkyl, or C(O)(lower alkyl) or alternatively, in the instance of $NR'_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

(j) Z is N or $CR^{12}$; and

$R^{12}$ is an H, halogen (including F, Cl, Br, I), OR', $NH_2$, NHR', $NR'_2$, $NO_2$, lower alkyl of $C_1$-$C_6$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$.

A seventeenth aspect of the third embodiment is directed to a compound represented by formula **I-6**

wherein

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;



Gilead Exhibit 2018
PGR2023-00046 - Page 00156

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, CN, $CH_2F$, F, Cl, Br, or I, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

(g) X is H, OH, F, $OCH_3$, F, Cl, Br, I, $NH_2$ or $N_3$;

(h) Y is H, OH, $CH_3$, F, Cl, Br, I, $NH_2$ or $N_3$, $OCH_3$, or $OC(O)CH_3$;

(i) $R^{10}$ is $NH_2$ and $R^{11}$ is H, F, Br, I, OH, OR', $NH_2$, NHR', $NR'_2$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$;

wherein R' is a lower alkyl, a lower cycloalkyl, or C(O)(lower alkyl) or alternatively, in the instance of $NR'_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

(j) Z is N or $CR^{12}$; and

$R^{12}$ is an H, halogen (including F, Cl, Br, I), OR', $NH_2$, NHR', $NR'_2$, $NO_2$, lower alkyl of $C_1$-$C_6$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$.

An eighteenth aspect of the third embodiment is directed to a compound represented by formula **I-6**

wherein



Gilead Exhibit 2018
PGR2023-00046 - Page 00157

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

(g) X is H, OH, $OCH_3$, F, $NH_2$ or $N_3$;

(h) Y is OH, $NH_2$, $OCH_3$, or $OC(O)CH_3$;

(i) $R^{10}$ is $NH_2$ and $R^{11}$ is H, F, Br, I, OH, OR', $NH_2$, NHR', $NR'_2$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$;

wherein R' is a lower alkyl, a lower cycloalkyl, or C(O)(lower alkyl) or alternatively, in the instance of $NR'_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

(j) Z is N or $CR^{12}$; and

$R^{12}$ is an H, halogen (including F, Cl, Br, I), OR', $NH_2$, NHR', $NR'_2$, $NO_2$, lower alkyl of $C_1$-$C_6$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$.

A nineteenth aspect of the third embodiment is directed to a compound represented by formula **I-6**



Gilead Exhibit 2018
PGR2023-00046 - Page 00158

wherein

(a) $R^1$ is hydrogen, methyl, phenyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

(g) X is H, OH, $OCH_3$, F, $NH_2$ or $N_3$;

(h) Y is OH, $NH_2$, $OCH_3$, or $OC(O)CH_3$;

(i) $R^{10}$ is $NH_2$ and $R^{11}$ are independently H, F, Br, I, OH, OR', $NH_2$, NHR', $NR'_2$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$;

wherein R' is a lower alkyl, a lower cycloalkyl, or C(O)(lower alkyl) or alternatively, in the instance of $NR'_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

(j) Z is N or $CR^{12}$; and

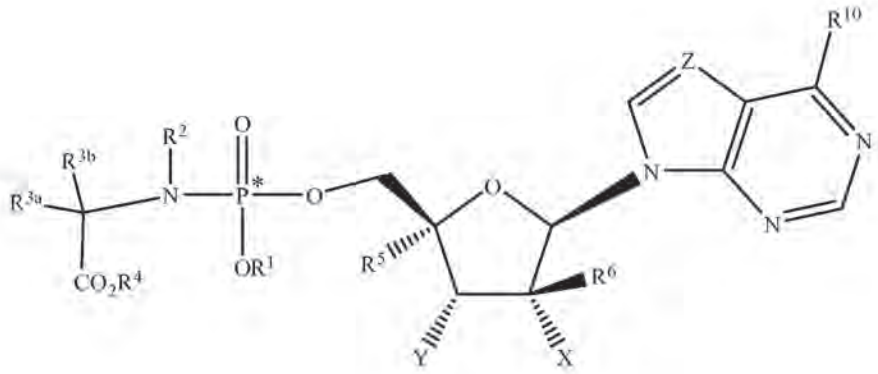
$R^{12}$ is an H, halogen (including F, Cl, Br, I), OR', $NH_2$, NHR', $NR'_2$, $NO_2$, lower alkyl of $C_1$-$C_6$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$.



Gilead Exhibit 2018
PGR2023-00046 - Page 00159

A fourth embodiment of the invention is directed to a compound represented by formula I in which the base is a structure represented by formula **c** above, where $R^{11}$ is H and $R^2$, $R^{3a}$, $R^{3b}$, $R^4$, $R^5$, $R^6$, X, and Y are defined in the Summary of the Invention section above.

A first aspect of the fourth embodiment is directed to a compound represented by formula **I-7**



**I-7**

wherein

(a) $R^1$ is hydrogen, n-alkyl; branched alkyl; cycloalkyl; or aryl, which includes, but is not limited to, phenyl or naphthyl, where phenyl or naphthyl are optionally substituted with at least one of $C_{1-6}$ alkyl, $C_{2-6}$ alkenyl, $C_{2-6}$ alkynyl, $C_{1-6}$ alkoxy, F, Cl, Br, I, nitro, cyano, $C_{1-6}$ haloalkyl, $-N(R^{1'})_2$, $C_{1-6}$ acylamino, $-NHSO_2C_{1-6}$ alkyl, $-SO_2N(R^{1'})_2$, $COR^{1''}$, and $-SO_2C_{1-6}$ alkyl; ($R^{1'}$ is independently hydrogen or alkyl, which includes, but is not limited to, $C_{1-20}$ alkyl, $C_{1-10}$ alkyl, or $C_{1-6}$ alkyl, $R^{1''}$ is $-OR^{1'}$ or $-N(R^{1'})_2$);

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ and $R^{3b}$ are (i) independently selected from hydrogen, $C_{1-10}$ alkyl, cycloalkyl, $-(CH_2)_c(NR^{3'})_2$, $C_{1-6}$ hydroxyalkyl, $-CH_2SH$, $-(CH_2)_2S(O)_dMe$, $-(CH_2)_3NHC(=NH)NH_2$, (1H-indol-3-yl)methyl, (1H-imidazol-4-yl)methyl, -



Gilead Exhibit 2018
PGR2023-00046 - Page 00160

$(CH_2)_eCOR^{3''}$, aryl and aryl $C_{1-3}$ alkyl, said aryl groups optionally substituted with a group selected from hydroxyl, $C_{1-10}$ alkyl, $C_{1-6}$ alkoxy, halogen, nitro and cyano; (ii) $R^{3a}$ and $R^{3b}$ both are $C_{1-6}$ alkyl; (iii) $R^{3a}$ and $R^{3b}$ together are$(CH_2)_f$ so as to form a spiro ring; (iv) $R^{3a}$ is hydrogen and $R^{3b}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms (v) $R^{3b}$ is hydrogen and $R^{3a}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms, where c is 1 to 6, d is 0 to 2, e is 0 to 3, f is 2 to 5, n is 2 to 4, and where $R^{3'}$ is independently hydrogen or $C_{1-6}$ alkyl and $R^{3''}$ is -OR' or $-N(R^{3'})_2$); (vi) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH_2CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl; or (viii) $R^{3a}$ is $CH_3$, $-CH_2CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl and $R^{3b}$ is H, where $R^{3'}$ is independently hydrogen or alkyl, which includes, but is not limited to, $C_{1-20}$ alkyl, $C_{1-10}$ alkyl, or $C_{1-6}$ alkyl, $R^{3''}$ is –OR' or $-N(R^{3'})_2$);

(d) $R^4$ is hydrogen, $C_{1-10}$ alkyl, $C_{1-10}$ alkyl optionally substituted with a lower alkyl, alkoxy or halogen, $C_{1-10}$ haloalkyl, $C_{3-10}$ cycloalkyl, cycloalkyl alkyl, cycloheteroalkyl, aminoacyl, di(lower alkyl)amino-lower alkyl, aryl, such as phenyl, heteroaryl, such as, pyridinyl, substituted aryl, or substituted heteroaryl;

(e) $R^5$ is H, a lower alkyl, CN, vinyl, O-(lower alkyl), hydroxyl lower alkyl, i.e., $-(CH_2)_pOH$, where p is 1 -6, including hydroxyl methyl ($CH_2OH$), $CH_2F$, $N_3$, $CH_2CN$, $CH_2NH_2$, $CH_2NHCH_3$, $CH_2N(CH_3)_2$, alkyne (optionally substituted), or halogen, including F, Cl, Br, or I, with the provisos that when X is OH, base is cytosine and $R^6$ is H, $R^5$ cannot be $N_3$ and when X is OH, $R^6$ is $CH_3$ or $CH_2F$ and B is a purine base, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;



Gilead Exhibit 2018
PGR2023-00046 - Page 00161

(g) X is H, OH, F, OMe, halogen, $NH_2$, or $N_3$;

(h) Y is OH, H, $C_{1-4}$ alkyl, $C_{2-4}$ alkenyl, $C_{2-4}$ alkynyl, vinyl, $N_3$, CN, Cl, Br, F, I, $NO_2$, $OC(O)O(C_{1-4}$ alkyl), $OC(O)O(C_{1-4}$ alkyl), $OC(O)O(C_{2-4}$ alkynyl), $OC(O)O(C_{2-4}$ alkenyl), $OC_{1-10}$ haloalkyl, O(aminoacyl), $O(C_{1-10}$ acyl), $O(C_{1-4}$ alkyl), $O(C_{2-4}$ alkenyl), $S(C_{1-4}$ acyl), $S(C_{1-4}$ alkyl), $S(C_{2-4}$ alkynyl), $S(C_{2-4}$ alkenyl), $SO(C_{1-4}$ acyl), $SO(C_{1-4}$ alkyl), $SO(C_{2-4}$ alkynyl), $SO(C_{2-4}$ alkenyl), $SO_2(C_{1-4}$ acyl), $SO_2(C_{1-4}$ alkyl), $SO_2(C_{2-4}$ alkynyl), $SO_2(C_{2-4}$ alkenyl), $OS(O)_2(C_{1-4}$ acyl), $OS(O)_2(C_{1-4}$ alkyl), $OS(O)_2(C_{2-4}$ alkenyl), $NH_2$, $NH(C_{1-4}$ alkyl), $NH(C_{2-4}$ alkenyl), $NH(C_{2-4}$ alkynyl), $NH(C_{1-4}$ acyl), $N(C_{1-4}$ alkyl)$_2$, $N(C_{1-18}$ acyl)$_2$, wherein alkyl, alkynyl, alkenyl and vinyl are optionally substituted by $N_3$, CN, one to three halogen (Cl, Br, F, I), $NO_2$, $C(O)O(C_{1-4}$ alkyl), $C(O)O(C_{1-4}$ alkyl), $C(O)O(C_{2-4}$ alkynyl), $C(O)O(C_{2-4}$ alkenyl), $O(C_{1-4}$ acyl), $O(C_{1-4}$ alkyl), $O(C_{2-4}$ alkenyl), $S(C_{1-4}$ acyl), $S(C_{1-4}$ alkyl), $S(C_{2-4}$ alkynyl), $S(C_{2-4}$ alkenyl), $SO(C_{1-4}$ acyl), $SO(C_{1-4}$ alkyl), $SO(C_{2-4}$ alkynyl), $SO(C_{2-4}$ alkenyl), $SO_2(C_{1-4}$ acyl), $SO_2(C_{1-4}$ alkyl), $SO_2(C_{2-4}$ alkynyl), $SO_2(C_{2-4}$ alkenyl), $OS(O)_2(C_{1-4}$ acyl), $OS(O)_2(C_{1-4}$ alkyl), $OS(O)_2(C_{2-4}$ alkenyl), $NH_2$, $NH(C_{1-4}$ alkyl), $NH(C_{2-4}$ alkenyl), $NH(C_{2-4}$ alkynyl), $NH(C_{1-4}$ acyl), $N(C_{1-4}$ alkyl)$_2$, $N(C_{1-4}$ acyl)$_2$;

(i) $R^{10}$ is H, F, Cl, Br, I, OH, OR', SH, SR', $NH_2$, NHR', NR'$_2$, lower alkyl of $C_1$-$C_6$, halogenated (F, Cl, Br, I) lower alkyl of $C_1$-$C_6$, lower alkenyl of $C_2$-$C_6$, halogenated (F, Cl, Br, I) lower alkenyl of $C_2$-$C_6$, lower alkynyl of $C_2$-$C_6$ such as C≡CH, halogenated (F, Cl, Br, I) lower alkynyl of $C_2$-$C_6$, lower alkoxy of $C_1$-$C_6$, halogenated (F, Cl, Br, I) lower alkoxy of $C_1$-$C_6$, $CO_2H$, $CO_2R'$, $CONH_2$, CONHR', CONR'$_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$,

wherein R' is an optionally substituted alkyl , which includes, but is not limited to, an optionally substituted $C_{1-20}$ alkyl, an optionally substituted $C_{1-10}$ alkyl, an optionally substituted lower alkyl; an optionally substituted cycloalkyl; an optionally substituted alkynyl of $C_2$-$C_6$, an optionally substituted lower alkenyl of $C_2$-$C_6$, or optionally substituted acyl, which includes but is not limited to C(O) alkyl, $C(O)(C_{1-20}$ alkyl), $C(O)(C_{1-10}$ alkyl), or C(O)(lower alkyl) or alternatively, in the instance of NR'$_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and



Gilead Exhibit 2018
PGR2023-00046 - Page 00162

(j) Z is N or $CR^{12}$; and

$R^{12}$ is H, halogen (including F, Cl, Br, I), OH, OR', SH, SR', $NH_2$, NHR', $NR'_2$, $NO_2$ lower alkyl of $C_1$-$C_6$, halogenated (F, Cl, Br, I) lower alkyl of $C_1$-$C_6$, lower alkenyl of $C_2$-$C_6$, halogenated (F, Cl, Br, I) lower alkenyl of $C_2$-$C_6$ , lower alkynyl of $C_2$-$C_6$, halogenated (F, Cl, Br, I) lower alkynyl of $C_2$-$C_6$, lower alkoxy of $C_1$-$C_6$, halogenated (F, Cl, Br, I) lower alkoxy of $C_1$-$C_6$, $CO_2H$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$; with the proviso that $R^{12}$ is not a: (i) –C≡C–H, (ii) –$C=CH_2$, or (iii) $–NO_2$.

A second aspect of the fourth embodiment is directed to a compound represented by formula **I-7**

wherein

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, CN, $CH_3$, $OCH_3$, $CH_2OH$, $CH_2F$, halogen, including F, Cl, Br, or I, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H.

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;



Gilead Exhibit 2018
PGR2023-00046 - Page 00163

(g) X is H, OH, F, $OCH_3$, halogen, $NH_2$, or $N_3$;

(h) Y is OH, H, $CH_3$, vinyl, $NH_2$, $N_3$, CN, Cl, Br, F, I, $OC(O)CH_3$, $OCH_3$;

(i) $R^{10}$ is H, F, Br, I, OH, OR', $NH_2$, NHR', $NR'_2$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$,

wherein R' is a lower alkyl, a lower cycloalkyl, or C(O)(lower alkyl) or alternatively, in the instance of $NR'_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

(j) Z is N or $CR^{12}$; and

$R^{12}$ is H, halogen (including F, Cl, Br, I), OR', $NH_2$, NHR', $NR'_2$, $NO_2$, lower alkyl of $C_1$-$C_6$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$; with the proviso that $R^{12}$ is not a: (i) $-C\equiv C-H$, (ii) $-C=CH_2$, or (iii) $-NO_2$.

A third aspect of the third embodiment is directed to a compound represented by formula **I-7**

wherein

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;



Gilead Exhibit 2018
PGR2023-00046 - Page 00164

(e) $R^5$ is H, CN, $CH_2F$, F, Cl, Br, or I; with the proviso that X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

(g) X is H, OH, F, $OCH_3$, F, Cl, Br, I, $NH_2$ or $N_3$;

(h) Y is H, OH, $CH_3$, F, Cl, Br, I, $NH_2$ or $N_3$, $OCH_3$, or $OC(O)CH_3$;

(i) $R^{10}$ is H, F, Br, I, OH, OR', $NH_2$, NHR', NR'$_2$, $CO_2R'$, $CONH_2$, CONHR', CONR'$_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$,

wherein R' is a lower alkyl, a lower cycloalkyl, or C(O)(lower alkyl) or alternatively, in the instance of NR'$_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

(j) Z is N or $CR^{12}$; and

$R^{12}$ is H, halogen (including F, Cl, Br, I), OR', $NH_2$, NHR', NR'$_2$, $NO_2$, lower alkyl of $C_1$-$C_6$, $CO_2R'$, $CONH_2$, CONHR', CONR'$_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$; with the proviso that $R^{12}$ is not a: (i) $-C\equiv C-H$, (ii) $-C=CH_2$, or (iii) $-NO_2$.

A fourth aspect of the fourth embodiment is directed to a compound represented by formula **I-7**

wherein

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-



Gilead Exhibit 2018
PGR2023-00046 - Page 00165

methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

(g) X is H, OH, $OCH_3$, F, $NH_2$ or $N_3$;

(h) Y is OH, $NH_2$, $OCH_3$, or $OC(O)CH_3$;

(i) $R^{10}$ and $R^{11}$ H, F, Br, I, OH, OR', $NH_2$, NHR', NR'$_2$, $CO_2$R', $CONH_2$, CONHR', CONR'$_2$, CH=CH$CO_2$H, or CH=CH$CO_2$R',

wherein R' is a lower alkyl, a lower cycloalkyl, or C(O)(lower alkyl) or alternatively, in the instance of NR'$_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

(j) Z is N or $CR^{12}$; and

$R^{12}$ is an H, halogen (including F, Cl, Br, I), OR', $NH_2$, NHR', NR'$_2$, $NO_2$, lower alkyl of $C_1$-$C_6$, $CO_2$R', $CONH_2$, CONHR', CONR'$_2$, CH=CH$CO_2$H, or CH=CH$CO_2$R'; with the proviso that $R^{12}$ is not a: (i) –C≡C–H, (ii) –C=$CH_2$, or (iii) –$NO_2$.

A fifth aspect of the fourth embodiment is directed to a compound represented by formula **I-7**

wherein

(a) $R^1$ is hydrogen, methyl, phenyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;



Gilead Exhibit 2018
PGR2023-00046 - Page 00166

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

(g) X is H, OH, $OCH_3$, F, $NH_2$ or $N_3$;

(h) Y is OH, $NH_2$, $OCH_3$, or $OC(O)CH_3$;

(i) $R^{10}$ is H, F, Br, I, OH, OR', $NH_2$, NHR', $NR'_2$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$,

wherein R' is a lower alkyl, a lower cycloalkyl, or C(O)(lower alkyl) or alternatively, in the instance of $NR'_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

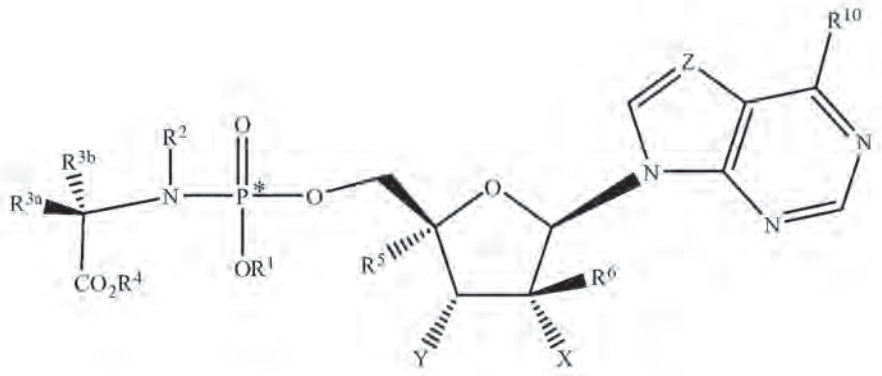
(j) Z is N or $CR^{12}$; and

$R^{12}$ is H, halogen (including F, Cl, Br, I), OR', $NH_2$, NHR', $NR'_2$, $NO_2$, lower alkyl of $C_1$-$C_6$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$.

A sixth aspect of the fourth embodiment is directed to a compound represented by formula **I-8**



Gilead Exhibit 2018
PGR2023-00046 - Page 00167



**I-8**

wherein

(a) $R^1$ is hydrogen, n-alkyl; branched alkyl; cycloalkyl; or aryl, which includes, but is not limited to, phenyl or naphthyl, where phenyl or naphthyl are optionally substituted with at least one of $C_{1-6}$ alkyl, $C_{2-6}$ alkenyl, $C_{2-6}$ alkynyl, $C_{1-6}$ alkoxy, F, Cl, Br, I, nitro, cyano, $C_{1-6}$ haloalkyl, $-N(R^{1'})_2$, $C_{1-6}$ acylamino, $-NHSO_2C_{1-6}$ alkyl, $-SO_2N(R^{1'})_2$, $COR^{1''}$, and $-SO_2C_{1-6}$ alkyl; ($R^{1'}$ is independently hydrogen or alkyl, which includes, but is not limited to, $C_{1-20}$ alkyl, $C_{1-10}$ alkyl, or $C_{1-6}$ alkyl, $R^{1''}$ is –OR' or $-N(R^{1'})_2$);

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ and $R^{3b}$ are (i) independently selected from hydrogen, $C_{1-10}$ alkyl, cycloalkyl, $-(CH_2)_e(NR^{3'})_2$, $C_{1-6}$ hydroxyalkyl, $-CH_2SH$, $-(CH_2)_2S(O)_dMe$, $-(CH_2)_3NHC(=NH)NH_2$, (1H-indol-3-yl)methyl, (1H-imidazol-4-yl)methyl, $-(CH_2)_eCOR^{3''}$, aryl and aryl $C_{1-3}$ alkyl, said aryl groups optionally substituted with a group selected from hydroxyl, $C_{1-10}$ alkyl, $C_{1-6}$ alkoxy, halogen, nitro and cyano; (ii) $R^{3a}$ and $R^{3b}$ both are $C_{1-6}$ alkyl; (iii) $R^{3a}$ and $R^{3b}$ together are$(CH_2)_f$ so as to form a spiro ring; (iv) $R^{3a}$ is hydrogen and $R^{3b}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms (v) $R^{3b}$ is hydrogen and $R^{3a}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms, where c is 1 to 6, d is 0 to 2, e is 0 to 3, f is 2 to 5, n is 2 to 4, and where $R^{3'}$ is independently hydrogen



Gilead Exhibit 2018
PGR2023-00046 - Page 00168

or $C_{1-6}$ alkyl and $R^{3''}$ is -OR' or $-N(R^{3'})_2$); (vi) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH_2CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl; or (viii) $R^{3a}$ is $CH_3$, $-CH_2CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl and $R^{3b}$ is H, where $R^{3'}$ is independently hydrogen or alkyl, which includes, but is not limited to, $C_{1-20}$ alkyl, $C_{1-10}$ alkyl, or $C_{1-6}$ alkyl, $R^{3''}$ is –OR' or $-N(R^{3'})_2$);

(d) $R^4$ is hydrogen, $C_{1-10}$ alkyl, $C_{1-10}$ alkyl optionally substituted with a lower alkyl, alkoxy or halogen, $C_{1-10}$ haloalkyl, $C_{3-10}$ cycloalkyl, cycloalkyl alkyl, cycloheteroalkyl, aminoacyl, di(lower alkyl)amino-lower alkyl, aryl, such as phenyl, heteroaryl, such as, pyridinyl, substituted aryl, or substituted heteroaryl;

(e) $R^5$ is H, a lower alkyl, CN, vinyl, O-(lower alkyl), hydroxyl lower alkyl, i.e., $-(CH_2)_pOH$, where p is 1 -6, including hydroxyl methyl ($CH_2OH$), $CH_2F$, $N_3$, $CH_2CN$, $CH_2NH_2$, $CH_2NHCH_3$, $CH_2N(CH_3)_2$, alkyne (optionally substituted), or halogen, including F, Cl, Br, or I, with the provisos that when X is OH, base is cytosine and $R^6$ is H, $R^5$ cannot be $N_3$ and when X is OH, $R^6$ is $CH_3$ or $CH_2F$ and B is a purine base, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;

(g) X is H, OH, F, OMe, halogen, $NH_2$, or $N_3$;

(h) Y is OH, H, $C_{1-4}$ alkyl, $C_{2-4}$ alkenyl, $C_{2-4}$ alkynyl, vinyl, $N_3$, CN, Cl, Br, F, I, $NO_2$, $OC(O)O(C_{1-4}$ alkyl), $OC(O)O(C_{2-4}$ alkynyl), $OC(O)O(C_{2-4}$ alkenyl), $OC_{1-10}$ haloalkyl, O(aminoacyl), $O(C_{1-10}$ acyl), $O(C_{1-4}$ alkyl), $O(C_{2-4}$ alkenyl), $S(C_{1-4}$ acyl), $S(C_{1-4}$ alkyl), $S(C_{2-4}$ alkynyl), $S(C_{2-4}$ alkenyl), $SO(C_{1-4}$ acyl), $SO(C_{1-4}$ alkyl), $SO(C_{2-4}$ alkynyl), $SO(C_{2-4}$ alkenyl), $SO_2(C_{1-4}$ acyl), $SO_2(C_{1-4}$ alkyl), $SO_2(C_{2-4}$ alkynyl), $SO_2(C_{2-4}$ alkenyl),



Gilead Exhibit 2018
PGR2023-00046 - Page 00169

$OS(O)_2(C_{1-4}$ acyl), $OS(O)_2(C_{1-4}$ alkyl), $OS(O)_2(C_{2-4}$ alkenyl), $NH_2$, $NH(C_{1-4}$ alkyl), $NH(C_{2-4}$ alkenyl), $NH(C_{2-4}$ alkynyl), $NH(C_{1-4}$ acyl), $N(C_{1-4}$ alkyl)$_2$, $N(C_{1-18}$ acyl)$_2$, wherein alkyl, alkynyl, alkenyl and vinyl are optionally substituted by $N_3$, CN, one to three halogen (Cl, Br, F, I), $NO_2$, $C(O)O(C_{1-4}$ alkyl), $C(O)O(C_{1-4}$ alkyl), $C(O)O(C_{2-4}$ alkynyl), $C(O)O(C_{2-4}$ alkenyl), $O(C_{1-4}$ acyl), $O(C_{1-4}$ alkyl), $O(C_{2-4}$ alkenyl), $S(C_{1-4}$ acyl), $S(C_{1-4}$ alkyl), $S(C_{2-4}$ alkynyl), $S(C_{2-4}$ alkenyl), $SO(C_{1-4}$ acyl), $SO(C_{1-4}$ alkyl), $SO(C_{2-4}$ alkynyl), $SO(C_{2-4}$ alkenyl), $SO_2(C_{1-4}$ acyl), $SO_2(C_{1-4}$ alkyl), $SO_2(C_{2-4}$ alkynyl), $SO_2(C_{2-4}$ alkenyl), $OS(O)_2(C_{1-4}$ acyl), $OS(O)_2(C_{1-4}$ alkyl), $OS(O)_2(C_{2-4}$ alkenyl), $NH_2$, $NH(C_{1-4}$ alkyl), $NH(C_{2-4}$ alkenyl), $NH(C_{2-4}$ alkynyl), $NH(C_{1-4}$ acyl), $N(C_{1-4}$ alkyl)$_2$, $N(C_{1-4}$ acyl)$_2$;

(i) $R^{10}$ is H, F, Br, I, OH, OR', $NH_2$, NHR', $NR'_2$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH{=}CHCO_2H$, or $CH{=}CHCO_2R'$,

wherein R' is a lower alkyl, a lower cycloalkyl, or C(O)(lower alkyl) or alternatively, in the instance of $NR'_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

(j) Z is N or $CR^{12}$; and

$R^{12}$ is H, halogen (including F, Cl, Br, I), OR', $NH_2$, NHR', $NR'_2$, $NO_2$, lower alkyl of $C_1$-$C_6$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH{=}CHCO_2H$, or $CH{=}CHCO_2R'$; with the proviso that when base is represented by the structure c with $R^{11}$ being hydrogen, $R^{12}$ is not a: (i) $-C{\equiv}C-H$, (ii) $-C{=}CH_2$, or (iii) $-NO_2$.

A seventh aspect of the fourth embodiment is directed to a compound represented by formula **I-8**

wherein

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen or $CH_3$;



Gilead Exhibit 2018
PGR2023-00046 - Page 00170

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, CN, $CH_3$, $OCH_3$, $CH_2OH$, $CH_2F$, halogen, including F, Cl, Br, or I, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;

(g) X is H, OH, F, $OCH_3$, halogen, $NH_2$, or $N_3$;

(h) Y is OH, H, $CH_3$, vinyl, $NH_2$, $N_3$, CN, Cl, Br, F, I, $OC(O)CH_3$, $OCH_3$;

(i) $R^{10}$ is H, F, Br, I, OH, OR', $NH_2$, NHR', $NR'_2$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$,

wherein R' is a lower alkyl, a lower cycloalkyl, or C(O)(lower alkyl) or alternatively, in the instance of $NR'_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

(j) Z is N or $CR^{12}$; and

$R^{12}$ is an H, halogen (including F, Cl, Br, I), OR', $NH_2$, NHR', $NR'_2$, $NO_2$, lower alkyl of $C_1$-$C_6$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$; with the proviso that $R^{12}$ is not a: (i) $-C\equiv C-H$, (ii) $-C=CH_2$, or (iii) $-NO_2$.

An eighth aspect of the fourth embodiment is directed to a compound represented by formula **I-8**

wherein



Gilead Exhibit 2018
PGR2023-00046 - Page 00171

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl , N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, CN, $CH_2F$, F, Cl, Br, or I, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

(g) X is H, OH, F, $OCH_3$, F, Cl, Br, I, $NH_2$ or $N_3$;

(h) Y is H, OH, $CH_3$, F, Cl, Br, I, $NH_2$ or $N_3$, $OCH_3$, or $OC(O)CH_3$;

(i) $R^{10}$ is H, F, Br, I, OH, OR', $NH_2$, NHR', $NR'_2$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$,

wherein R' is a lower alkyl, a lower cycloalkyl, or C(O)(lower alkyl) or alternatively, in the instance of $NR'_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

(j) Z is N or $CR^{12}$; and

$R^{12}$ is an H, halogen (including F, Cl, Br, I), OR', $NH_2$, NHR', $NR'_2$, $NO_2$, lower alkyl of $C_1$-$C_6$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$; with the proviso that $R^{12}$ is not a: (i) $-C\equiv C-H$, (ii) $-C=CH_2$, or (iii) $-NO_2$.

A ninth aspect of the fourth embodiment is directed to a compound represented by



Gilead Exhibit 2018
PGR2023-00046 - Page 00172

formula **I-8**

wherein

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

(g) X is H, OH, $OCH_3$, F, $NH_2$ or $N_3$;

(h) Y is OH, $NH_2$, $OCH_3$, or $OC(O)CH_3$;

(i) $R^{10}$ is H, F, Br, I, OH, OR', $NH_2$, NHR', $NR'_2$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH{=}CHCO_2H$, or $CH{=}CHCO_2R'$,

wherein R' is a lower alkyl, a lower cycloalkyl, or C(O)(lower alkyl) or alternatively, in the instance of $NR'_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

(j) Z is N or $CR^{12}$; and



Gilead Exhibit 2018
PGR2023-00046 - Page 00173

$R^{12}$ is an H, halogen (including F, Cl, Br, I), OR', $NH_2$, NHR', NR'$_2$, $NO_2$, lower alkyl of $C_1$-$C_6$, $CO_2R'$, $CONH_2$, CONHR', CONR'$_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$; with the proviso that $R^{12}$ is not a: (i) $-C\equiv C-H$, (ii) $-C=CH_2$, or (iii) $-NO_2$.

A tenth aspect of the fourth embodiment is directed to a compound represented by formula **I-8**

wherein

(a) $R^1$ is hydrogen, methyl, phenyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

(g) X is H, OH, $OCH_3$, F, $NH_2$ or $N_3$;

(h) Y is OH, $NH_2$, $OCH_3$, or $OC(O)CH_3$;

(i) $R^{10}$ is H, F, Br, I, OH, OR', $NH_2$, NHR', NR'$_2$, $CO_2R'$, $CONH_2$, CONHR', CONR'$_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$,



Gilead Exhibit 2018
PGR2023-00046 - Page 00174

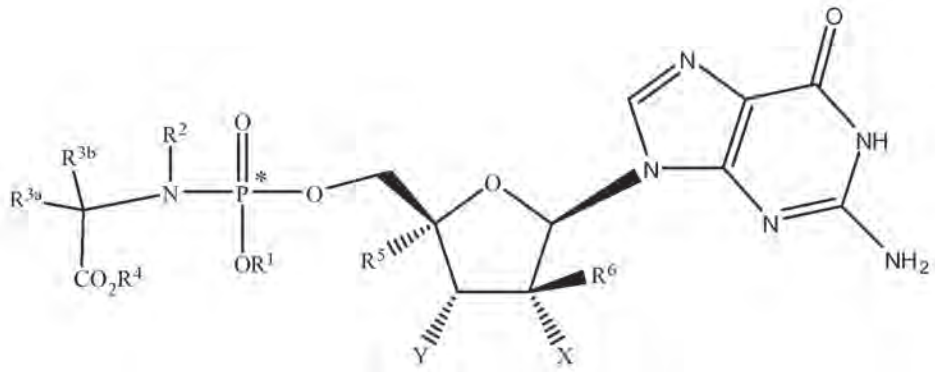
wherein R' is a lower alkyl, a lower cycloalkyl, or C(O)(lower alkyl) or alternatively, in the instance of $NR'_2$, each R' comprise at least one C atom that are joined to form a heterocycle comprising at least two carbon atoms; and

(j) Z is N or $CR^{12}$; and

$R^{12}$ is an H, halogen (including F, Cl, Br, I), OR', $NH_2$, NHR', $NR'_2$, $NO_2$, lower alkyl of $C_1$-$C_6$, $CO_2R'$, $CONH_2$, CONHR', $CONR'_2$, $CH=CHCO_2H$, or $CH=CHCO_2R'$; with the proviso that $R^{12}$ is not a: (i) –C≡C–H, (ii) $–C=CH_2$, or (iii) $–NO_2$.

A fifth embodiment of the invention is directed to a compound represented by formula **I** in which the base is a structure represented by formula **d** above, wherein $R^1$, $R^2$, $R^{3a}$, $R^{3b}$, $R^4$, $R^5$, $R^6$, X, and Y are defined in the Summary of the Invention section above.

The first aspect of the fifth embodiment is directed to a compound represented by formula **I-9**




**I-9**

wherein

(a) $R^1$ is hydrogen, n-alkyl; branched alkyl; cycloalkyl; or aryl, which includes, but is not limited to, phenyl or naphthyl, where phenyl or naphthyl are optionally substituted with at least one of $C_{1-6}$ alkyl, $C_{2-6}$ alkenyl, $C_{2-6}$ alkynyl, $C_{1-6}$ alkoxy, F, Cl, Br, I, nitro, cyano, $C_{1-6}$ haloalkyl, $-N(R^{1'})_2$, $C_{1-6}$ acylamino, $-NHSO_2C_{1-6}$



Gilead Exhibit 2018
PGR2023-00046 - Page 00175

alkyl, $-SO_2N(R^{1'})_2$, $COR^{1''}$, and $-SO_2C_{1-6}$ alkyl; ($R^{1'}$ is independently hydrogen or alkyl, which includes, but is not limited to, $C_{1-20}$ alkyl, $C_{1-10}$ alkyl, or $C_{1-6}$ alkyl, $R^{1''}$ is –OR' or $-N(R^{1'})_2$);

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ and $R^{3b}$ are (i) independently selected from hydrogen, $C_{1-10}$ alkyl, cycloalkyl, $-(CH_2)_e(NR^{3'})_2$, $C_{1-6}$ hydroxyalkyl, $-CH_2SH$, $-(CH_2)_2S(O)_dMe$, $-(CH_2)_3NHC(=NH)NH_2$, (1H-indol-3-yl)methyl, (1H-imidazol-4-yl)methyl, $-(CH_2)_eCOR^{3''}$, aryl and aryl $C_{1-3}$ alkyl, said aryl groups optionally substituted with a group selected from hydroxyl, $C_{1-10}$ alkyl, $C_{1-6}$ alkoxy, halogen, nitro and cyano; (ii) $R^{3a}$ and $R^{3b}$ both are $C_{1-6}$ alkyl; (iii) $R^{3a}$ and $R^{3b}$ together are$(CH_2)_f$ so as to form a spiro ring; (iv) $R^{3a}$ is hydrogen and $R^{3b}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms (v) $R^{3b}$ is hydrogen and $R^{3a}$ and $R^2$ together are $(CH_2)_n$ so as to form a cyclic ring that includes the adjoining N and C atoms, where c is 1 to 6, d is 0 to 2, e is 0 to 3, f is 2 to 5, n is 2 to 4, and where $R^{3'}$ is independently hydrogen or $C_{1-6}$ alkyl and $R^{3''}$ is -OR' or $–N(R^{3'})_2$); (vi) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH_2CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl; or (viii) $R^{3a}$ is $CH_3$, $-CH_2CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl and $R^{3b}$ is H, where $R^{3'}$ is independently hydrogen or alkyl, which includes, but is not limited to, $C_{1-20}$ alkyl, $C_{1-10}$ alkyl, or $C_{1-6}$ alkyl, $R^{3''}$ is –OR' or $-N(R^{3'})_2$);

(d) $R^4$ is hydrogen, $C_{1-10}$ alkyl, $C_{1-10}$ alkyl optionally substituted with a lower alkyl, alkoxy or halogen, $C_{1-10}$ haloalkyl, $C_{3-10}$ cycloalkyl, cycloalkyl alkyl, cycloheteroalkyl, aminoacyl, di(lower alkyl)amino-lower alkyl, aryl, such as phenyl, heteroaryl, such as, pyridinyl, substituted aryl, or substituted heteroaryl;



Gilead Exhibit 2018
PGR2023-00046 - Page 00176

(e) $R^5$ is H, a lower alkyl, CN, vinyl, O-(lower alkyl), hydroxyl lower alkyl, i.e., $-(CH_2)_pOH$, where p is 1 -6, including hydroxyl methyl ($CH_2OH$), $CH_2F$, $N_3$, $CH_2CN$, $CH_2NH_2$, $CH_2NHCH_3$, $CH_2N(CH_3)_2$, alkyne (optionally substituted), or halogen, including F, Cl, Br, or I, with the provisos that when X is OH, base is cytosine and $R^6$ is H, $R^5$ cannot be $N_3$ and when X is OH, $R^6$ is $CH_3$ or $CH_2F$ and B is a purine base, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;

(g) X is H, OH, F, OMe, halogen, $NH_2$, or $N_3$;

(h) Y is OH, H, $C_{1-4}$ alkyl, $C_{2-4}$ alkenyl, $C_{2-4}$ alkynyl, vinyl, $N_3$, CN, Cl, Br, F, I, $NO_2$, $OC(O)O(C_{1-4}$ alkyl), $OC(O)O(C_{1-4}$ alkyl), $OC(O)O(C_{2-4}$ alkynyl), $OC(O)O(C_{2-4}$ alkenyl), $OC_{1-10}$ haloalkyl, O(aminoacyl), $O(C_{1-10}$ acyl), $O(C_{1-4}$ alkyl), $O(C_{2-4}$ alkenyl), $S(C_{1-4}$ acyl), $S(C_{1-4}$ alkyl), $S(C_{2-4}$ alkynyl), $S(C_{2-4}$ alkenyl), $SO(C_{1-4}$ acyl), $SO(C_{1-4}$ alkyl), $SO(C_{2-4}$ alkynyl), $SO(C_{2-4}$ alkenyl), $SO_2(C_{1-4}$ acyl), $SO_2(C_{1-4}$ alkyl), $SO_2(C_{2-4}$ alkynyl), $SO_2(C_{2-4}$ alkenyl), $OS(O)_2(C_{1-4}$ acyl), $OS(O)_2(C_{1-4}$ alkyl), $OS(O)_2(C_{2-4}$ alkenyl), $NH_2$, $NH(C_{1-4}$ alkyl), $NH(C_{2-4}$ alkenyl), $NH(C_{2-4}$ alkynyl), $NH(C_{1-4}$ acyl), $N(C_{1-4}$ alkyl)$_2$, $N(C_{1-18}$ acyl)$_2$, wherein alkyl, alkynyl, alkenyl and vinyl are optionally substituted by $N_3$, CN, one to three halogen (Cl, Br, F, I), $NO_2$, $C(O)O(C_{1-4}$ alkyl), $C(O)O(C_{1-4}$ alkyl), $C(O)O(C_{2-4}$ alkynyl), $C(O)O(C_{2-4}$ alkenyl), $O(C_{1-4}$ acyl), $O(C_{1-4}$ alkyl), $O(C_{2-4}$ alkenyl), $S(C_{1-4}$ acyl), $S(C_{1-4}$ alkyl), $S(C_{2-4}$ alkynyl), $S(C_{2-4}$ alkenyl), $SO(C_{1-4}$ acyl), $SO(C_{1-4}$ alkyl), $SO(C_{2-4}$ alkynyl), $SO(C_{2-4}$ alkenyl), $SO_2(C_{1-4}$ acyl), $SO_2(C_{1-4}$ alkyl), $SO_2(C_{2-4}$ alkynyl), $SO_2(C_{2-4}$ alkenyl), $OS(O)_2(C_{1-4}$ acyl), $OS(O)_2(C_{1-4}$ alkyl), $OS(O)_2(C_{2-4}$ alkenyl), $NH_2$, $NH(C_{1-4}$ alkyl), $NH(C_{2-4}$ alkenyl), $NH(C_{2-4}$ alkynyl), $NH(C_{1-4}$ acyl), $N(C_{1-4}$ alkyl)$_2$, $N(C_{1-4}$ acyl)$_2$.

A second aspect of the fifth embodiment is directed to a compound represented by formula **I-9**

wherein

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;



Gilead Exhibit 2018
PGR2023-00046 - Page 00177

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, CN, $CH_3$, $OCH_3$, $CH_2OH$, $CH_2F$, halogen, including F, Cl, Br, or I, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H.

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;

(g) X is H, OH, F, $OCH_3$, halogen, $NH_2$, or $N_3$;

(h) Y is OH, H, $CH_3$, vinyl, $NH_2$, $N_3$, CN, Cl, Br, F, I, $OC(O)CH_3$, $OCH_3$;

A third aspect of the fifth embodiment is directed to a compound represented by formula **I-9**

wherein

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-



Gilead Exhibit 2018
PGR2023-00046 - Page 00178

methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, CN, $CH_2F$, F, Cl, Br, or I; with the proviso that X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

(g) X is H, OH, F, $OCH_3$, F, Cl, Br, I, $NH_2$ or $N_3$;

(h) Y is H, OH, $CH_3$, F, Cl, Br, I, $NH_2$ $N_3$, $OCH_3$, or $OC(O)CH_3$;

A fourth aspect of the fifth embodiment is directed to a compound represented by formula **I-9**

wherein

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

(g) X is H, OH, $OCH_3$, F, $NH_2$ or $N_3$;



Gilead Exhibit 2018
PGR2023-00046 - Page 00179

(h) Y is OH, $NH_2$, $OCH_3$, or $OC(O)CH_3$;

A fifth aspect of the fifth embodiment is directed to a compound represented by formula **I-9**

wherein

(a) $R^1$ is hydrogen, methyl, phenyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

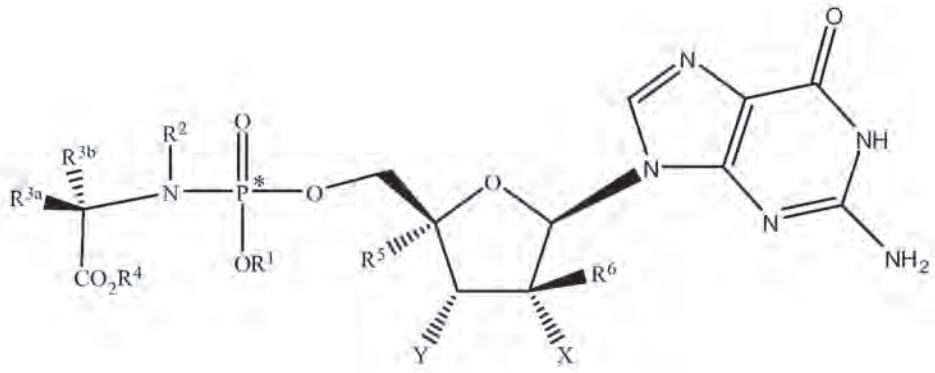
(g) X is H, OH, $OCH_3$, F, $NH_2$ or $N_3$;

(h) Y is OH, $NH_2$, $OCH_3$, or $OC(O)CH_3$;

A sixth aspect of the fifth embodiment is directed to a compound represented by formula **I-10**



Gilead Exhibit 2018
PGR2023-00046 - Page 00180



**I-10**

wherein

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, or a substituted or unsubstituted phenyl, where the substitutent of the substituted phenyl is at least one of a $CH_3$, $OCH_3$, F, Cl, Br, I, nitro, cyano, and a $CH_{3-q}X_q$, where X is F, Cl, Br, or I, and q is 1-3;

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl or $R^{3a}$ is $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl and $R^{3b}$ is H;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;



Gilead Exhibit 2018
PGR2023-00046 - Page 00181

(e) $R^5$ is H, CN, $CH_3$, $OCH_3$, $CH_2OH$, $CH_2F$, $N_3$, $CH_2CN$, $CH_2N_3$, $CH_2NH_2$, $CH_2NHCH_3$, $CH_2N(CH_3)_2$, halogen, including F, Cl, Br, or I, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;

(g) X is H, OH, F, $OCH_3$, Cl, Br, I, $NH_2$, or $N_3$;

(h) Y is OH, H, $CH_3$, vinyl, $N_3$, CN, Cl, Br, F, I, $OC(O)CH_3$, $OCH_3$, $NH_2$, $NHCH_3$, NH(vinyl), NH(acetyl), $NH(C(O)CH_3)$, $N(CH_3)_2$, $N(C(O)CH_3)_2$;

A seventh aspect of the fifth embodiment is directed to a compound represented by formula **I-10**

wherein

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, $CH_2$-indol-3-yl, $-CH_2CH_2SCH_3$, $CH_2CO_2H$, $CH_2C(O)NH_2$, $CH_2CH_2COOH$, $CH_2CH_2C(O)NH_2$, $CH_2CH_2CH_2CH_2NH_2$, $-CH_2CH_2CH_2NHC(NH)NH_2$, $CH_2$-imidazol-4-yl, $CH_2OH$, $CH(OH)CH_3$, $CH_2$((4'-OH)-Ph), $CH_2SH$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, CN, $CH_3$, $OCH_3$, $CH_2OH$, $CH_2F$, halogen, including F, Cl, Br, or I, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, F, or CN;



Gilead Exhibit 2018
PGR2023-00046 - Page 00182

(g) X is H, OH, F, $OCH_3$, Cl, Br, I, $NH_2$, or $N_3$; and

(h) Y is OH, H, $CH_3$, vinyl, $NH_2$, $N_3$, CN, Cl, Br, F, I, $OC(O)CH_3$, $OCH_3$.

An eighth aspect of the fifth embodiment is directed to a compound represented by formula **I-10**

wherein

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen or $CH_3$;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, CN, $CH_2F$, F, Cl, Br, or I, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

(g) X is H, OH, F, $OCH_3$, F, Cl, Br, I, $NH_2$ or $N_3$;

(h) Y is H, OH, $CH_3$, F, Cl, Br, I, $NH_2$ or $N_3$, $OCH_3$, or $OC(O)CH_3$;

A ninth aspect of the fifth embodiment is directed to a compound represented by formula **I-10**

wherein



Gilead Exhibit 2018
PGR2023-00046 - Page 00183

(a) $R^1$ is hydrogen, methyl, ethyl, *n*-propyl, *i*-propyl, phenyl, p-tolyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

(g) X is H, OH, $OCH_3$, F, $NH_2$ or $N_3$;

(h) Y is OH, $NH_2$, $OCH_3$, or $OC(O)CH_3$;

A tenth aspect of the fifth embodiment is directed to a compound represented by formula **I-10**

wherein

(a) $R^1$ is hydrogen, methyl, phenyl, p-bromo-phenyl, p-chloro-phenyl, p-fluorophenyl;

(b) $R^2$ is hydrogen;

(c) $R^{3a}$ is H and $R^{3b}$ is H, $CH_3$, $CH(CH_3)_2$, $CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_3$, $CH_2Ph$, or lower cycloalkyl;

(d) $R^4$ is hydrogen, $CH_3$, Et, $^i$Pr, $^n$Pr, $^n$Bu, 2-butyl, $^t$Bu, benzyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, N-methyl-aziridin-2-yl, N-methyl-azetidin-3-yl, N-



Gilead Exhibit 2018
PGR2023-00046 - Page 00184

methyl-pyrrolidin-3-yl, N-methyl-pyrrolidin-4-yl, N-methyl-piperidin-4-yl, lower haloalkyl, or di(lower alkyl)amino-lower alkyl;

(e) $R^5$ is H, with the provisos that when X is OH, $R^6$ is $CH_3$ or $CH_2F$, $R^5$ cannot be H;

(f) $R^6$ is H, $CH_3$, $CH_2F$, $CHF_2$, $CF_3$, or F;

(g) X is H, OH, $OCH_3$, F, $NH_2$ or $N_3$;

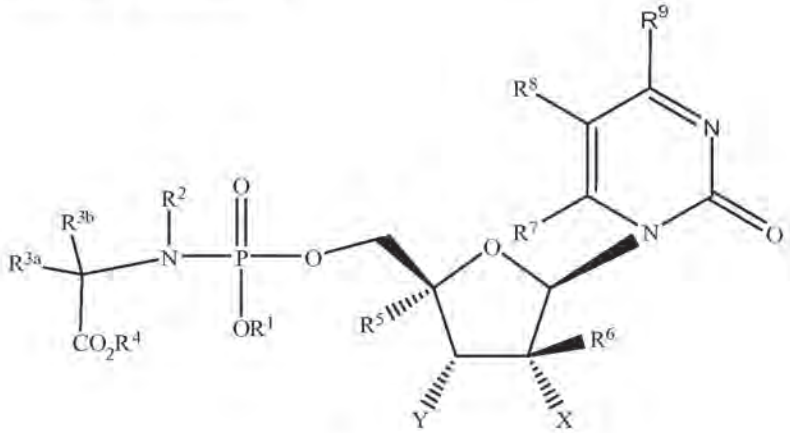
(h) Y is OH, $NH_2$, $OCH_3$, or $OC(O)CH_3$.

The following tables contain numeric identifiers associated with various substituent designators that should be viewed in light of the accompanying structure. These structures are contemplated species of the various aspects of the disclosed embodiments and are not intended to be limiting on full breadth of the contemplated compound represented by the structure of formula **I**. However, it is contemplated that any one of the exemplified nucleoside bases can be used in combination with any one of contemplated species that specify a particular combination of $R^1$, $R^2$, $R^{3a}$, $R^{3b}$, $R^4$, $R^5$, $R^6$, X, and Y. In each of the presented tables, the phosphoramidate substituent containing the substituents $R^{3a}$ and $R^{3b}$ are depicted without reference to stereochemical structure (*cf.* structures **I-1**, **I-3**, **I-5**, **I-7**, and **I-9** above). It is contemplated that the compounds recited below embody compounds in which $R^{3a}$ projects toward the viewer while $R^{3b}$ projects away from the viewer (cf. structures **I-2**, **I-4**, **I-6**, **I-8**, and **I-10**). Moreover, it is contemplated that the compounds recited below also embody compounds in which $R^{3a}$ projects away from the viewer while $R^{3b}$ projects towards the viewer. Not meant to be limiting, however, it is contemplated that preferred compounds are those in which $R^{3a}$ projects towards the viewer and $R^{3b}$ projects away from the viewer such that the natural L-amino acid (S)-configuration is presented. Additionally, the inventors recognize that the phosphorus atom of the phosphoramidate moiety is another source of chirality. Although the structures below do not specifically depict chirality at phosphorus, the inventors recognize that stereochemical configurations are possible such that in a staggered (or zig-zag) line structure the oxo-substitutent projects towards the viewer



Gilead Exhibit 2018
PGR2023-00046 - Page 00185

while the $OR^1$ substitutent projects away from the viewer, and vice versa, i.e., where the Cahn-Ingold-Prelog stereochemical designation of phosphorous is either R or S. Therefore, the structures below include all possible stereochemical configurations possible for phosphorus.



**II**

Table II-1.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-1-1** | $CH_3$ | H | H | H | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-1-2** | $CH_3$ | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-1-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-1-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-1-5** | $CH_3$ | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-1-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-1-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-1-8** | $CH_3$ | * | H | * | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-2.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-2-1** | Et | H | H | H | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-2-2** | Et | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-2-3** | Et | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-2-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |



Gilead Exhibit 2018
PGR2023-00046 - Page 00186

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-2-5** | Et | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-2-6** | Et | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-2-7** | Et | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-2-8** | Et | * | H | * | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-3.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-3-1** | $^i$Pr | H | H | H | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-3-2** | $^i$Pr | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-3-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-3-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-3-5** | $^i$Pr | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-3-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-3-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-3-8** | $^i$Pr | * | H | * | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-4.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-4-1** | $^t$Bu | H | H | H | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-4-2** | $^t$Bu | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-4-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-4-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-4-5** | $^t$Bu | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-4-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-4-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-4-8** | $^t$Bu | * | H | * | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-5.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-5-1** | Ph | H | H | H | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-5-2** | Ph | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |



Gilead Exhibit 2018
PGR2023-00046 - Page 00187

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-5-3** | Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-5-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-5-5** | Ph | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-5-6** | Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-5-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-5-8** | Ph | * | H | * | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-6.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-6-1** | p-Me-Ph | H | H | H | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-6-2** | p-Me-Ph | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-6-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-6-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-6-5** | p-Me-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-6-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-6-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-6-8** | p-Me-Ph | * | H | * | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-7.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-7-1** | p-F-Ph | H | H | H | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-7-2** | p-F-Ph | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-7-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-7-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-7-6** | p-F-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-7-7** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-7-8** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-7-20** | p-F-Ph | * | H | * | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-8.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|



Gilead Exhibit 2018
PGR2023-00046 - Page 00188

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-8-1** | p-Cl-Ph | H | H | H | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-8-2** | p-Cl-Ph | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-8-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-8-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-8-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-8-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-8-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-8-8** | p-Cl-Ph | * | H | * | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-9.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-9-1** | p-Br-Ph | H | H | H | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-9-2** | p-Br-Ph | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-9-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-9-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-9-6** | p-Br-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-9-7** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-9-8** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-9-20** | p-Br-Ph | * | H | * | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-10.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-10-1** | p-I-Ph | H | H | H | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-10-2** | p-I-Ph | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-10-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-10-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-10-5** | p-I-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-10-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-10-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-10-8** | p-I-Ph | * | H | * | $CH_3$ | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00189

Table II-11.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-11-1** | $CH_3$ | H | H | H | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-11-2** | $CH_3$ | H | H | $CH_3$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-11-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-11-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-11-5** | $CH_3$ | H | H | $CH_2Ph$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-11-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-11-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-11-8** | $CH_3$ | * | H | * | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-12.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-12-1** | Et | H | H | H | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-12-2** | Et | H | H | $CH_3$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-12-3** | Et | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-12-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-12-5** | Et | H | H | $CH_2Ph$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-12-6** | Et | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-12-7** | Et | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-12-8** | Et | * | H | * | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-13.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-13-1** | $^i$Pr | H | H | H | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-13-2** | $^i$Pr | H | H | $CH_3$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-13-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-13-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-13-5** | $^i$Pr | H | H | $CH_2Ph$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-13-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-13-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-13-8** | $^i$Pr | * | H | * | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00190

Table II-14.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-14-1** | $^t$Bu | H | H | H | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-14-2** | $^t$Bu | H | H | $CH_3$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-14-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-14-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-14-5** | $^t$Bu | H | H | $CH_2Ph$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-14-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-14-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-14-8** | $^t$Bu | * | H | * | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-15.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-15-1** | Ph | H | H | H | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-15-2** | Ph | H | H | $CH_3$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-15-3** | Ph | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-15-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-15-5** | Ph | H | H | $CH_2Ph$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-15-6** | Ph | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-15-7** | Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-15-8** | Ph | * | H | * | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-16.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-16-1** | p-Me-Ph | H | H | H | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-16-2** | p-Me-Ph | H | H | $CH_3$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-16-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-16-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-16-5** | p-Me-Ph | H | H | $CH_2Ph$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-16-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-16-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-16-8** | p-Me-Ph | * | H | * | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |



Gilead Exhibit 2018
PGR2023-00046 - Page 00191

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-17.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-17-1** | p-F-Ph | H | H | H | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-17-2** | p-F-Ph | H | H | $CH_3$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-17-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-17-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-17-5** | p-F-Ph | H | H | $CH_2Ph$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-17-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-17-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-17-8** | p-F-Ph | * | H | * | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-18.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-18-1** | p-Cl-Ph | H | H | H | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-18-2** | p-Cl-Ph | H | H | $CH_3$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-18-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-18-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-18-5** | p-Cl-Ph | H | H | $CH_2Ph$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-18-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-18-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-18-8** | p-Cl-Ph | * | H | * | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-19.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-19-1** | p-Br-Ph | H | H | H | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-19-2** | p-Br-Ph | H | H | $CH_3$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-19-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-19-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-19-5** | p-Br-Ph | H | H | $CH_2Ph$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-19-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-19-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |



Gilead Exhibit 2018
PGR2023-00046 - Page 00192

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-19-8** | p-Br-Ph | * | H | * | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-20.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-20-1** | p-I-Ph | H | H | H | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-20-2** | p-I-Ph | H | H | $CH_3$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-20-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-20-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-20-5** | p-I-Ph | H | H | $CH_2Ph$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-20-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-20-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-20-8** | p-I-Ph | * | H | * | Et | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-21.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-21-1** | $CH_3$ | H | H | H | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-21-2** | $CH_3$ | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-21-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-21-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-21-5** | $CH_3$ | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-21-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-21-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-21-8** | $CH_3$ | * | H | * | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-22.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-22-1** | Et | H | H | H | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-22-2** | Et | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-22-3** | Et | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-22-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-22-5** | Et | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |



Gilead Exhibit 2018
PGR2023-00046 - Page 00193

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-22-6** | Et | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-22-7** | Et | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-22-8** | Et | * | H | * | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-23.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-23-1** | $^i$Pr | H | H | H | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-23-2** | $^i$Pr | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-23-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-23-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-23-5** | $^i$Pr | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-23-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-23-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-23-8** | $^i$Pr | * | H | * | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-24.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-24-1** | $^t$Bu | H | H | H | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-24-2** | $^t$Bu | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-24-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-24-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-24-5** | $^t$Bu | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-24-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-24-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-24-8** | $^t$Bu | * | H | * | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-25.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-25-1** | Ph | H | H | H | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-25-2** | Ph | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-25-3** | Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |



Gilead Exhibit 2018
PGR2023-00046 - Page 00194

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-25-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-25-5** | Ph | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-25-6** | Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-25-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-25-8** | Ph | * | H | * | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-26.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-26-1** | p-Me-Ph | H | H | H | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-26-2** | p-Me-Ph | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-26-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-26-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-26-5** | p-Me-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-26-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-26-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-26-8** | p-Me-Ph | * | H | * | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-27.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-27-1** | p-F-Ph | H | H | H | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-27-2** | p-F-Ph | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-27-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-27-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-27-5** | p-F-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-27-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-27-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-27-8** | p-F-Ph | * | H | * | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-28.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-28-1** | p-Cl-Ph | H | H | H | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |



Gilead Exhibit 2018
PGR2023-00046 - Page 00195

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-28-2** | p-Cl-Ph | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-28-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-28-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-28-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-28-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-28-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-28-8** | p-Cl-Ph | * | H | * | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-29.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-29-1** | p-Br-Ph | H | H | H | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-29-2** | p-Br-Ph | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-29-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-29-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-29-5** | p-Br-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-29-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-29-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-29-8** | p-Br-Ph | * | H | * | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-30.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-30-1** | p-I-Ph | H | H | H | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-30-2** | p-I-Ph | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-30-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-30-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-30-5** | p-I-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-30-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-30-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-30-8** | p-I-Ph | * | H | * | $^i$Pr | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-31.



Gilead Exhibit 2018
PGR2023-00046 - Page 00196

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-31-1** | $CH_3$ | H | H | H | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-31-2** | $CH_3$ | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-31-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-31-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-31-5** | $CH_3$ | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-31-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-31-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-31-8** | $CH_3$ | * | H | * | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-32.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-32-1** | Et | H | H | H | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-32-2** | Et | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-32-3** | Et | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-32-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-32-5** | Et | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-32-6** | Et | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-32-7** | Et | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-32-8** | Et | * | H | * | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-33.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-33-1** | $^i$Pr | H | H | H | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-33-2** | $^i$Pr | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-33-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-33-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-33-5** | $^i$Pr | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-33-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-33-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-33-8** | $^i$Pr | * | H | * | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00197

Table II-34.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-34-1** | $^t$Bu | H | H | H | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-34-2** | $^t$Bu | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-34-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-34-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-34-5** | $^t$Bu | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-34-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-34-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-34-8** | $^t$Bu | * | H | * | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-35.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-35-1** | Ph | H | H | H | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-35-2** | Ph | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-35-3** | Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-35-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-35-5** | Ph | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-35-6** | Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-35-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-35-8** | Ph | * | H | * | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-36.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-36-1** | p-Me-Ph | H | H | H | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-36-2** | p-Me-Ph | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-36-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-36-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-36-5** | p-Me-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-36-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-36-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-36-8** | p-Me-Ph | * | H | * | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00198

Table II-37.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-37-1** | p-F-Ph | H | H | H | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-37-2** | p-F-Ph | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-37-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-37-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-37-5** | p-F-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-37-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-37-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-37-8** | p-F-Ph | * | H | * | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-38.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-38-1** | p-Cl-Ph | H | H | H | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-38-2** | p-Cl-Ph | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-38-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-38-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-38-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-38-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-38-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-38-8** | p-Cl-Ph | * | H | * | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-39.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-39-1** | p-Br-Ph | H | H | H | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-39-2** | p-Br-Ph | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-39-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-39-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-39-5** | p-Br-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-39-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-39-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-39-8** | p-Br-Ph | * | H | * | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00199

Table II-40.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-40-1** | p-I-Ph | H | H | H | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-40-2** | p-I-Ph | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-40-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-40-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-40-5** | p-I-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-40-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-40-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-40-8** | p-I-Ph | * | H | * | $^n$Bu | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-41.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-41-1** | $CH_3$ | H | H | H | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-41-2** | $CH_3$ | H | H | $CH_3$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-41-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-41-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-41-5** | $CH_3$ | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-41-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-41-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-41-8** | $CH_3$ | * | H | * | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-42.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-42-1** | Et | H | H | H | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-42-2** | Et | H | H | $CH_3$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-42-3** | Et | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-42-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-42-5** | Et | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-42-6** | Et | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-42-7** | Et | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-42-8** | Et | * | H | * | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00200

Table II-43.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-43-1** | $^i$Pr | H | H | H | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-43-2** | $^i$Pr | H | H | $CH_3$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-43-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-43-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-43-5** | $^i$Pr | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-43-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-43-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-43-8** | $^i$Pr | * | H | * | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-44.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-44-1** | $^t$Bu | H | H | H | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-44-2** | $^t$Bu | H | H | $CH_3$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-44-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-44-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-44-5** | $^t$Bu | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-44-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-44-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-44-8** | $^t$Bu | * | H | * | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-45.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-45-1** | Ph | H | H | H | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-45-2** | Ph | H | H | $CH_3$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-45-3** | Ph | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-45-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-45-5** | Ph | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-45-6** | Ph | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-45-7** | Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-45-8** | Ph | * | H | * | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |



Gilead Exhibit 2018
PGR2023-00046 - Page 00201

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-46.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-46-1** | p-Me-Ph | H | H | H | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-46-2** | p-Me-Ph | H | H | $CH_3$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-46-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-46-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-46-5** | p-Me-Ph | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-46-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-46-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-46-8** | p-Me-Ph | * | H | * | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-47.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-47-1** | p-F-Ph | H | H | H | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-47-2** | p-F-Ph | H | H | $CH_3$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-47-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-47-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-47-5** | p-F-Ph | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-47-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-47-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-47-8** | p-F-Ph | * | H | * | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-48.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-48-1** | p-Cl-Ph | H | H | H | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-48-2** | p-Cl-Ph | H | H | $CH_3$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-48-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-48-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-48-5** | p-Cl-Ph | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-48-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-48-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |



Gilead Exhibit 2018
PGR2023-00046 - Page 00202

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-48-8** | p-Cl-Ph | * | H | * | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table II-49.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-49-1** | p-Br-Ph | H | H | H | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-49-2** | p-Br-Ph | H | H | $CH_3$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-49-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-49-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-49-5** | p-Br-Ph | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-49-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-49-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-49-8** | p-Br-Ph | * | H | * | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

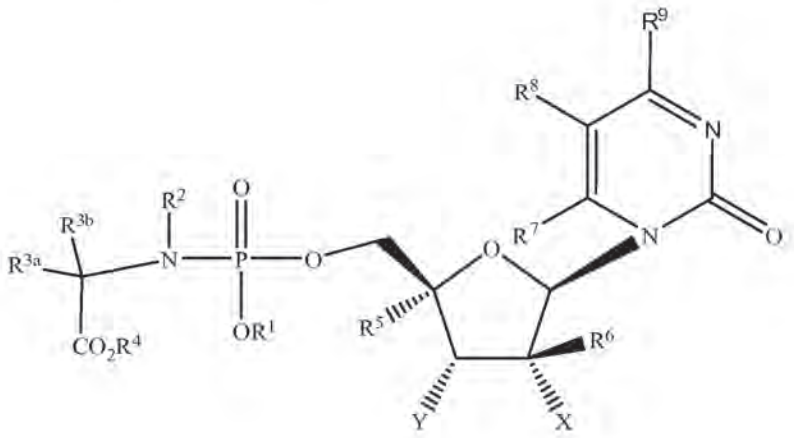
Table II-50.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **II-50-1** | p-I-Ph | H | H | H | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-50-2** | p-I-Ph | H | H | $CH_3$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-50-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-50-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-50-5** | p-I-Ph | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-50-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-50-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |
| **II-50-8** | p-I-Ph | * | H | * | Bz | H | $CH_3$ | OH | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00203



**III**

Table III-1.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-1-1** | $CH_3$ | H | H | H | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-1-2** | $CH_3$ | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-1-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-1-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-1-5** | $CH_3$ | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-1-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-1-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-1-8** | $CH_3$ | * | H | * | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-2.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-2-1** | Et | H | H | H | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-2-2** | Et | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-2-3** | Et | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-2-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-2-5** | Et | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-2-6** | Et | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-2-7** | Et | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-2-8** | Et | * | H | * | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00204

Table III-3.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-3-1** | $^i$Pr | H | H | H | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-3-2** | $^i$Pr | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-3-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-3-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-3-5** | $^i$Pr | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-3-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-3-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-3-8** | $^i$Pr | * | H | * | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-4.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-4-1** | $^t$Bu | H | H | H | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-4-2** | $^t$Bu | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-4-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-4-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-4-5** | $^t$Bu | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-4-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-4-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-4-8** | $^t$Bu | * | H | * | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-5.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-5-1** | Ph | H | H | H | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-5-2** | Ph | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-5-3** | Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-5-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-5-5** | Ph | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-5-6** | Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-5-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-5-8** | Ph | * | H | * | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00205

Table III-6.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-6-1** | p-Me-Ph | H | H | H | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-6-2** | p-Me-Ph | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-6-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-6-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-6-5** | p-Me-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-6-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-6-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-6-8** | p-Me-Ph | * | H | * | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-7.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-7-1** | p-F-Ph | H | H | H | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-7-2** | p-F-Ph | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-7-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-7-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-7-6** | p-F-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-7-7** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-7-8** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-7-20** | p-F-Ph | * | H | * | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-8.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-8-1** | p-Cl-Ph | H | H | H | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-8-2** | p-Cl-Ph | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-8-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-8-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-8-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-8-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-8-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-8-8** | p-Cl-Ph | * | H | * | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00206

Table III-9.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-9-1** | p-Br-Ph | H | H | H | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-9-2** | p-Br-Ph | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-9-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-9-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-9-6** | p-Br-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-9-7** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-9-8** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-9-20** | p-Br-Ph | * | H | * | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-10.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-10-1** | p-I-Ph | H | H | H | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-10-2** | p-I-Ph | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-10-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-10-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-10-5** | p-I-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-10-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-10-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-10-8** | p-I-Ph | * | H | * | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-11.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-11-1** | $CH_3$ | H | H | H | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-11-2** | $CH_3$ | H | H | $CH_3$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-11-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-11-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-11-5** | $CH_3$ | H | H | $CH_2Ph$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-11-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-11-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-11-8** | $CH_3$ | * | H | * | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00207

Table III-12.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-12-1** | Et | H | H | H | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-12-2** | Et | H | H | $CH_3$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-12-3** | Et | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-12-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-12-5** | Et | H | H | $CH_2Ph$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-12-6** | Et | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-12-7** | Et | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-12-8** | Et | * | H | * | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-13.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-13-1** | $^i$Pr | H | H | H | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-13-2** | $^i$Pr | H | H | $CH_3$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-13-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-13-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-13-5** | $^i$Pr | H | H | $CH_2Ph$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-13-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-13-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-13-8** | $^i$Pr | * | H | * | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-14.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-14-1** | $^t$Bu | H | H | H | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-14-2** | $^t$Bu | H | H | $CH_3$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-14-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-14-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |



Gilead Exhibit 2018
PGR2023-00046 - Page 00208

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-14-5** | $^t$Bu | H | H | $CH_2Ph$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-14-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-14-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-14-8** | $^t$Bu | * | H | * | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-15.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-15-1** | Ph | H | H | H | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-15-2** | Ph | H | H | $CH_3$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-15-3** | Ph | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-15-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-15-5** | Ph | H | H | $CH_2Ph$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-15-6** | Ph | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-15-7** | Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-15-8** | Ph | * | H | * | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-16.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-16-1** | p-Me-Ph | H | H | H | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-16-2** | p-Me-Ph | H | H | $CH_3$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-16-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-16-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-16-5** | p-Me-Ph | H | H | $CH_2Ph$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-16-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-16-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-16-8** | p-Me-Ph | * | H | * | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00209

Table III-17.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-17-1** | p-F-Ph | H | H | H | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-17-2** | p-F-Ph | H | H | $CH_3$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-17-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-17-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-17-5** | p-F-Ph | H | H | $CH_2Ph$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-17-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-17-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-17-8** | p-F-Ph | * | H | * | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-18.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-18-1** | p-Cl-Ph | H | H | H | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-18-2** | p-Cl-Ph | H | H | $CH_3$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-18-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-18-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-18-5** | p-Cl-Ph | H | H | $CH_2Ph$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-18-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-18-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-18-8** | p-Cl-Ph | * | H | * | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-19.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-19-1** | p-Br-Ph | H | H | H | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-19-2** | p-Br-Ph | H | H | $CH_3$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-19-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-19-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-19-5** | p-Br-Ph | H | H | $CH_2Ph$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-19-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-19-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-19-8** | p-Br-Ph | * | H | * | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00210

Table III-20.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-20-1** | p-I-Ph | H | H | H | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-20-2** | p-I-Ph | H | H | $CH_3$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-20-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-20-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-20-5** | p-I-Ph | H | H | $CH_2Ph$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-20-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-20-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-20-8** | p-I-Ph | * | H | * | Et | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-21.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-21-1** | $CH_3$ | H | H | H | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-21-2** | $CH_3$ | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-21-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-21-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-21-5** | $CH_3$ | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-21-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-21-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-21-8** | $CH_3$ | * | H | * | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-22.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-22-1** | Et | H | H | H | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-22-2** | Et | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-22-3** | Et | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-22-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-22-5** | Et | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-22-6** | Et | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-22-7** | Et | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-22-8** | Et | * | H | * | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00211

Table III-23.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-23-1** | $^i$Pr | H | H | H | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-23-2** | $^i$Pr | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-23-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-23-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-23-5** | $^i$Pr | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-23-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-23-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-23-8** | $^i$Pr | * | H | * | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-24.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-24-1** | $^t$Bu | H | H | H | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-24-2** | $^t$Bu | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-24-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-24-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-24-5** | $^t$Bu | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-24-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-24-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-24-8** | $^t$Bu | * | H | * | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-25.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-25-1** | Ph | H | H | H | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-25-2** | Ph | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-25-3** | Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-25-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-25-5** | Ph | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-25-6** | Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-25-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-25-8** | Ph | * | H | * | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00212

Table III-26.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-26-1** | p-Me-Ph | H | H | H | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-26-2** | p-Me-Ph | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-26-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-26-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-26-5** | p-Me-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-26-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-26-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-26-8** | p-Me-Ph | * | H | * | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-27.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-27-1** | p-F-Ph | H | H | H | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-27-2** | p-F-Ph | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-27-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-27-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-27-5** | p-F-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-27-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-27-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-27-8** | p-F-Ph | * | H | * | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-28.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-28-1** | p-Cl-Ph | H | H | H | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-28-2** | p-Cl-Ph | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-28-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-28-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-28-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-28-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-28-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-28-8** | p-Cl-Ph | * | H | * | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00213

Table III-29.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-29-1** | p-Br-Ph | H | H | H | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-29-2** | p-Br-Ph | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-29-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-29-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-29-5** | p-Br-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-29-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-29-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-29-8** | p-Br-Ph | * | H | * | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-30.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-30-1** | p-I-Ph | H | H | H | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-30-2** | p-I-Ph | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-30-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-30-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-30-5** | p-I-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-30-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-30-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-30-8** | p-I-Ph | * | H | * | $^i$Pr | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-31.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-31-1** | $CH_3$ | H | H | H | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-31-2** | $CH_3$ | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-31-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-31-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-31-5** | $CH_3$ | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-31-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-31-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-31-8** | $CH_3$ | * | H | * | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00214

Table III-32.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-32-1** | Et | H | H | H | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-32-2** | Et | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-32-3** | Et | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-32-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-32-5** | Et | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-32-6** | Et | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-32-7** | Et | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-32-8** | Et | * | H | * | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-33.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-33-1** | $^i$Pr | H | H | H | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-33-2** | $^i$Pr | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-33-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-33-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-33-5** | $^i$Pr | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-33-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-33-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-33-8** | $^i$Pr | * | H | * | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-34.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-34-1** | $^t$Bu | H | H | H | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-34-2** | $^t$Bu | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-34-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-34-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-34-5** | $^t$Bu | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-34-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-34-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-34-8** | $^t$Bu | * | H | * | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00215

Table III-35.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-35-1** | Ph | H | H | H | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-35-2** | Ph | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-35-3** | Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-35-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-35-5** | Ph | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-35-6** | Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-35-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-35-8** | Ph | * | H | * | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-36.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-36-1** | p-Me-Ph | H | H | H | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-36-2** | p-Me-Ph | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-36-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-36-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-36-5** | p-Me-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-36-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-36-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-36-8** | p-Me-Ph | * | H | * | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-37.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-37-1** | p-F-Ph | H | H | H | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-37-2** | p-F-Ph | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-37-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-37-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-37-5** | p-F-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-37-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-37-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-37-8** | p-F-Ph | * | H | * | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00216

Table III-38.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-38-1** | p-Cl-Ph | H | H | H | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-38-2** | p-Cl-Ph | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-38-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-38-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-38-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-38-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-38-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-38-8** | p-Cl-Ph | * | H | * | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-39.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-39-1** | p-Br-Ph | H | H | H | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-39-2** | p-Br-Ph | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-39-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-39-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-39-5** | p-Br-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-39-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-39-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-39-8** | p-Br-Ph | * | H | * | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-40.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-40-1** | p-I-Ph | H | H | H | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-40-2** | p-I-Ph | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-40-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-40-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-40-5** | p-I-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-40-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-40-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-40-8** | p-I-Ph | * | H | * | $^n$Bu | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00217

Table III-41.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-41-1** | $CH_3$ | H | H | H | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-41-2** | $CH_3$ | H | H | $CH_3$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-41-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-41-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-41-5** | $CH_3$ | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-41-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-41-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-41-8** | $CH_3$ | * | H | * | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-42.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-42-1** | Et | H | H | H | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-42-2** | Et | H | H | $CH_3$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-42-3** | Et | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-42-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-42-5** | Et | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-42-6** | Et | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-42-7** | Et | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-42-8** | Et | * | H | * | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-43.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-43-1** | $^i$Pr | H | H | H | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-43-2** | $^i$Pr | H | H | $CH_3$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-43-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-43-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-43-5** | $^i$Pr | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-43-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-43-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-43-8** | $^i$Pr | * | H | * | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |



Gilead Exhibit 2018
PGR2023-00046 - Page 00218

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-44.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-44-1** | $^t$Bu | H | H | H | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-44-2** | $^t$Bu | H | H | $CH_3$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-44-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-44-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-44-5** | $^t$Bu | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-44-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-44-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-44-8** | $^t$Bu | * | H | * | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-45.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-45-1** | Ph | H | H | H | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-45-2** | Ph | H | H | $CH_3$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-45-3** | Ph | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-45-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-45-5** | Ph | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-45-6** | Ph | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-45-7** | Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-45-8** | Ph | * | H | * | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-46.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-46-1** | p-Me-Ph | H | H | H | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-46-2** | p-Me-Ph | H | H | $CH_3$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-46-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-46-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-46-5** | p-Me-Ph | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-46-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-46-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |



Gilead Exhibit 2018
PGR2023-00046 - Page 00219

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-46-8** | p-Me-Ph | * | H | * | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-47.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-47-1** | p-F-Ph | H | H | H | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-47-2** | p-F-Ph | H | H | $CH_3$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-47-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-47-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-47-5** | p-F-Ph | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-47-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-47-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-47-8** | p-F-Ph | * | H | * | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-48.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-48-1** | p-Cl-Ph | H | H | H | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-48-2** | p-Cl-Ph | H | H | $CH_3$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-48-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-48-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-48-5** | p-Cl-Ph | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-48-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-48-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-48-8** | p-Cl-Ph | * | H | * | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-49.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-49-1** | p-Br-Ph | H | H | H | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-49-2** | p-Br-Ph | H | H | $CH_3$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-49-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-49-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-49-5** | p-Br-Ph | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |



Gilead Exhibit 2018
PGR2023-00046 - Page 00220

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-49-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-49-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-49-8** | p-Br-Ph | * | H | * | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |

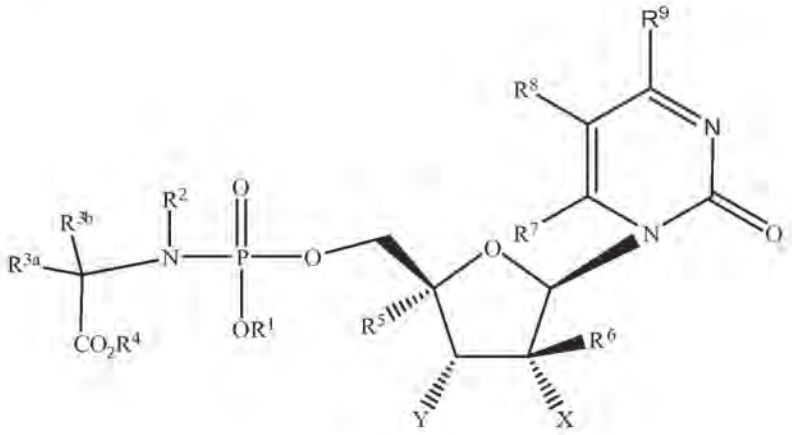
*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table III-50.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **III-50-1** | p-I-Ph | H | H | H | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-50-2** | p-I-Ph | H | H | $CH_3$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-50-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-50-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-50-5** | p-I-Ph | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-50-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-50-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **III-50-8** | p-I-Ph | * | H | * | Bz | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

5




**IV**

Table IV-1.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-1-1** | $CH_3$ | H | H | H | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |



Gilead Exhibit 2018
PGR2023-00046 - Page 00221

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-1-2** | $CH_3$ | H | H | $CH_3$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-1-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-1-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-1-5** | $CH_3$ | H | H | $CH_2Ph$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-1-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-1-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-1-8** | $CH_3$ | * | H | * | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-2.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-2-1** | Et | H | H | H | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-2-2** | Et | H | H | $CH_3$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-2-3** | Et | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-2-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-2-5** | Et | H | H | $CH_2Ph$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-2-6** | Et | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-2-7** | Et | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-2-8** | Et | * | H | * | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-3.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-3-1** | $^i$Pr | H | H | H | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-3-2** | $^i$Pr | H | H | $CH_3$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-3-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-3-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-3-5** | $^i$Pr | H | H | $CH_2Ph$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-3-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-3-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-3-8** | $^i$Pr | * | H | * | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-4.



Gilead Exhibit 2018
PGR2023-00046 - Page 00222

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-4-1** | $^t$Bu | H | H | H | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **IV-4-2** | $^t$Bu | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **IV-4-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **IV-4-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **IV-4-5** | $^t$Bu | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **IV-4-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **IV-4-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |
| **IV-4-8** | $^t$Bu | * | H | * | $CH_3$ | H | $CH_3$ | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-5.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-5-1** | Ph | H | H | H | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-5-2** | Ph | H | H | $CH_3$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-5-3** | Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-5-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-5-5** | Ph | H | H | $CH_2Ph$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-5-6** | Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-5-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-5-8** | Ph | * | H | * | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-6.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-6-1** | p-Me-Ph | H | H | H | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-6-2** | p-Me-Ph | H | H | $CH_3$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-6-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-6-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-6-5** | p-Me-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-6-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-6-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-6-8** | p-Me-Ph | * | H | * | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00223

Table IV-7.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-7-1** | p-F-Ph | H | H | H | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-7-2** | p-F-Ph | H | H | $CH_3$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-7-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-7-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-7-6** | p-F-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-7-7** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-7-8** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-7-20** | p-F-Ph | * | H | * | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-8.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-8-1** | p-Cl-Ph | H | H | H | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-8-2** | p-Cl-Ph | H | H | $CH_3$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-8-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-8-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-8-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-8-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-8-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-8-8** | p-Cl-Ph | * | H | * | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-9.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-9-1** | p-Br-Ph | H | H | H | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-9-2** | p-Br-Ph | H | H | $CH_3$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-9-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-9-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-9-6** | p-Br-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-9-7** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-9-8** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-9-20** | p-Br-Ph | * | H | * | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00224

Table IV-10.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-10-1** | p-I-Ph | H | H | H | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-10-2** | p-I-Ph | H | H | $CH_3$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-10-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-10-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-10-5** | p-I-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-10-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-10-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |
| **IV-10-8** | p-I-Ph | * | H | * | $CH_3$ | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-11.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-11-1** | $CH_3$ | H | H | H | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-11-2** | $CH_3$ | H | H | $CH_3$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-11-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-11-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-11-5** | $CH_3$ | H | H | $CH_2Ph$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-11-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-11-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-11-8** | $CH_3$ | * | H | * | Et | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-12.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-12-1** | Et | H | H | H | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-12-2** | Et | H | H | $CH_3$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-12-3** | Et | H | H | $CH(CH_3)_2$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-12-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-12-5** | Et | H | H | $CH_2Ph$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-12-6** | Et | H | H | $CH_2$-indol-3-yl | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-12-7** | Et | H | H | $CH_2CH_2SCH_3$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-12-8** | Et | * | H | * | Et | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00225

Table IV-13.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-13-1** | $^i$Pr | H | H | H | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-13-2** | $^i$Pr | H | H | $CH_3$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-13-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-13-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-13-5** | $^i$Pr | H | H | $CH_2Ph$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-13-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-13-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-13-8** | $^i$Pr | * | H | * | Et | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-14.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-14-1** | $^t$Bu | H | H | H | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-14-2** | $^t$Bu | H | H | $CH_3$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-14-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-14-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-14-5** | $^t$Bu | H | H | $CH_2Ph$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-14-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-14-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-14-8** | $^t$Bu | * | H | * | Et | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-15.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|



Gilead Exhibit 2018
PGR2023-00046 - Page 00226

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-15-1** | Ph | H | H | H | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-15-2** | Ph | H | H | $CH_3$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-15-3** | Ph | H | H | $CH(CH_3)_2$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-15-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-15-5** | Ph | H | H | $CH_2Ph$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-15-6** | Ph | H | H | $CH_2$-indol-3-yl | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-15-7** | Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-15-8** | Ph | * | H | * | Et | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-16.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-16-1** | p-Me-Ph | H | H | H | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-16-2** | p-Me-Ph | H | H | $CH_3$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-16-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-16-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-16-5** | p-Me-Ph | H | H | $CH_2Ph$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-16-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-16-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-16-8** | p-Me-Ph | * | H | * | Et | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-17.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-17-1** | p-F-Ph | H | H | H | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-17-2** | p-F-Ph | H | H | $CH_3$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-17-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-17-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-17-5** | p-F-Ph | H | H | $CH_2Ph$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-17-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-17-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-17-8** | p-F-Ph | * | H | * | Et | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00227

Table IV-18.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-18-1** | p-Cl-Ph | H | H | H | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-18-2** | p-Cl-Ph | H | H | $CH_3$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-18-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-18-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-18-5** | p-Cl-Ph | H | H | $CH_2Ph$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-18-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-18-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-18-8** | p-Cl-Ph | * | H | * | Et | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-19.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-19-1** | p-Br-Ph | H | H | H | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-19-2** | p-Br-Ph | H | H | $CH_3$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-19-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-19-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-19-5** | p-Br-Ph | H | H | $CH_2Ph$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-19-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-19-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-19-8** | p-Br-Ph | * | H | * | Et | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-20.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-20-1** | p-I-Ph | H | H | H | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-20-2** | p-I-Ph | H | H | $CH_3$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-20-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-20-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-20-5** | p-I-Ph | H | H | $CH_2Ph$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-20-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-20-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | F | F | OH | H | H | $NH_2$ |
| **IV-20-8** | p-I-Ph | * | H | * | Et | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00228

Table IV-21.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-21-1** | $CH_3$ | H | H | H | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-21-2** | $CH_3$ | H | H | $CH_3$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-21-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-21-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-21-5** | $CH_3$ | H | H | $CH_2Ph$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-21-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-21-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-21-8** | $CH_3$ | * | H | * | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-22.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-22-1** | Et | H | H | H | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-22-2** | Et | H | H | $CH_3$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-22-3** | Et | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-22-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-22-5** | Et | H | H | $CH_2Ph$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-22-6** | Et | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-22-7** | Et | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-22-8** | Et | * | H | * | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-23.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-23-1** | $^i$Pr | H | H | H | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-23-2** | $^i$Pr | H | H | $CH_3$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-23-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-23-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-23-5** | $^i$Pr | H | H | $CH_2Ph$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-23-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-23-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-23-8** | $^i$Pr | * | H | * | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00229

Table IV-24.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-24-1** | $^t$Bu | H | H | H | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-24-2** | $^t$Bu | H | H | $CH_3$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-24-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-24-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-24-5** | $^t$Bu | H | H | $CH_2Ph$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-24-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-24-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-24-8** | $^t$Bu | * | H | * | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-25.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-25-1** | Ph | H | H | H | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-25-2** | Ph | H | H | $CH_3$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-25-3** | Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-25-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-25-5** | Ph | H | H | $CH_2Ph$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-25-6** | Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-25-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-25-8** | Ph | * | H | * | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-26.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-26-1** | p-Me-Ph | H | H | H | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-26-2** | p-Me-Ph | H | H | $CH_3$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-26-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-26-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-26-5** | p-Me-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-26-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-26-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-26-8** | p-Me-Ph | * | H | * | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00230

Table IV-27.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-27-1** | p-F-Ph | H | H | H | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-27-2** | p-F-Ph | H | H | $CH_3$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-27-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-27-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-27-5** | p-F-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-27-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-27-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-27-8** | p-F-Ph | * | H | * | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-28.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-28-1** | p-Cl-Ph | H | H | H | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-28-2** | p-Cl-Ph | H | H | $CH_3$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-28-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-28-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-28-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-28-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-28-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-28-8** | p-Cl-Ph | * | H | * | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-29.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-29-1** | p-Br-Ph | H | H | H | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-29-2** | p-Br-Ph | H | H | $CH_3$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-29-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-29-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-29-5** | p-Br-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-29-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-29-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-29-8** | p-Br-Ph | * | H | * | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00231

Table IV-30.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-30-1** | p-I-Ph | H | H | H | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-30-2** | p-I-Ph | H | H | $CH_3$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-30-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-30-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-30-5** | p-I-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-30-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-30-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |
| **IV-30-8** | p-I-Ph | * | H | * | $^i$Pr | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-31.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-31-1** | $CH_3$ | H | H | H | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-31-2** | $CH_3$ | H | H | $CH_3$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-31-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-31-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-31-5** | $CH_3$ | H | H | $CH_2Ph$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-31-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-31-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-31-8** | $CH_3$ | * | H | * | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-32.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-32-1** | Et | H | H | H | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-32-2** | Et | H | H | $CH_3$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-32-3** | Et | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-32-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-32-5** | Et | H | H | $CH_2Ph$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-32-6** | Et | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-32-7** | Et | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-32-8** | Et | * | H | * | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00232

Table IV-33.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-33-1** | $^i$Pr | H | H | H | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-33-2** | $^i$Pr | H | H | $CH_3$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-33-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-33-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-33-5** | $^i$Pr | H | H | $CH_2Ph$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-33-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-33-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-33-8** | $^i$Pr | * | H | * | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-34.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-34-1** | $^t$Bu | H | H | H | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-34-2** | $^t$Bu | H | H | $CH_3$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-34-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-34-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-34-5** | $^t$Bu | H | H | $CH_2Ph$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-34-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-34-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-34-8** | $^t$Bu | * | H | * | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-35.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-35-1** | Ph | H | H | H | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-35-2** | Ph | H | H | $CH_3$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-35-3** | Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-35-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-35-5** | Ph | H | H | $CH_2Ph$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-35-6** | Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-35-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-35-8** | Ph | * | H | * | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00233

Table IV-36.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-36-1** | p-Me-Ph | H | H | H | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-36-2** | p-Me-Ph | H | H | $CH_3$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-36-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-36-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-36-5** | p-Me-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-36-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-36-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-36-8** | p-Me-Ph | * | H | * | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-37.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-37-1** | p-F-Ph | H | H | H | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-37-2** | p-F-Ph | H | H | $CH_3$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-37-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-37-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-37-5** | p-F-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-37-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-37-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-37-8** | p-F-Ph | * | H | * | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-38.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-38-1** | p-Cl-Ph | H | H | H | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-38-2** | p-Cl-Ph | H | H | $CH_3$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-38-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-38-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-38-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-38-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-38-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-38-8** | p-Cl-Ph | * | H | * | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00234

Table IV-39.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-39-1** | p-Br-Ph | H | H | H | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-39-2** | p-Br-Ph | H | H | $CH_3$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-39-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-39-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-39-5** | p-Br-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-39-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-39-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-39-8** | p-Br-Ph | * | H | * | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-40.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-40-1** | p-I-Ph | H | H | H | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-40-2** | p-I-Ph | H | H | $CH_3$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-40-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-40-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-40-5** | p-I-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-40-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-40-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |
| **IV-40-8** | p-I-Ph | * | H | * | $^n$Bu | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-41.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-41-1** | $CH_3$ | H | H | H | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-41-2** | $CH_3$ | H | H | $CH_3$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-41-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-41-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-41-5** | $CH_3$ | H | H | $CH_2Ph$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-41-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-41-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-41-8** | $CH_3$ | * | H | * | Bz | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00235

Table IV-42.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-42-1** | Et | H | H | H | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-42-2** | Et | H | H | $CH_3$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-42-3** | Et | H | H | $CH(CH_3)_2$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-42-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-42-5** | Et | H | H | $CH_2Ph$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-42-6** | Et | H | H | $CH_2$-indol-3-yl | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-42-7** | Et | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-42-8** | Et | * | H | * | Bz | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-43.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-43-1** | $^i$Pr | H | H | H | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-43-2** | $^i$Pr | H | H | $CH_3$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-43-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-43-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-43-5** | $^i$Pr | H | H | $CH_2Ph$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-43-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-43-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-43-8** | $^i$Pr | * | H | * | Bz | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-44.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-44-1** | $^t$Bu | H | H | H | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-44-2** | $^t$Bu | H | H | $CH_3$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-44-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-44-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-44-5** | $^t$Bu | H | H | $CH_2Ph$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-44-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-44-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-44-8** | $^t$Bu | * | H | * | Bz | H | F | F | OH | H | H | $NH_2$ |



Gilead Exhibit 2018
PGR2023-00046 - Page 00236

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-45.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-45-1** | Ph | H | H | H | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-45-2** | Ph | H | H | $CH_3$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-45-3** | Ph | H | H | $CH(CH_3)_2$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-45-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-45-5** | Ph | H | H | $CH_2Ph$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-45-6** | Ph | H | H | $CH_2$-indol-3-yl | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-45-7** | Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-45-8** | Ph | * | H | * | Bz | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-46.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-46-1** | p-Me-Ph | H | H | H | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-46-2** | p-Me-Ph | H | H | $CH_3$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-46-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-46-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-46-5** | p-Me-Ph | H | H | $CH_2Ph$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-46-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-46-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-46-8** | p-Me-Ph | * | H | * | Bz | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-47.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-47-1** | p-F-Ph | H | H | H | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-47-2** | p-F-Ph | H | H | $CH_3$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-47-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-47-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-47-5** | p-F-Ph | H | H | $CH_2Ph$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-47-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-47-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | F | OH | H | H | $NH_2$ |



Gilead Exhibit 2018
PGR2023-00046 - Page 00237

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-47-8** | p-F-Ph | * | H | * | Bz | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-48.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-48-1** | p-Cl-Ph | H | H | H | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-48-2** | p-Cl-Ph | H | H | $CH_3$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-48-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-48-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-48-5** | p-Cl-Ph | H | H | $CH_2Ph$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-48-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-48-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-48-8** | p-Cl-Ph | * | H | * | Bz | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-49.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-49-1** | p-Br-Ph | H | H | H | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-49-2** | p-Br-Ph | H | H | $CH_3$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-49-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-49-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-49-5** | p-Br-Ph | H | H | $CH_2Ph$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-49-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-49-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-49-8** | p-Br-Ph | * | H | * | Bz | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IV-50.

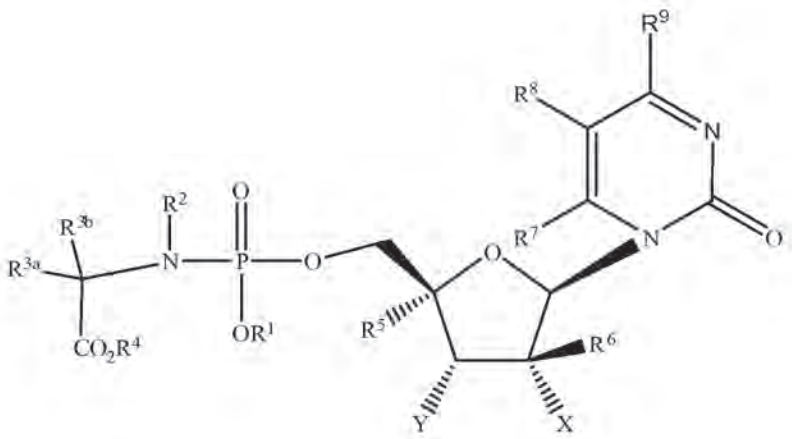
| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-50-1** | p-I-Ph | H | H | H | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-50-2** | p-I-Ph | H | H | $CH_3$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-50-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-50-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-50-5** | p-I-Ph | H | H | $CH_2Ph$ | Bz | H | F | F | OH | H | H | $NH_2$ |



Gilead Exhibit 2018
PGR2023-00046 - Page 00238

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IV-50-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-50-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | F | OH | H | H | $NH_2$ |
| **IV-50-8** | p-I-Ph | * | H | * | Bz | H | F | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



**V**

Table V-1.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-1-1** | $CH_3$ | H | H | H | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-1-2** | $CH_3$ | H | H | $CH_3$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-1-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-1-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-1-5** | $CH_3$ | H | H | $CH_2Ph$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-1-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-1-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-1-8** | $CH_3$ | * | H | * | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-2.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-2-1** | Et | H | H | H | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-2-2** | Et | H | H | $CH_3$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |



Gilead Exhibit 2018
PGR2023-00046 - Page 00239

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-2-3** | Et | H | H | $CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-2-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-2-5** | Et | H | H | $CH_2Ph$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-2-6** | Et | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-2-7** | Et | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-2-8** | Et | * | H | * | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-3.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-3-1** | $^i$Pr | H | H | H | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-3-2** | $^i$Pr | H | H | $CH_3$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-3-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-3-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-3-5** | $^i$Pr | H | H | $CH_2Ph$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-3-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-3-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-3-8** | $^i$Pr | * | H | * | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-4.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-4-1** | $^t$Bu | H | H | H | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-4-2** | $^t$Bu | H | H | $CH_3$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-4-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-4-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-4-5** | $^t$Bu | H | H | $CH_2Ph$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-4-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-4-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-4-8** | $^t$Bu | * | H | * | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-5.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|



Gilead Exhibit 2018
PGR2023-00046 - Page 00240

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-5-1** | Ph | H | H | H | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-5-2** | Ph | H | H | $CH_3$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-5-3** | Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-5-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-5-5** | Ph | H | H | $CH_2Ph$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-5-6** | Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-5-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-5-8** | Ph | * | H | * | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-6.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-6-1** | p-Me-Ph | H | H | H | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-6-2** | p-Me-Ph | H | H | $CH_3$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-6-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-6-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-6-5** | p-Me-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-6-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-6-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-6-8** | p-Me-Ph | * | H | * | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-7.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-7-1** | p-F-Ph | H | H | H | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-7-2** | p-F-Ph | H | H | $CH_3$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-7-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-7-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-7-6** | p-F-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-7-7** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-7-8** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-7-20** | p-F-Ph | * | H | * | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00241

Table V-8.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-8-1** | p-Cl-Ph | H | H | H | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-8-2** | p-Cl-Ph | H | H | $CH_3$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-8-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-8-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-8-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-8-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-8-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-8-8** | p-Cl-Ph | * | H | * | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-9.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-9-1** | p-Br-Ph | H | H | H | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-9-2** | p-Br-Ph | H | H | $CH_3$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-9-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-9-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-9-6** | p-Br-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-9-7** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-9-8** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-9-20** | p-Br-Ph | * | H | * | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-10.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-10-1** | p-I-Ph | H | H | H | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-10-2** | p-I-Ph | H | H | $CH_3$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-10-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-10-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-10-5** | p-I-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-10-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-10-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |
| **V-10-8** | p-I-Ph | * | H | * | $CH_3$ | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00242

Table V-11.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-11-1** | $CH_3$ | H | H | H | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-11-2** | $CH_3$ | H | H | $CH_3$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-11-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-11-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-11-5** | $CH_3$ | H | H | $CH_2Ph$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-11-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-11-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-11-8** | $CH_3$ | * | H | * | Et | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-12.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-12-1** | Et | H | H | H | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-12-2** | Et | H | H | $CH_3$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-12-3** | Et | H | H | $CH(CH_3)_2$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-12-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-12-5** | Et | H | H | $CH_2Ph$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-12-6** | Et | H | H | $CH_2$-indol-3-yl | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-12-7** | Et | H | H | $CH_2CH_2SCH_3$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-12-8** | Et | * | H | * | Et | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-13.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-13-1** | $^i$Pr | H | H | H | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-13-2** | $^i$Pr | H | H | $CH_3$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-13-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-13-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-13-5** | $^i$Pr | H | H | $CH_2Ph$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-13-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-13-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-13-8** | $^i$Pr | * | H | * | Et | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00243

Table V-14.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-14-1** | $^t$Bu | H | H | H | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-14-2** | $^t$Bu | H | H | $CH_3$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-14-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-14-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-14-5** | $^t$Bu | H | H | $CH_2Ph$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-14-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-14-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-14-8** | $^t$Bu | * | H | * | Et | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-15.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-15-1** | Ph | H | H | H | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-15-2** | Ph | H | H | $CH_3$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-15-3** | Ph | H | H | $CH(CH_3)_2$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-15-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-15-5** | Ph | H | H | $CH_2Ph$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-15-6** | Ph | H | H | $CH_2$-indol-3-yl | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-15-7** | Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-15-8** | Ph | * | H | * | Et | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-16.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-16-1** | p-Me-Ph | H | H | H | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-16-2** | p-Me-Ph | H | H | $CH_3$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-16-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-16-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-16-5** | p-Me-Ph | H | H | $CH_2Ph$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-16-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-16-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-16-8** | p-Me-Ph | * | H | * | Et | H | H | F | OH | H | H | $NH_2$ |



Gilead Exhibit 2018
PGR2023-00046 - Page 00244

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-17.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-17-1** | p-F-Ph | H | H | H | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-17-2** | p-F-Ph | H | H | $CH_3$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-17-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-17-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-17-5** | p-F-Ph | H | H | $CH_2Ph$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-17-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-17-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-17-8** | p-F-Ph | * | H | * | Et | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-18.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-18-1** | p-Cl-Ph | H | H | H | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-18-2** | p-Cl-Ph | H | H | $CH_3$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-18-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-18-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-18-5** | p-Cl-Ph | H | H | $CH_2Ph$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-18-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-18-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-18-8** | p-Cl-Ph | * | H | * | Et | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-19.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-19-1** | p-Br-Ph | H | H | H | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-19-2** | p-Br-Ph | H | H | $CH_3$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-19-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-19-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-19-5** | p-Br-Ph | H | H | $CH_2Ph$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-19-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-19-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | H | F | OH | H | H | $NH_2$ |



Gilead Exhibit 2018
PGR2023-00046 - Page 00245

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-19-8** | p-Br-Ph | * | H | * | Et | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-20.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-20-1** | p-I-Ph | H | H | H | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-20-2** | p-I-Ph | H | H | $CH_3$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-20-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-20-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-20-5** | p-I-Ph | H | H | $CH_2Ph$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-20-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-20-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | H | F | OH | H | H | $NH_2$ |
| **V-20-8** | p-I-Ph | * | H | * | Et | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-21.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-21-1** | $CH_3$ | H | H | H | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-21-2** | $CH_3$ | H | H | $CH_3$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-21-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-21-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-21-5** | $CH_3$ | H | H | $CH_2Ph$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-21-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-21-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-21-8** | $CH_3$ | * | H | * | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-22.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-22-1** | Et | H | H | H | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-22-2** | Et | H | H | $CH_3$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-22-3** | Et | H | H | $CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-22-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-22-5** | Et | H | H | $CH_2Ph$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |



Gilead Exhibit 2018
PGR2023-00046 - Page 00246

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-22-6** | Et | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-22-7** | Et | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-22-8** | Et | * | H | * | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-23.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-23-1** | $^i$Pr | H | H | H | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-23-2** | $^i$Pr | H | H | $CH_3$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-23-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-23-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-23-5** | $^i$Pr | H | H | $CH_2Ph$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-23-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-23-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-23-8** | $^i$Pr | * | H | * | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-24.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-24-1** | $^t$Bu | H | H | H | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-24-2** | $^t$Bu | H | H | $CH_3$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-24-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-24-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-24-5** | $^t$Bu | H | H | $CH_2Ph$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-24-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-24-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-24-8** | $^t$Bu | * | H | * | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-25.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-25-1** | Ph | H | H | H | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-25-2** | Ph | H | H | $CH_3$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-25-3** | Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |



Gilead Exhibit 2018
PGR2023-00046 - Page 00247

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-25-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-25-5** | Ph | H | H | $CH_2Ph$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-25-6** | Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-25-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-25-8** | Ph | * | H | * | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-26.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-26-1** | p-Me-Ph | H | H | H | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-26-2** | p-Me-Ph | H | H | $CH_3$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-26-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-26-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-26-5** | p-Me-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-26-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-26-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-26-8** | p-Me-Ph | * | H | * | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-27.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-27-1** | p-F-Ph | H | H | H | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-27-2** | p-F-Ph | H | H | $CH_3$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-27-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-27-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-27-5** | p-F-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-27-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-27-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-27-8** | p-F-Ph | * | H | * | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-28.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-28-1** | p-Cl-Ph | H | H | H | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |



Gilead Exhibit 2018
PGR2023-00046 - Page 00248

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-28-2** | p-Cl-Ph | H | H | $CH_3$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-28-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-28-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-28-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-28-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-28-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-28-8** | p-Cl-Ph | * | H | * | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-29.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-29-1** | p-Br-Ph | H | H | H | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-29-2** | p-Br-Ph | H | H | $CH_3$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-29-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-29-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-29-5** | p-Br-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-29-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-29-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-29-8** | p-Br-Ph | * | H | * | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-30.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-30-1** | p-I-Ph | H | H | H | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-30-2** | p-I-Ph | H | H | $CH_3$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-30-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-30-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-30-5** | p-I-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-30-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-30-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |
| **V-30-8** | p-I-Ph | * | H | * | $^i$Pr | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-31.



Gilead Exhibit 2018
PGR2023-00046 - Page 00249

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-31-1** | $CH_3$ | H | H | H | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-31-2** | $CH_3$ | H | H | $CH_3$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-31-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-31-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-31-5** | $CH_3$ | H | H | $CH_2Ph$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-31-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-31-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-31-8** | $CH_3$ | * | H | * | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-32.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-32-1** | Et | H | H | H | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-32-2** | Et | H | H | $CH_3$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-32-3** | Et | H | H | $CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-32-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-32-5** | Et | H | H | $CH_2Ph$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-32-6** | Et | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-32-7** | Et | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-32-8** | Et | * | H | * | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-33.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-33-1** | $^i$Pr | H | H | H | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-33-2** | $^i$Pr | H | H | $CH_3$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-33-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-33-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-33-5** | $^i$Pr | H | H | $CH_2Ph$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-33-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-33-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-33-8** | $^i$Pr | * | H | * | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00250

Table V-34.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-34-1** | $^t$Bu | H | H | H | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-34-2** | $^t$Bu | H | H | $CH_3$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-34-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-34-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-34-5** | $^t$Bu | H | H | $CH_2Ph$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-34-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-34-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-34-8** | $^t$Bu | * | H | * | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-35.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-35-1** | Ph | H | H | H | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-35-2** | Ph | H | H | $CH_3$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-35-3** | Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-35-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-35-5** | Ph | H | H | $CH_2Ph$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-35-6** | Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-35-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-35-8** | Ph | * | H | * | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-36.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-36-1** | p-Me-Ph | H | H | H | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-36-2** | p-Me-Ph | H | H | $CH_3$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-36-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-36-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-36-5** | p-Me-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-36-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-36-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-36-8** | p-Me-Ph | * | H | * | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00251

Table V-37.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-37-1** | p-F-Ph | H | H | H | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-37-2** | p-F-Ph | H | H | $CH_3$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-37-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-37-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-37-5** | p-F-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-37-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-37-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-37-8** | p-F-Ph | * | H | * | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-38.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-38-1** | p-Cl-Ph | H | H | H | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-38-2** | p-Cl-Ph | H | H | $CH_3$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-38-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-38-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-38-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-38-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-38-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-38-8** | p-Cl-Ph | * | H | * | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-39.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-39-1** | p-Br-Ph | H | H | H | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-39-2** | p-Br-Ph | H | H | $CH_3$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-39-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-39-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-39-5** | p-Br-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-39-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-39-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-39-8** | p-Br-Ph | * | H | * | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00252

Table V-40.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-40-1** | p-I-Ph | H | H | H | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-40-2** | p-I-Ph | H | H | $CH_3$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-40-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-40-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-40-5** | p-I-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-40-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-40-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |
| **V-40-8** | p-I-Ph | * | H | * | $^n$Bu | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-41.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-41-1** | $CH_3$ | H | H | H | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-41-2** | $CH_3$ | H | H | $CH_3$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-41-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-41-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-41-5** | $CH_3$ | H | H | $CH_2Ph$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-41-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-41-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-41-8** | $CH_3$ | * | H | * | Bz | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-42.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-42-1** | Et | H | H | H | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-42-2** | Et | H | H | $CH_3$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-42-3** | Et | H | H | $CH(CH_3)_2$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-42-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-42-5** | Et | H | H | $CH_2Ph$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-42-6** | Et | H | H | $CH_2$-indol-3-yl | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-42-7** | Et | H | H | $CH_2CH_2SCH_3$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-42-8** | Et | * | H | * | Bz | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00253

Table V-43.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-43-1** | $^i$Pr | H | H | H | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-43-2** | $^i$Pr | H | H | $CH_3$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-43-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-43-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-43-5** | $^i$Pr | H | H | $CH_2Ph$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-43-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-43-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-43-8** | $^i$Pr | * | H | * | Bz | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-44.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-44-1** | $^t$Bu | H | H | H | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-44-2** | $^t$Bu | H | H | $CH_3$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-44-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-44-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-44-5** | $^t$Bu | H | H | $CH_2Ph$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-44-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-44-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-44-8** | $^t$Bu | * | H | * | Bz | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-45.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-45-1** | Ph | H | H | H | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-45-2** | Ph | H | H | $CH_3$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-45-3** | Ph | H | H | $CH(CH_3)_2$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-45-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-45-5** | Ph | H | H | $CH_2Ph$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-45-6** | Ph | H | H | $CH_2$-indol-3-yl | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-45-7** | Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-45-8** | Ph | * | H | * | Bz | H | H | F | OH | H | H | $NH_2$ |



Gilead Exhibit 2018
PGR2023-00046 - Page 00254

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-46.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-46-1** | p-Me-Ph | H | H | H | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-46-2** | p-Me-Ph | H | H | $CH_3$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-46-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-46-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-46-5** | p-Me-Ph | H | H | $CH_2Ph$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-46-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-46-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-46-8** | p-Me-Ph | * | H | * | Bz | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-47.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-47-1** | p-F-Ph | H | H | H | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-47-2** | p-F-Ph | H | H | $CH_3$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-47-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-47-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-47-5** | p-F-Ph | H | H | $CH_2Ph$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-47-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-47-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-47-8** | p-F-Ph | * | H | * | Bz | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-48.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-48-1** | p-Cl-Ph | H | H | H | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-48-2** | p-Cl-Ph | H | H | $CH_3$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-48-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-48-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-48-5** | p-Cl-Ph | H | H | $CH_2Ph$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-48-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-48-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | H | F | OH | H | H | $NH_2$ |



Gilead Exhibit 2018
PGR2023-00046 - Page 00255

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-48-8** | p-Cl-Ph | * | H | * | Bz | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table V-49.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-49-1** | p-Br-Ph | H | H | H | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-49-2** | p-Br-Ph | H | H | $CH_3$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-49-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-49-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-49-5** | p-Br-Ph | H | H | $CH_2Ph$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-49-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-49-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-49-8** | p-Br-Ph | * | H | * | Bz | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

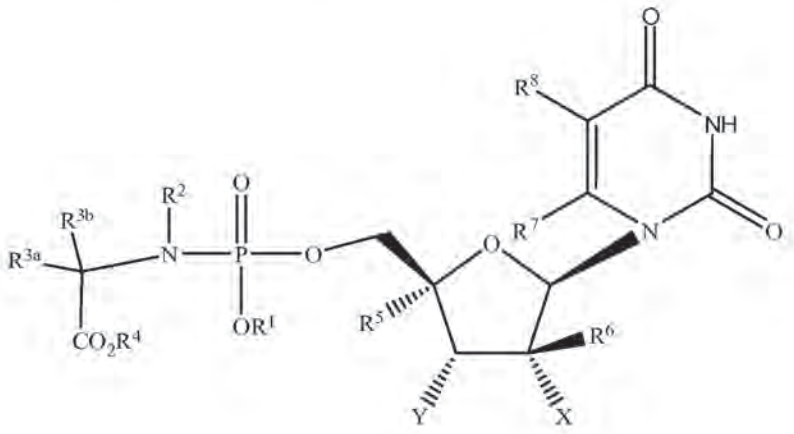
Table V-50.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V-50-1** | p-I-Ph | H | H | H | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-50-2** | p-I-Ph | H | H | $CH_3$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-50-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-50-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-50-5** | p-I-Ph | H | H | $CH_2Ph$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-50-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-50-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | H | F | OH | H | H | $NH_2$ |
| **V-50-8** | p-I-Ph | * | H | * | Bz | H | H | F | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00256



**VI**

Table VI-1.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-1-1** | $CH_3$ | H | H | H | $CH_3$ | H | F | H | OH | H | H |
| **VI-1-2** | $CH_3$ | H | H | $CH_3$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-1-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-1-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-1-5** | $CH_3$ | H | H | $CH_2Ph$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-1-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | H | OH | H | H |
| **VI-1-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-1-8** | $CH_3$ | * | H | * | $CH_3$ | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-2.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-2-1** | Et | H | H | H | $CH_3$ | H | F | H | OH | H | H |
| **VI-2-2** | Et | H | H | $CH_3$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-2-3** | Et | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-2-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-2-5** | Et | H | H | $CH_2Ph$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-2-6** | Et | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | H | OH | H | H |
| **VI-2-7** | Et | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-2-8** | Et | * | H | * | $CH_3$ | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00257

Table VI-3.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-3-1** | $^i$Pr | H | H | H | $CH_3$ | H | F | H | OH | H | H |
| **VI-3-2** | $^i$Pr | H | H | $CH_3$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-3-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-3-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-3-5** | $^i$Pr | H | H | $CH_2Ph$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-3-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | H | OH | H | H |
| **VI-3-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-3-8** | $^i$Pr | * | H | * | $CH_3$ | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-4.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-4-1** | $^t$Bu | H | H | H | $CH_3$ | H | F | H | OH | H | H |
| **VI-4-2** | $^t$Bu | H | H | $CH_3$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-4-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-4-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-4-5** | $^t$Bu | H | H | $CH_2Ph$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-4-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | H | OH | H | H |
| **VI-4-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-4-8** | $^t$Bu | * | H | * | $CH_3$ | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-5.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-5-1** | Ph | H | H | H | $CH_3$ | H | F | H | OH | H | H |
| **VI-5-2** | Ph | H | H | $CH_3$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-5-3** | Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-5-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-5-5** | Ph | H | H | $CH_2Ph$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-5-6** | Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | H | OH | H | H |
| **VI-5-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-5-8** | Ph | * | H | * | $CH_3$ | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00258

Table VI-6.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-6-1** | p-Me-Ph | H | H | H | $CH_3$ | H | F | H | OH | H | H |
| **VI-6-2** | p-Me-Ph | H | H | $CH_3$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-6-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-6-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-6-5** | p-Me-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-6-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | H | OH | H | H |
| **VI-6-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-6-8** | p-Me-Ph | * | H | * | $CH_3$ | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-7.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-7-1** | p-F-Ph | H | H | H | $CH_3$ | H | F | H | OH | H | H |
| **VI-7-2** | p-F-Ph | H | H | $CH_3$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-7-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-7-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-7-6** | p-F-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-7-7** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | H | OH | H | H |
| **VI-7-8** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-7-20** | p-F-Ph | * | H | * | $CH_3$ | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-8.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-8-1** | p-Cl-Ph | H | H | H | $CH_3$ | H | F | H | OH | H | H |
| **VI-8-2** | p-Cl-Ph | H | H | $CH_3$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-8-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-8-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-8-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-8-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | H | OH | H | H |
| **VI-8-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-8-8** | p-Cl-Ph | * | H | * | $CH_3$ | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00259

Table VI-9.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-9-1** | p-Br-Ph | H | H | H | $CH_3$ | H | F | H | OH | H | H |
| **VI-9-2** | p-Br-Ph | H | H | $CH_3$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-9-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-9-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-9-6** | p-Br-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-9-7** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | H | OH | H | H |
| **VI-9-8** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-9-20** | p-Br-Ph | * | H | * | $CH_3$ | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-10.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-10-1** | p-I-Ph | H | H | H | $CH_3$ | H | F | H | OH | H | H |
| **VI-10-2** | p-I-Ph | H | H | $CH_3$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-10-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-10-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-10-5** | p-I-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-10-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | H | OH | H | H |
| **VI-10-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | H | OH | H | H |
| **VI-10-8** | p-I-Ph | * | H | * | $CH_3$ | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-11.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-11-1** | $CH_3$ | H | H | H | Et | H | F | H | OH | H | H |
| **VI-11-2** | $CH_3$ | H | H | $CH_3$ | Et | H | F | H | OH | H | H |
| **VI-11-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Et | H | F | H | OH | H | H |
| **VI-11-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | H | OH | H | H |
| **VI-11-5** | $CH_3$ | H | H | $CH_2Ph$ | Et | H | F | H | OH | H | H |
| **VI-11-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Et | H | F | H | OH | H | H |
| **VI-11-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Et | H | F | H | OH | H | H |
| **VI-11-8** | $CH_3$ | * | H | * | Et | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00260

Table VI-12.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-12-1** | Et | H | H | H | Et | H | F | H | OH | H | H |
| **VI-12-2** | Et | H | H | $CH_3$ | Et | H | F | H | OH | H | H |
| **VI-12-3** | Et | H | H | $CH(CH_3)_2$ | Et | H | F | H | OH | H | H |
| **VI-12-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | H | OH | H | H |
| **VI-12-5** | Et | H | H | $CH_2Ph$ | Et | H | F | H | OH | H | H |
| **VI-12-6** | Et | H | H | $CH_2$-indol-3-yl | Et | H | F | H | OH | H | H |
| **VI-12-7** | Et | H | H | $CH_2CH_2SCH_3$ | Et | H | F | H | OH | H | H |
| **VI-12-8** | Et | * | H | * | Et | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-13.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-13-1** | $^i$Pr | H | H | H | Et | H | F | H | OH | H | H |
| **VI-13-2** | $^i$Pr | H | H | $CH_3$ | Et | H | F | H | OH | H | H |
| **VI-13-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Et | H | F | H | OH | H | H |
| **VI-13-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | H | OH | H | H |
| **VI-13-5** | $^i$Pr | H | H | $CH_2Ph$ | Et | H | F | H | OH | H | H |
| **VI-13-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Et | H | F | H | OH | H | H |
| **VI-13-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Et | H | F | H | OH | H | H |
| **VI-13-8** | $^i$Pr | * | H | * | Et | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-14.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-14-1** | $^t$Bu | H | H | H | Et | H | F | H | OH | H | H |
| **VI-14-2** | $^t$Bu | H | H | $CH_3$ | Et | H | F | H | OH | H | H |
| **VI-14-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | Et | H | F | H | OH | H | H |
| **VI-14-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | H | OH | H | H |
| **VI-14-5** | $^t$Bu | H | H | $CH_2Ph$ | Et | H | F | H | OH | H | H |
| **VI-14-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | Et | H | F | H | OH | H | H |
| **VI-14-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | Et | H | F | H | OH | H | H |
| **VI-14-8** | $^t$Bu | * | H | * | Et | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00261

Table VI-15.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-15-1** | Ph | H | H | H | Et | H | F | H | OH | H | H |
| **VI-15-2** | Ph | H | H | $CH_3$ | Et | H | F | H | OH | H | H |
| **VI-15-3** | Ph | H | H | $CH(CH_3)_2$ | Et | H | F | H | OH | H | H |
| **VI-15-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | H | OH | H | H |
| **VI-15-5** | Ph | H | H | $CH_2Ph$ | Et | H | F | H | OH | H | H |
| **VI-15-6** | Ph | H | H | $CH_2$-indol-3-yl | Et | H | F | H | OH | H | H |
| **VI-15-7** | Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | F | H | OH | H | H |
| **VI-15-8** | Ph | * | H | * | Et | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-16.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-16-1** | p-Me-Ph | H | H | H | Et | H | F | H | OH | H | H |
| **VI-16-2** | p-Me-Ph | H | H | $CH_3$ | Et | H | F | H | OH | H | H |
| **VI-16-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | Et | H | F | H | OH | H | H |
| **VI-16-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | H | OH | H | H |
| **VI-16-5** | p-Me-Ph | H | H | $CH_2Ph$ | Et | H | F | H | OH | H | H |
| **VI-16-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | Et | H | F | H | OH | H | H |
| **VI-16-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | F | H | OH | H | H |
| **VI-16-8** | p-Me-Ph | * | H | * | Et | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-17.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-17-1** | p-F-Ph | H | H | H | Et | H | F | H | OH | H | H |
| **VI-17-2** | p-F-Ph | H | H | $CH_3$ | Et | H | F | H | OH | H | H |
| **VI-17-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | Et | H | F | H | OH | H | H |
| **VI-17-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | H | OH | H | H |
| **VI-17-5** | p-F-Ph | H | H | $CH_2Ph$ | Et | H | F | H | OH | H | H |
| **VI-17-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | Et | H | F | H | OH | H | H |
| **VI-17-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | F | H | OH | H | H |
| **VI-17-8** | p-F-Ph | * | H | * | Et | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00262

Table VI-18.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-18-1** | p-Cl-Ph | H | H | H | Et | H | F | H | OH | H | H |
| **VI-18-2** | p-Cl-Ph | H | H | $CH_3$ | Et | H | F | H | OH | H | H |
| **VI-18-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | Et | H | F | H | OH | H | H |
| **VI-18-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | H | OH | H | H |
| **VI-18-5** | p-Cl-Ph | H | H | $CH_2Ph$ | Et | H | F | H | OH | H | H |
| **VI-18-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | Et | H | F | H | OH | H | H |
| **VI-18-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | F | H | OH | H | H |
| **VI-18-8** | p-Cl-Ph | * | H | * | Et | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-19.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-19-1** | p-Br-Ph | H | H | H | Et | H | F | H | OH | H | H |
| **VI-19-2** | p-Br-Ph | H | H | $CH_3$ | Et | H | F | H | OH | H | H |
| **VI-19-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | Et | H | F | H | OH | H | H |
| **VI-19-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | H | OH | H | H |
| **VI-19-5** | p-Br-Ph | H | H | $CH_2Ph$ | Et | H | F | H | OH | H | H |
| **VI-19-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | Et | H | F | H | OH | H | H |
| **VI-19-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | F | H | OH | H | H |
| **VI-19-8** | p-Br-Ph | * | H | * | Et | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-20.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-20-1** | p-I-Ph | H | H | H | Et | H | F | H | OH | H | H |
| **VI-20-2** | p-I-Ph | H | H | $CH_3$ | Et | H | F | H | OH | H | H |
| **VI-20-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | Et | H | F | H | OH | H | H |
| **VI-20-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | H | OH | H | H |
| **VI-20-5** | p-I-Ph | H | H | $CH_2Ph$ | Et | H | F | H | OH | H | H |
| **VI-20-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | Et | H | F | H | OH | H | H |
| **VI-20-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | F | H | OH | H | H |
| **VI-20-8** | p-I-Ph | * | H | * | Et | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00263

Table VI-21.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-21-1** | $CH_3$ | H | H | H | $^i$Pr | H | F | H | OH | H | H |
| **VI-21-2** | $CH_3$ | H | H | $CH_3$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-21-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-21-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-21-5** | $CH_3$ | H | H | $CH_2Ph$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-21-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | H | OH | H | H |
| **VI-21-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-21-8** | $CH_3$ | * | H | * | $^i$Pr | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-22.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-22-1** | Et | H | H | H | $^i$Pr | H | F | H | OH | H | H |
| **VI-22-2** | Et | H | H | $CH_3$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-22-3** | Et | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-22-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-22-5** | Et | H | H | $CH_2Ph$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-22-6** | Et | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | H | OH | H | H |
| **VI-22-7** | Et | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-22-8** | Et | * | H | * | $^i$Pr | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-23.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-23-1** | $^i$Pr | H | H | H | $^i$Pr | H | F | H | OH | H | H |
| **VI-23-2** | $^i$Pr | H | H | $CH_3$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-23-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-23-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-23-5** | $^i$Pr | H | H | $CH_2Ph$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-23-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | H | OH | H | H |
| **VI-23-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-23-8** | $^i$Pr | * | H | * | $^i$Pr | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00264

Table VI-24.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-24-1** | $^t$Bu | H | H | H | $^i$Pr | H | F | H | OH | H | H |
| **VI-24-2** | $^t$Bu | H | H | $CH_3$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-24-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-24-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-24-5** | $^t$Bu | H | H | $CH_2Ph$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-24-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | H | OH | H | H |
| **VI-24-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-24-8** | $^t$Bu | * | H | * | $^i$Pr | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-25.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-25-1** | Ph | H | H | H | $^i$Pr | H | F | H | OH | H | H |
| **VI-25-2** | Ph | H | H | $CH_3$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-25-3** | Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-25-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-25-5** | Ph | H | H | $CH_2Ph$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-25-6** | Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | H | OH | H | H |
| **VI-25-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-25-8** | Ph | * | H | * | $^i$Pr | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-26.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-26-1** | p-Me-Ph | H | H | H | $^i$Pr | H | F | H | OH | H | H |
| **VI-26-2** | p-Me-Ph | H | H | $CH_3$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-26-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-26-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-26-5** | p-Me-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-26-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | H | OH | H | H |
| **VI-26-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-26-8** | p-Me-Ph | * | H | * | $^i$Pr | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00265

Table VI-27.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-27-1** | p-F-Ph | H | H | H | $^i$Pr | H | F | H | OH | H | H |
| **VI-27-2** | p-F-Ph | H | H | $CH_3$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-27-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-27-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-27-5** | p-F-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-27-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | H | OH | H | H |
| **VI-27-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-27-8** | p-F-Ph | * | H | * | $^i$Pr | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-28.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-28-1** | p-Cl-Ph | H | H | H | $^i$Pr | H | F | H | OH | H | H |
| **VI-28-2** | p-Cl-Ph | H | H | $CH_3$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-28-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-28-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-28-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-28-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | H | OH | H | H |
| **VI-28-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-28-8** | p-Cl-Ph | * | H | * | $^i$Pr | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-29.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-29-1** | p-Br-Ph | H | H | H | $^i$Pr | H | F | H | OH | H | H |
| **VI-29-2** | p-Br-Ph | H | H | $CH_3$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-29-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-29-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-29-5** | p-Br-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-29-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | H | OH | H | H |
| **VI-29-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-29-8** | p-Br-Ph | * | H | * | $^i$Pr | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00266

Table VI-30.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-30-1** | p-I-Ph | H | H | H | $^i$Pr | H | F | H | OH | H | H |
| **VI-30-2** | p-I-Ph | H | H | $CH_3$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-30-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-30-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-30-5** | p-I-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-30-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | H | OH | H | H |
| **VI-30-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | H | OH | H | H |
| **VI-30-8** | p-I-Ph | * | H | * | $^i$Pr | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-31.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-31-1** | $CH_3$ | H | H | H | $^n$Bu | H | F | H | OH | H | H |
| **VI-31-2** | $CH_3$ | H | H | $CH_3$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-31-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-31-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-31-5** | $CH_3$ | H | H | $CH_2Ph$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-31-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | H | OH | H | H |
| **VI-31-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-31-8** | $CH_3$ | * | H | * | $^n$Bu | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-32.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-32-1** | Et | H | H | H | $^n$Bu | H | F | H | OH | H | H |
| **VI-32-2** | Et | H | H | $CH_3$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-32-3** | Et | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-32-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-32-5** | Et | H | H | $CH_2Ph$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-32-6** | Et | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | H | OH | H | H |
| **VI-32-7** | Et | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-32-8** | Et | * | H | * | $^n$Bu | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00267

Table VI-33.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-33-1** | $^i$Pr | H | H | H | $^n$Bu | H | F | H | OH | H | H |
| **VI-33-2** | $^i$Pr | H | H | $CH_3$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-33-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-33-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-33-5** | $^i$Pr | H | H | $CH_2Ph$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-33-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | H | OH | H | H |
| **VI-33-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-33-8** | $^i$Pr | * | H | * | $^n$Bu | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-34.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-34-1** | $^t$Bu | H | H | H | $^n$Bu | H | F | H | OH | H | H |
| **VI-34-2** | $^t$Bu | H | H | $CH_3$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-34-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-34-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-34-5** | $^t$Bu | H | H | $CH_2Ph$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-34-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | H | OH | H | H |
| **VI-34-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-34-8** | $^t$Bu | * | H | * | $^n$Bu | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-35.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-35-1** | Ph | H | H | H | $^n$Bu | H | F | H | OH | H | H |
| **VI-35-2** | Ph | H | H | $CH_3$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-35-3** | Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-35-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-35-5** | Ph | H | H | $CH_2Ph$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-35-6** | Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | H | OH | H | H |
| **VI-35-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-35-8** | Ph | * | H | * | $^n$Bu | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00268

Table VI-36.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-36-1** | p-Me-Ph | H | H | H | $^n$Bu | H | F | H | OH | H | H |
| **VI-36-2** | p-Me-Ph | H | H | $CH_3$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-36-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-36-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-36-5** | p-Me-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-36-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | H | OH | H | H |
| **VI-36-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-36-8** | p-Me-Ph | * | H | * | $^n$Bu | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-37.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-37-1** | p-F-Ph | H | H | H | $^n$Bu | H | F | H | OH | H | H |
| **VI-37-2** | p-F-Ph | H | H | $CH_3$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-37-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-37-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-37-5** | p-F-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-37-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | H | OH | H | H |
| **VI-37-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-37-8** | p-F-Ph | * | H | * | $^n$Bu | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-38.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-38-1** | p-Cl-Ph | H | H | H | $^n$Bu | H | F | H | OH | H | H |
| **VI-38-2** | p-Cl-Ph | H | H | $CH_3$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-38-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-38-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-38-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-38-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | H | OH | H | H |
| **VI-38-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-38-8** | p-Cl-Ph | * | H | * | $^n$Bu | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00269

Table VI-39.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-39-1** | p-Br-Ph | H | H | H | $^n$Bu | H | F | H | OH | H | H |
| **VI-39-2** | p-Br-Ph | H | H | $CH_3$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-39-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-39-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-39-5** | p-Br-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-39-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | H | OH | H | H |
| **VI-39-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-39-8** | p-Br-Ph | * | H | * | $^n$Bu | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-40.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-40-1** | p-I-Ph | H | H | H | $^n$Bu | H | F | H | OH | H | H |
| **VI-40-2** | p-I-Ph | H | H | $CH_3$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-40-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-40-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-40-5** | p-I-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-40-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | H | OH | H | H |
| **VI-40-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | H | OH | H | H |
| **VI-40-8** | p-I-Ph | * | H | * | $^n$Bu | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-41.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-41-1** | $CH_3$ | H | H | H | Bz | H | F | H | OH | H | H |
| **VI-41-2** | $CH_3$ | H | H | $CH_3$ | Bz | H | F | H | OH | H | H |
| **VI-41-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Bz | H | F | H | OH | H | H |
| **VI-41-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | H | OH | H | H |
| **VI-41-5** | $CH_3$ | H | H | $CH_2Ph$ | Bz | H | F | H | OH | H | H |
| **VI-41-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Bz | H | F | H | OH | H | H |
| **VI-41-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | H | OH | H | H |
| **VI-41-8** | $CH_3$ | * | H | * | Bz | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00270

Table VI-42.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-42-1** | Et | H | H | H | Bz | H | F | H | OH | H | H |
| **VI-42-2** | Et | H | H | $CH_3$ | Bz | H | F | H | OH | H | H |
| **VI-42-3** | Et | H | H | $CH(CH_3)_2$ | Bz | H | F | H | OH | H | H |
| **VI-42-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | H | OH | H | H |
| **VI-42-5** | Et | H | H | $CH_2Ph$ | Bz | H | F | H | OH | H | H |
| **VI-42-6** | Et | H | H | $CH_2$-indol-3-yl | Bz | H | F | H | OH | H | H |
| **VI-42-7** | Et | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | H | OH | H | H |
| **VI-42-8** | Et | * | H | * | Bz | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-43.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-43-1** | $^i$Pr | H | H | H | Bz | H | F | H | OH | H | H |
| **VI-43-2** | $^i$Pr | H | H | $CH_3$ | Bz | H | F | H | OH | H | H |
| **VI-43-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Bz | H | F | H | OH | H | H |
| **VI-43-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | H | OH | H | H |
| **VI-43-5** | $^i$Pr | H | H | $CH_2Ph$ | Bz | H | F | H | OH | H | H |
| **VI-43-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Bz | H | F | H | OH | H | H |
| **VI-43-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | H | OH | H | H |
| **VI-43-8** | $^i$Pr | * | H | * | Bz | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-44.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-44-1** | $^t$Bu | H | H | H | Bz | H | F | H | OH | H | H |
| **VI-44-2** | $^t$Bu | H | H | $CH_3$ | Bz | H | F | H | OH | H | H |
| **VI-44-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | Bz | H | F | H | OH | H | H |
| **VI-44-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | H | OH | H | H |
| **VI-44-5** | $^t$Bu | H | H | $CH_2Ph$ | Bz | H | F | H | OH | H | H |
| **VI-44-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | Bz | H | F | H | OH | H | H |
| **VI-44-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | H | OH | H | H |
| **VI-44-8** | $^t$Bu | * | H | * | Bz | H | F | H | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00271

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-45.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-45-1** | Ph | H | H | H | Bz | H | F | H | OH | H | H |
| **VI-45-2** | Ph | H | H | $CH_3$ | Bz | H | F | H | OH | H | H |
| **VI-45-3** | Ph | H | H | $CH(CH_3)_2$ | Bz | H | F | H | OH | H | H |
| **VI-45-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | H | OH | H | H |
| **VI-45-5** | Ph | H | H | $CH_2Ph$ | Bz | H | F | H | OH | H | H |
| **VI-45-6** | Ph | H | H | $CH_2$-indol-3-yl | Bz | H | F | H | OH | H | H |
| **VI-45-7** | Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | H | OH | H | H |
| **VI-45-8** | Ph | * | H | * | Bz | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-46.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-46-1** | p-Me-Ph | H | H | H | Bz | H | F | H | OH | H | H |
| **VI-46-2** | p-Me-Ph | H | H | $CH_3$ | Bz | H | F | H | OH | H | H |
| **VI-46-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | Bz | H | F | H | OH | H | H |
| **VI-46-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | H | OH | H | H |
| **VI-46-5** | p-Me-Ph | H | H | $CH_2Ph$ | Bz | H | F | H | OH | H | H |
| **VI-46-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | F | H | OH | H | H |
| **VI-46-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | H | OH | H | H |
| **VI-46-8** | p-Me-Ph | * | H | * | Bz | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-47.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-47-1** | p-F-Ph | H | H | H | Bz | H | F | H | OH | H | H |
| **VI-47-2** | p-F-Ph | H | H | $CH_3$ | Bz | H | F | H | OH | H | H |
| **VI-47-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | Bz | H | F | H | OH | H | H |
| **VI-47-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | H | OH | H | H |
| **VI-47-5** | p-F-Ph | H | H | $CH_2Ph$ | Bz | H | F | H | OH | H | H |
| **VI-47-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | F | H | OH | H | H |
| **VI-47-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | H | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00272

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-47-8** | p-F-Ph | * | H | * | Bz | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-48.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-48-1** | p-Cl-Ph | H | H | H | Bz | H | F | H | OH | H | H |
| **VI-48-2** | p-Cl-Ph | H | H | $CH_3$ | Bz | H | F | H | OH | H | H |
| **VI-48-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | Bz | H | F | H | OH | H | H |
| **VI-48-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | H | OH | H | H |
| **VI-48-5** | p-Cl-Ph | H | H | $CH_2Ph$ | Bz | H | F | H | OH | H | H |
| **VI-48-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | F | H | OH | H | H |
| **VI-48-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | H | OH | H | H |
| **VI-48-8** | p-Cl-Ph | * | H | * | Bz | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-49.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-49-1** | p-Br-Ph | H | H | H | Bz | H | F | H | OH | H | H |
| **VI-49-2** | p-Br-Ph | H | H | $CH_3$ | Bz | H | F | H | OH | H | H |
| **VI-49-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | Bz | H | F | H | OH | H | H |
| **VI-49-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | H | OH | H | H |
| **VI-49-5** | p-Br-Ph | H | H | $CH_2Ph$ | Bz | H | F | H | OH | H | H |
| **VI-49-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | F | H | OH | H | H |
| **VI-49-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | H | OH | H | H |
| **VI-49-8** | p-Br-Ph | * | H | * | Bz | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VI-50.

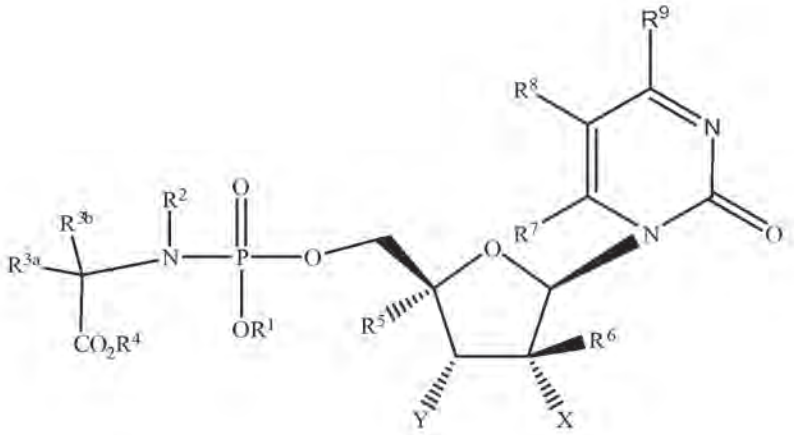
| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-50-1** | p-I-Ph | H | H | H | Bz | H | F | H | OH | H | H |
| **VI-50-2** | p-I-Ph | H | H | $CH_3$ | Bz | H | F | H | OH | H | H |
| **VI-50-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | Bz | H | F | H | OH | H | H |
| **VI-50-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | H | OH | H | H |
| **VI-50-5** | p-I-Ph | H | H | $CH_2Ph$ | Bz | H | F | H | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00273

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VI-50-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | F | H | OH | H | H |
| **VI-50-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | H | OH | H | H |
| **VI-50-8** | p-I-Ph | * | H | * | Bz | H | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



**VII**

Table VII-1.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-1-1** | $CH_3$ | H | H | H | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-1-2** | $CH_3$ | H | H | $CH_3$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-1-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-1-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-1-5** | $CH_3$ | H | H | $CH_2Ph$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-1-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-1-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-1-8** | $CH_3$ | * | H | * | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-2.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-2-1** | Et | H | H | H | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |



Gilead Exhibit 2018
PGR2023-00046 - Page 00274

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-2-2** | Et | H | H | $CH_3$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-2-3** | Et | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-2-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-2-5** | Et | H | H | $CH_2Ph$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-2-6** | Et | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-2-7** | Et | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-2-8** | Et | * | H | * | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-3.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-3-1** | $^i$Pr | H | H | H | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-3-2** | $^i$Pr | H | H | $CH_3$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-3-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-3-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-3-5** | $^i$Pr | H | H | $CH_2Ph$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-3-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-3-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-3-8** | $^i$Pr | * | H | * | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-4.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-4-1** | $^t$Bu | H | H | H | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-4-2** | $^t$Bu | H | H | $CH_3$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-4-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-4-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-4-5** | $^t$Bu | H | H | $CH_2Ph$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-4-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-4-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-4-8** | $^t$Bu | * | H | * | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-5.



Gilead Exhibit 2018
PGR2023-00046 - Page 00275

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-5-1** | Ph | H | H | H | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-5-2** | Ph | H | H | $CH_3$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-5-3** | Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-5-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-5-5** | Ph | H | H | $CH_2Ph$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-5-6** | Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-5-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-5-8** | Ph | * | H | * | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-6.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-6-1** | p-Me-Ph | H | H | H | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-6-2** | p-Me-Ph | H | H | $CH_3$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-6-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-6-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-6-5** | p-Me-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-6-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-6-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-6-8** | p-Me-Ph | * | H | * | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-7.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-7-1** | p-F-Ph | H | H | H | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-7-2** | p-F-Ph | H | H | $CH_3$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-7-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-7-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-7-6** | p-F-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-7-7** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-7-8** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-7-20** | p-F-Ph | * | H | * | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00276

Table VII-8.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-8-1** | p-Cl-Ph | H | H | H | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-8-2** | p-Cl-Ph | H | H | $CH_3$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-8-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-8-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-8-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-8-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-8-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-8-8** | p-Cl-Ph | * | H | * | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-9.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-9-1** | p-Br-Ph | H | H | H | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-9-2** | p-Br-Ph | H | H | $CH_3$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-9-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-9-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-9-6** | p-Br-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-9-7** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-9-8** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-9-20** | p-Br-Ph | * | H | * | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-10.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-10-1** | p-I-Ph | H | H | H | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-10-2** | p-I-Ph | H | H | $CH_3$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-10-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-10-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-10-5** | p-I-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-10-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-10-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |
| **VII-10-8** | p-I-Ph | * | H | * | $CH_3$ | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00277

Table VII-11.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-11-1** | $CH_3$ | H | H | H | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-11-2** | $CH_3$ | H | H | $CH_3$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-11-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-11-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-11-5** | $CH_3$ | H | H | $CH_2Ph$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-11-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-11-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-11-8** | $CH_3$ | * | H | * | Et | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-12.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-12-1** | Et | H | H | H | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-12-2** | Et | H | H | $CH_3$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-12-3** | Et | H | H | $CH(CH_3)_2$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-12-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-12-5** | Et | H | H | $CH_2Ph$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-12-6** | Et | H | H | $CH_2$-indol-3-yl | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-12-7** | Et | H | H | $CH_2CH_2SCH_3$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-12-8** | Et | * | H | * | Et | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-13.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-13-1** | $^i$Pr | H | H | H | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-13-2** | $^i$Pr | H | H | $CH_3$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-13-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-13-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-13-5** | $^i$Pr | H | H | $CH_2Ph$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-13-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-13-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-13-8** | $^i$Pr | * | H | * | Et | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00278

Table VII-14.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-14-1** | $^t$Bu | H | H | H | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-14-2** | $^t$Bu | H | H | $CH_3$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-14-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-14-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-14-5** | $^t$Bu | H | H | $CH_2Ph$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-14-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-14-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-14-8** | $^t$Bu | * | H | * | Et | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-15.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-15-1** | Ph | H | H | H | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-15-2** | Ph | H | H | $CH_3$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-15-3** | Ph | H | H | $CH(CH_3)_2$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-15-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-15-5** | Ph | H | H | $CH_2Ph$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-15-6** | Ph | H | H | $CH_2$-indol-3-yl | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-15-7** | Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-15-8** | Ph | * | H | * | Et | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-16.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|



Gilead Exhibit 2018
PGR2023-00046 - Page 00279

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-16-1** | p-Me-Ph | H | H | H | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-16-2** | p-Me-Ph | H | H | $CH_3$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-16-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-16-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-16-5** | p-Me-Ph | H | H | $CH_2Ph$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-16-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-16-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-16-8** | p-Me-Ph | * | H | * | Et | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-17.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-17-1** | p-F-Ph | H | H | H | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-17-2** | p-F-Ph | H | H | $CH_3$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-17-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-17-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-17-5** | p-F-Ph | H | H | $CH_2Ph$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-17-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-17-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-17-8** | p-F-Ph | * | H | * | Et | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-18.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-18-1** | p-Cl-Ph | H | H | H | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-18-2** | p-Cl-Ph | H | H | $CH_3$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-18-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-18-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-18-5** | p-Cl-Ph | H | H | $CH_2Ph$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-18-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-18-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-18-8** | p-Cl-Ph | * | H | * | Et | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00280

Table VII-19.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-19-1** | p-Br-Ph | H | H | H | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-19-2** | p-Br-Ph | H | H | $CH_3$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-19-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-19-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-19-5** | p-Br-Ph | H | H | $CH_2Ph$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-19-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-19-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-19-8** | p-Br-Ph | * | H | * | Et | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-20.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-20-1** | p-I-Ph | H | H | H | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-20-2** | p-I-Ph | H | H | $CH_3$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-20-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-20-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-20-5** | p-I-Ph | H | H | $CH_2Ph$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-20-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-20-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | F | H | OH | H | H | $NH_2$ |
| **VII-20-8** | p-I-Ph | * | H | * | Et | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-21.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-21-1** | $CH_3$ | H | H | H | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-21-2** | $CH_3$ | H | H | $CH_3$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-21-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-21-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-21-5** | $CH_3$ | H | H | $CH_2Ph$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-21-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-21-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-21-8** | $CH_3$ | * | H | * | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00281

Table VII-22.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-22-1** | Et | H | H | H | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-22-2** | Et | H | H | $CH_3$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-22-3** | Et | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-22-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-22-5** | Et | H | H | $CH_2Ph$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-22-6** | Et | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-22-7** | Et | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-22-8** | Et | * | H | * | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-23.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-23-1** | $^i$Pr | H | H | H | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-23-2** | $^i$Pr | H | H | $CH_3$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-23-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-23-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-23-5** | $^i$Pr | H | H | $CH_2Ph$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-23-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-23-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-23-8** | $^i$Pr | * | H | * | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-24.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-24-1** | $^t$Bu | H | H | H | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-24-2** | $^t$Bu | H | H | $CH_3$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-24-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-24-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-24-5** | $^t$Bu | H | H | $CH_2Ph$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-24-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-24-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-24-8** | $^t$Bu | * | H | * | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00282

Table VII-25.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-25-1** | Ph | H | H | H | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-25-2** | Ph | H | H | $CH_3$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-25-3** | Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-25-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-25-5** | Ph | H | H | $CH_2Ph$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-25-6** | Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-25-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-25-8** | Ph | * | H | * | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-26.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-26-1** | p-Me-Ph | H | H | H | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-26-2** | p-Me-Ph | H | H | $CH_3$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-26-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-26-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-26-5** | p-Me-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-26-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-26-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-26-8** | p-Me-Ph | * | H | * | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-27.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-27-1** | p-F-Ph | H | H | H | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-27-2** | p-F-Ph | H | H | $CH_3$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-27-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-27-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-27-5** | p-F-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-27-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-27-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-27-8** | p-F-Ph | * | H | * | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00283

Table VII-28.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-28-1** | p-Cl-Ph | H | H | H | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-28-2** | p-Cl-Ph | H | H | $CH_3$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-28-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-28-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-28-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-28-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-28-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-28-8** | p-Cl-Ph | * | H | * | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-29.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-29-1** | p-Br-Ph | H | H | H | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-29-2** | p-Br-Ph | H | H | $CH_3$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-29-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-29-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-29-5** | p-Br-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-29-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-29-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-29-8** | p-Br-Ph | * | H | * | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-30.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-30-1** | p-I-Ph | H | H | H | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-30-2** | p-I-Ph | H | H | $CH_3$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-30-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-30-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-30-5** | p-I-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-30-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-30-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |
| **VII-30-8** | p-I-Ph | * | H | * | $^i$Pr | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00284

Table VII-31.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-31-1** | $CH_3$ | H | H | H | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-31-2** | $CH_3$ | H | H | $CH_3$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-31-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-31-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-31-5** | $CH_3$ | H | H | $CH_2Ph$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-31-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-31-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-31-8** | $CH_3$ | * | H | * | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-32.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-32-1** | Et | H | H | H | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-32-2** | Et | H | H | $CH_3$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-32-3** | Et | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-32-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-32-5** | Et | H | H | $CH_2Ph$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-32-6** | Et | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-32-7** | Et | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-32-8** | Et | * | H | * | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-33.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-33-1** | $^i$Pr | H | H | H | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-33-2** | $^i$Pr | H | H | $CH_3$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-33-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-33-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-33-5** | $^i$Pr | H | H | $CH_2Ph$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-33-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-33-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-33-8** | $^i$Pr | * | H | * | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00285

Table VII-34.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-34-1** | $^t$Bu | H | H | H | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-34-2** | $^t$Bu | H | H | $CH_3$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-34-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-34-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-34-5** | $^t$Bu | H | H | $CH_2Ph$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-34-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-34-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-34-8** | $^t$Bu | * | H | * | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-35.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-35-1** | Ph | H | H | H | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-35-2** | Ph | H | H | $CH_3$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-35-3** | Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-35-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-35-5** | Ph | H | H | $CH_2Ph$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-35-6** | Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-35-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-35-8** | Ph | * | H | * | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-36.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-36-1** | p-Me-Ph | H | H | H | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-36-2** | p-Me-Ph | H | H | $CH_3$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-36-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-36-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-36-5** | p-Me-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-36-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-36-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-36-8** | p-Me-Ph | * | H | * | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00286

Table VII-37.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-37-1** | p-F-Ph | H | H | H | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-37-2** | p-F-Ph | H | H | $CH_3$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-37-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-37-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-37-5** | p-F-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-37-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-37-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-37-8** | p-F-Ph | * | H | * | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-38.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-38-1** | p-Cl-Ph | H | H | H | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-38-2** | p-Cl-Ph | H | H | $CH_3$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-38-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-38-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-38-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-38-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-38-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-38-8** | p-Cl-Ph | * | H | * | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-39.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-39-1** | p-Br-Ph | H | H | H | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-39-2** | p-Br-Ph | H | H | $CH_3$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-39-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-39-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-39-5** | p-Br-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-39-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-39-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-39-8** | p-Br-Ph | * | H | * | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00287

Table VII-40.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-40-1** | p-I-Ph | H | H | H | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-40-2** | p-I-Ph | H | H | $CH_3$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-40-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-40-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-40-5** | p-I-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-40-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-40-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |
| **VII-40-8** | p-I-Ph | * | H | * | $^n$Bu | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-41.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-41-1** | $CH_3$ | H | H | H | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-41-2** | $CH_3$ | H | H | $CH_3$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-41-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-41-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-41-5** | $CH_3$ | H | H | $CH_2Ph$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-41-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-41-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-41-8** | $CH_3$ | * | H | * | Bz | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-42.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-42-1** | Et | H | H | H | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-42-2** | Et | H | H | $CH_3$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-42-3** | Et | H | H | $CH(CH_3)_2$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-42-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-42-5** | Et | H | H | $CH_2Ph$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-42-6** | Et | H | H | $CH_2$-indol-3-yl | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-42-7** | Et | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-42-8** | Et | * | H | * | Bz | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00288

Table VII-43.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-43-1** | $^i$Pr | H | H | H | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-43-2** | $^i$Pr | H | H | $CH_3$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-43-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-43-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-43-5** | $^i$Pr | H | H | $CH_2Ph$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-43-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-43-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-43-8** | $^i$Pr | * | H | * | Bz | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-44.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-44-1** | $^t$Bu | H | H | H | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-44-2** | $^t$Bu | H | H | $CH_3$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-44-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-44-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-44-5** | $^t$Bu | H | H | $CH_2Ph$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-44-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-44-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-44-8** | $^t$Bu | * | H | * | Bz | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-45.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-45-1** | Ph | H | H | H | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-45-2** | Ph | H | H | $CH_3$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-45-3** | Ph | H | H | $CH(CH_3)_2$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-45-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-45-5** | Ph | H | H | $CH_2Ph$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-45-6** | Ph | H | H | $CH_2$-indol-3-yl | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-45-7** | Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-45-8** | Ph | * | H | * | Bz | H | F | H | OH | H | H | $NH_2$ |



Gilead Exhibit 2018
PGR2023-00046 - Page 00289

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-46.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-46-1** | p-Me-Ph | H | H | H | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-46-2** | p-Me-Ph | H | H | $CH_3$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-46-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-46-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-46-5** | p-Me-Ph | H | H | $CH_2Ph$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-46-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-46-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-46-8** | p-Me-Ph | * | H | * | Bz | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-47.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-47-1** | p-F-Ph | H | H | H | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-47-2** | p-F-Ph | H | H | $CH_3$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-47-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-47-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-47-5** | p-F-Ph | H | H | $CH_2Ph$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-47-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-47-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-47-8** | p-F-Ph | * | H | * | Bz | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-48.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-48-1** | p-Cl-Ph | H | H | H | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-48-2** | p-Cl-Ph | H | H | $CH_3$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-48-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-48-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-48-5** | p-Cl-Ph | H | H | $CH_2Ph$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-48-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-48-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | H | OH | H | H | $NH_2$ |



Gilead Exhibit 2018
PGR2023-00046 - Page 00290

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-48-8** | p-Cl-Ph | * | H | * | Bz | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VII-49.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-49-1** | p-Br-Ph | H | H | H | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-49-2** | p-Br-Ph | H | H | $CH_3$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-49-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-49-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-49-5** | p-Br-Ph | H | H | $CH_2Ph$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-49-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-49-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-49-8** | p-Br-Ph | * | H | * | Bz | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

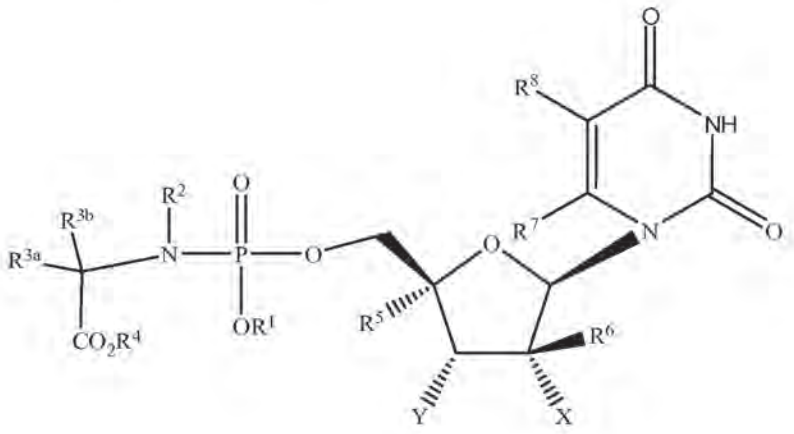
Table VII-50.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ | $R^9$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VII-50-1** | p-I-Ph | H | H | H | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-50-2** | p-I-Ph | H | H | $CH_3$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-50-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-50-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-50-5** | p-I-Ph | H | H | $CH_2Ph$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-50-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-50-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | H | OH | H | H | $NH_2$ |
| **VII-50-8** | p-I-Ph | * | H | * | Bz | H | F | H | OH | H | H | $NH_2$ |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00291



**VIII**

Table VIII-1.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-1-1** | $CH_3$ | H | H | H | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-1-2** | $CH_3$ | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-1-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-1-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-1-5** | $CH_3$ | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-1-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-1-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-1-8** | $CH_3$ | * | H | * | $CH_3$ | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-2.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-2-1** | Et | H | H | H | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-2-2** | Et | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-2-3** | Et | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-2-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-2-5** | Et | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-2-6** | Et | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-2-7** | Et | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-2-8** | Et | * | H | * | $CH_3$ | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00292

Table VIII-3.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-3-1** | $^i$Pr | H | H | H | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-3-2** | $^i$Pr | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-3-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-3-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-3-5** | $^i$Pr | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-3-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-3-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-3-8** | $^i$Pr | * | H | * | $CH_3$ | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-4.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-4-1** | $^t$Bu | H | H | H | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-4-2** | $^t$Bu | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-4-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-4-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-4-5** | $^t$Bu | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-4-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-4-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-4-8** | $^t$Bu | * | H | * | $CH_3$ | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-5.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-5-1** | Ph | H | H | H | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-5-2** | Ph | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-5-3** | Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-5-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-5-5** | Ph | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-5-6** | Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-5-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-5-8** | Ph | * | H | * | $CH_3$ | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00293

Table VIII-6.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-6-1** | p-Me-Ph | H | H | H | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-6-2** | p-Me-Ph | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-6-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-6-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-6-5** | p-Me-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-6-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-6-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-6-8** | p-Me-Ph | * | H | * | $CH_3$ | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-7.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-7-1** | p-F-Ph | H | H | H | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-7-2** | p-F-Ph | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-7-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-7-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-7-6** | p-F-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-7-7** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-7-8** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-7-20** | p-F-Ph | * | H | * | $CH_3$ | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-8.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-8-1** | p-Cl-Ph | H | H | H | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-8-2** | p-Cl-Ph | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-8-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-8-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-8-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-8-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-8-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-8-8** | p-Cl-Ph | * | H | * | $CH_3$ | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00294

Table VIII-9.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-9-1** | p-Br-Ph | H | H | H | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-9-2** | p-Br-Ph | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-9-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-9-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-9-6** | p-Br-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-9-7** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-9-8** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-9-20** | p-Br-Ph | * | H | * | $CH_3$ | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-10.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-10-1** | p-I-Ph | H | H | H | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-10-2** | p-I-Ph | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-10-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-10-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-10-5** | p-I-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-10-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-10-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | OH | OH | H | H |
| **VIII-10-8** | p-I-Ph | * | H | * | $CH_3$ | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-11.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-11-1** | $CH_3$ | H | H | H | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-11-2** | $CH_3$ | H | H | $CH_3$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-11-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-11-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-11-5** | $CH_3$ | H | H | $CH_2Ph$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-11-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-11-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-11-8** | $CH_3$ | * | H | * | Et | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00295

Table VIII-12.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-12-1** | Et | H | H | H | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-12-2** | Et | H | H | $CH_3$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-12-3** | Et | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-12-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-12-5** | Et | H | H | $CH_2Ph$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-12-6** | Et | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-12-7** | Et | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-12-8** | Et | * | H | * | Et | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-13.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-13-1** | $^i$Pr | H | H | H | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-13-2** | $^i$Pr | H | H | $CH_3$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-13-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-13-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-13-5** | $^i$Pr | H | H | $CH_2Ph$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-13-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-13-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-13-8** | $^i$Pr | * | H | * | Et | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-14.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-14-1** | $^t$Bu | H | H | H | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-14-2** | $^t$Bu | H | H | $CH_3$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-14-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-14-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-14-5** | $^t$Bu | H | H | $CH_2Ph$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-14-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-14-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-14-8** | $^t$Bu | * | H | * | Et | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00296

Table VIII-15.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-15-1** | Ph | H | H | H | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-15-2** | Ph | H | H | $CH_3$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-15-3** | Ph | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-15-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-15-5** | Ph | H | H | $CH_2Ph$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-15-6** | Ph | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-15-7** | Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-15-8** | Ph | * | H | * | Et | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-16.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-16-1** | p-Me-Ph | H | H | H | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-16-2** | p-Me-Ph | H | H | $CH_3$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-16-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-16-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-16-5** | p-Me-Ph | H | H | $CH_2Ph$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-16-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-16-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-16-8** | p-Me-Ph | * | H | * | Et | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-17.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-17-1** | p-F-Ph | H | H | H | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-17-2** | p-F-Ph | H | H | $CH_3$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-17-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-17-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-17-5** | p-F-Ph | H | H | $CH_2Ph$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-17-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-17-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-17-8** | p-F-Ph | * | H | * | Et | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00297

Table VIII-18.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-18-1** | p-Cl-Ph | H | H | H | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-18-2** | p-Cl-Ph | H | H | $CH_3$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-18-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-18-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-18-5** | p-Cl-Ph | H | H | $CH_2Ph$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-18-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-18-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-18-8** | p-Cl-Ph | * | H | * | Et | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-19.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-19-1** | p-Br-Ph | H | H | H | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-19-2** | p-Br-Ph | H | H | $CH_3$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-19-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-19-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-19-5** | p-Br-Ph | H | H | $CH_2Ph$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-19-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-19-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-19-8** | p-Br-Ph | * | H | * | Et | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-20.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-20-1** | p-I-Ph | H | H | H | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-20-2** | p-I-Ph | H | H | $CH_3$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-20-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-20-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-20-5** | p-I-Ph | H | H | $CH_2Ph$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-20-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-20-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | OH | OH | H | H |
| **VIII-20-8** | p-I-Ph | * | H | * | Et | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00298

Table VIII-21.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-21-1** | $CH_3$ | H | H | H | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-21-2** | $CH_3$ | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-21-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-21-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-21-5** | $CH_3$ | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-21-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-21-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-21-8** | $CH_3$ | * | H | * | $^i$Pr | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-22.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-22-1** | Et | H | H | H | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-22-2** | Et | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-22-3** | Et | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-22-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-22-5** | Et | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-22-6** | Et | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-22-7** | Et | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-22-8** | Et | * | H | * | $^i$Pr | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-23.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-23-1** | $^i$Pr | H | H | H | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-23-2** | $^i$Pr | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-23-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-23-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-23-5** | $^i$Pr | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-23-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-23-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-23-8** | $^i$Pr | * | H | * | $^i$Pr | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00299

Table VIII-24.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-24-1** | $^t$Bu | H | H | H | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-24-2** | $^t$Bu | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-24-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-24-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-24-5** | $^t$Bu | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-24-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-24-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-24-8** | $^t$Bu | * | H | * | $^i$Pr | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-25.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-25-1** | Ph | H | H | H | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-25-2** | Ph | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-25-3** | Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-25-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-25-5** | Ph | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-25-6** | Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-25-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-25-8** | Ph | * | H | * | $^i$Pr | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-26.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-26-1** | p-Me-Ph | H | H | H | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-26-2** | p-Me-Ph | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-26-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-26-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-26-5** | p-Me-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-26-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-26-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-26-8** | p-Me-Ph | * | H | * | $^i$Pr | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00300

Table VIII-27.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-27-1** | p-F-Ph | H | H | H | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-27-2** | p-F-Ph | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-27-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-27-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-27-5** | p-F-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-27-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-27-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-27-8** | p-F-Ph | * | H | * | $^i$Pr | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-28.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-28-1** | p-Cl-Ph | H | H | H | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-28-2** | p-Cl-Ph | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-28-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-28-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-28-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-28-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-28-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-28-8** | p-Cl-Ph | * | H | * | $^i$Pr | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-29.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-29-1** | p-Br-Ph | H | H | H | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-29-2** | p-Br-Ph | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-29-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-29-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-29-5** | p-Br-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-29-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-29-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-29-8** | p-Br-Ph | * | H | * | $^i$Pr | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00301

Table VIII-30.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-30-1** | p-I-Ph | H | H | H | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-30-2** | p-I-Ph | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-30-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-30-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-30-5** | p-I-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-30-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-30-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | OH | OH | H | H |
| **VIII-30-8** | p-I-Ph | * | H | * | $^i$Pr | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-31.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-31-1** | $CH_3$ | H | H | H | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-31-2** | $CH_3$ | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-31-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-31-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-31-5** | $CH_3$ | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-31-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-31-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-31-8** | $CH_3$ | * | H | * | $^n$Bu | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-32.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-32-1** | Et | H | H | H | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-32-2** | Et | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-32-3** | Et | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-32-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-32-5** | Et | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-32-6** | Et | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-32-7** | Et | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-32-8** | Et | * | H | * | $^n$Bu | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00302

Table VIII-33.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-33-1** | $^i$Pr | H | H | H | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-33-2** | $^i$Pr | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-33-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-33-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-33-5** | $^i$Pr | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-33-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-33-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-33-8** | $^i$Pr | * | H | * | $^n$Bu | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-34.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-34-1** | $^t$Bu | H | H | H | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-34-2** | $^t$Bu | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-34-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-34-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-34-5** | $^t$Bu | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-34-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-34-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-34-8** | $^t$Bu | * | H | * | $^n$Bu | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-35.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-35-1** | Ph | H | H | H | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-35-2** | Ph | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-35-3** | Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-35-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-35-5** | Ph | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-35-6** | Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-35-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-35-8** | Ph | * | H | * | $^n$Bu | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00303

Table VIII-36.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-36-1** | p-Me-Ph | H | H | H | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-36-2** | p-Me-Ph | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-36-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-36-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-36-5** | p-Me-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-36-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-36-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-36-8** | p-Me-Ph | * | H | * | $^n$Bu | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-37.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-37-1** | p-F-Ph | H | H | H | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-37-2** | p-F-Ph | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-37-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-37-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-37-5** | p-F-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-37-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-37-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-37-8** | p-F-Ph | * | H | * | $^n$Bu | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-38.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-38-1** | p-Cl-Ph | H | H | H | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-38-2** | p-Cl-Ph | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-38-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-38-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-38-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-38-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-38-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-38-8** | p-Cl-Ph | * | H | * | $^n$Bu | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00304

Table VIII-39.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-39-1** | p-Br-Ph | H | H | H | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-39-2** | p-Br-Ph | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-39-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-39-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-39-5** | p-Br-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-39-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-39-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-39-8** | p-Br-Ph | * | H | * | $^n$Bu | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-40.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-40-1** | p-I-Ph | H | H | H | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-40-2** | p-I-Ph | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-40-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-40-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-40-5** | p-I-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-40-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-40-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | OH | OH | H | H |
| **VIII-40-8** | p-I-Ph | * | H | * | $^n$Bu | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-41.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-41-1** | $CH_3$ | H | H | H | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-41-2** | $CH_3$ | H | H | $CH_3$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-41-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-41-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-41-5** | $CH_3$ | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-41-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-41-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-41-8** | $CH_3$ | * | H | * | Bz | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00305

Table VIII-42.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-42-1** | Et | H | H | H | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-42-2** | Et | H | H | $CH_3$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-42-3** | Et | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-42-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-42-5** | Et | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-42-6** | Et | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-42-7** | Et | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-42-8** | Et | * | H | * | Bz | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-43.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-43-1** | $^i$Pr | H | H | H | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-43-2** | $^i$Pr | H | H | $CH_3$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-43-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-43-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-43-5** | $^i$Pr | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-43-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-43-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-43-8** | $^i$Pr | * | H | * | Bz | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-44.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-44-1** | $^t$Bu | H | H | H | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-44-2** | $^t$Bu | H | H | $CH_3$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-44-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-44-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-44-5** | $^t$Bu | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-44-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-44-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-44-8** | $^t$Bu | * | H | * | Bz | H | $CH_3$ | OH | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00306

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-45.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-45-1** | Ph | H | H | H | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-45-2** | Ph | H | H | $CH_3$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-45-3** | Ph | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-45-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-45-5** | Ph | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-45-6** | Ph | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-45-7** | Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-45-8** | Ph | * | H | * | Bz | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-46.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-46-1** | p-Me-Ph | H | H | H | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-46-2** | p-Me-Ph | H | H | $CH_3$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-46-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-46-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-46-5** | p-Me-Ph | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-46-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-46-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-46-8** | p-Me-Ph | * | H | * | Bz | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-47.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-47-1** | p-F-Ph | H | H | H | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-47-2** | p-F-Ph | H | H | $CH_3$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-47-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-47-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-47-5** | p-F-Ph | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-47-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-47-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | OH | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00307

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-47-8** | p-F-Ph | * | H | * | Bz | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-48.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-48-1** | p-Cl-Ph | H | H | H | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-48-2** | p-Cl-Ph | H | H | $CH_3$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-48-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-48-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-48-5** | p-Cl-Ph | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-48-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-48-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-48-8** | p-Cl-Ph | * | H | * | Bz | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-49.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-49-1** | p-Br-Ph | H | H | H | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-49-2** | p-Br-Ph | H | H | $CH_3$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-49-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-49-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-49-5** | p-Br-Ph | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-49-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-49-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-49-8** | p-Br-Ph | * | H | * | Bz | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table VIII-50.

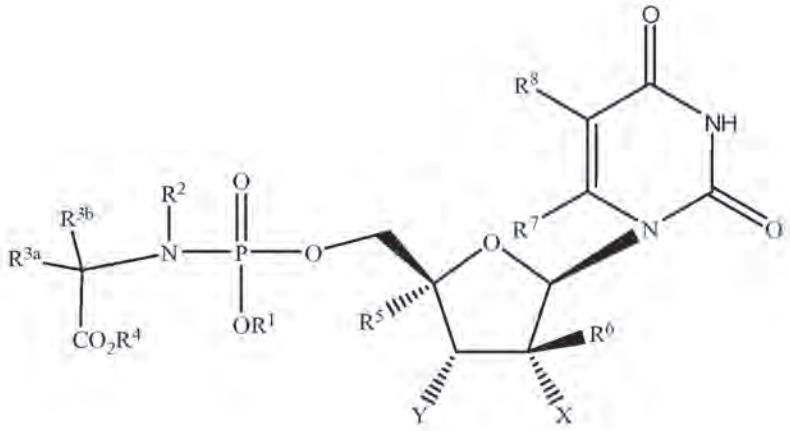
| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-50-1** | p-I-Ph | H | H | H | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-50-2** | p-I-Ph | H | H | $CH_3$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-50-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-50-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-50-5** | p-I-Ph | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | OH | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00308

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VIII-50-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-50-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | OH | OH | H | H |
| **VIII-50-8** | p-I-Ph | * | H | * | Bz | H | $CH_3$ | OH | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



**IX**

Table IX-1.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-1-1** | $CH_3$ | H | H | H | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-1-2** | $CH_3$ | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-1-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-1-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-1-5** | $CH_3$ | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-1-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-1-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-1-8** | $CH_3$ | * | H | * | $CH_3$ | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-2.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-2-1** | Et | H | H | H | $CH_3$ | H | $CH_3$ | F | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00309

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-2-2** | Et | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-2-3** | Et | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-2-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-2-5** | Et | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-2-6** | Et | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-2-7** | Et | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-2-8** | Et | * | H | * | $CH_3$ | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-3.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-3-1** | $^i$Pr | H | H | H | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-3-2** | $^i$Pr | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-3-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-3-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-3-5** | $^i$Pr | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-3-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-3-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-3-8** | $^i$Pr | * | H | * | $CH_3$ | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-4.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-4-1** | $^t$Bu | H | H | H | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-4-2** | $^t$Bu | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-4-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-4-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-4-5** | $^t$Bu | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-4-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-4-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-4-8** | $^t$Bu | * | H | * | $CH_3$ | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-5.



Gilead Exhibit 2018
PGR2023-00046 - Page 00310

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-5-1** | Ph | H | H | H | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-5-2** | Ph | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-5-3** | Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-5-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-5-5** | Ph | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-5-6** | Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-5-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-5-8** | Ph | * | H | * | $CH_3$ | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-6.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-6-1** | p-Me-Ph | H | H | H | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-6-2** | p-Me-Ph | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-6-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-6-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-6-5** | p-Me-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-6-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-6-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-6-8** | p-Me-Ph | * | H | * | $CH_3$ | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-7.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-7-1** | p-F-Ph | H | H | H | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-7-2** | p-F-Ph | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-7-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-7-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-7-6** | p-F-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-7-7** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-7-8** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-7-20** | p-F-Ph | * | H | * | $CH_3$ | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00311

Table IX-8.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-8-1** | p-Cl-Ph | H | H | H | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-8-2** | p-Cl-Ph | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-8-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-8-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-8-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-8-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-8-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-8-8** | p-Cl-Ph | * | H | * | $CH_3$ | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-9.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-9-1** | p-Br-Ph | H | H | H | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-9-2** | p-Br-Ph | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-9-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-9-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-9-6** | p-Br-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-9-7** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-9-8** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-9-20** | p-Br-Ph | * | H | * | $CH_3$ | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-10.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-10-1** | p-I-Ph | H | H | H | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-10-2** | p-I-Ph | H | H | $CH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-10-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-10-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-10-5** | p-I-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-10-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-10-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | $CH_3$ | F | OH | H | H |
| **IX-10-8** | p-I-Ph | * | H | * | $CH_3$ | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00312

Table IX-11.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-11-1** | $CH_3$ | H | H | H | Et | H | $CH_3$ | F | OH | H | H |
| **IX-11-2** | $CH_3$ | H | H | $CH_3$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-11-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-11-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-11-5** | $CH_3$ | H | H | $CH_2Ph$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-11-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | F | OH | H | H |
| **IX-11-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-11-8** | $CH_3$ | * | H | * | Et | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-12.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-12-1** | Et | H | H | H | Et | H | $CH_3$ | F | OH | H | H |
| **IX-12-2** | Et | H | H | $CH_3$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-12-3** | Et | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-12-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-12-5** | Et | H | H | $CH_2Ph$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-12-6** | Et | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | F | OH | H | H |
| **IX-12-7** | Et | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-12-8** | Et | * | H | * | Et | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-13.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-13-1** | $^i$Pr | H | H | H | Et | H | $CH_3$ | F | OH | H | H |
| **IX-13-2** | $^i$Pr | H | H | $CH_3$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-13-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-13-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-13-5** | $^i$Pr | H | H | $CH_2Ph$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-13-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | F | OH | H | H |
| **IX-13-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-13-8** | $^i$Pr | * | H | * | Et | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00313

Table IX-14.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-14-1** | $^t$Bu | H | H | H | Et | H | $CH_3$ | F | OH | H | H |
| **IX-14-2** | $^t$Bu | H | H | $CH_3$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-14-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-14-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-14-5** | $^t$Bu | H | H | $CH_2Ph$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-14-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | F | OH | H | H |
| **IX-14-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-14-8** | $^t$Bu | * | H | * | Et | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-15.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-15-1** | Ph | H | H | H | Et | H | $CH_3$ | F | OH | H | H |
| **IX-15-2** | Ph | H | H | $CH_3$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-15-3** | Ph | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-15-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-15-5** | Ph | H | H | $CH_2Ph$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-15-6** | Ph | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | F | OH | H | H |
| **IX-15-7** | Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-15-8** | Ph | * | H | * | Et | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-16.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-16-1** | p-Me-Ph | H | H | H | Et | H | $CH_3$ | F | OH | H | H |
| **IX-16-2** | p-Me-Ph | H | H | $CH_3$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-16-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-16-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-16-5** | p-Me-Ph | H | H | $CH_2Ph$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-16-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | F | OH | H | H |
| **IX-16-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-16-8** | p-Me-Ph | * | H | * | Et | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00314

Table IX-17.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-17-1** | p-F-Ph | H | H | H | Et | H | $CH_3$ | F | OH | H | H |
| **IX-17-2** | p-F-Ph | H | H | $CH_3$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-17-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-17-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-17-5** | p-F-Ph | H | H | $CH_2Ph$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-17-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | F | OH | H | H |
| **IX-17-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-17-8** | p-F-Ph | * | H | * | Et | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-18.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-18-1** | p-Cl-Ph | H | H | H | Et | H | $CH_3$ | F | OH | H | H |
| **IX-18-2** | p-Cl-Ph | H | H | $CH_3$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-18-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-18-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-18-5** | p-Cl-Ph | H | H | $CH_2Ph$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-18-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | F | OH | H | H |
| **IX-18-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-18-8** | p-Cl-Ph | * | H | * | Et | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-19.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-19-1** | p-Br-Ph | H | H | H | Et | H | $CH_3$ | F | OH | H | H |
| **IX-19-2** | p-Br-Ph | H | H | $CH_3$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-19-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-19-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-19-5** | p-Br-Ph | H | H | $CH_2Ph$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-19-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | F | OH | H | H |
| **IX-19-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-19-8** | p-Br-Ph | * | H | * | Et | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00315

Table IX-20.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-20-1** | p-I-Ph | H | H | H | Et | H | $CH_3$ | F | OH | H | H |
| **IX-20-2** | p-I-Ph | H | H | $CH_3$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-20-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-20-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-20-5** | p-I-Ph | H | H | $CH_2Ph$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-20-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | Et | H | $CH_3$ | F | OH | H | H |
| **IX-20-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | $CH_3$ | F | OH | H | H |
| **IX-20-8** | p-I-Ph | * | H | * | Et | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-21.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-21-1** | $CH_3$ | H | H | H | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-21-2** | $CH_3$ | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-21-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-21-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-21-5** | $CH_3$ | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-21-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-21-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-21-8** | $CH_3$ | * | H | * | $^i$Pr | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-22.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-22-1** | Et | H | H | H | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-22-2** | Et | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-22-3** | Et | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-22-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-22-5** | Et | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-22-6** | Et | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-22-7** | Et | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-22-8** | Et | * | H | * | $^i$Pr | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00316

Table IX-23.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-23-1** | $^i$Pr | H | H | H | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-23-2** | $^i$Pr | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-23-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-23-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-23-5** | $^i$Pr | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-23-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-23-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-23-8** | $^i$Pr | * | H | * | $^i$Pr | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-24.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-24-1** | $^t$Bu | H | H | H | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-24-2** | $^t$Bu | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-24-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-24-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-24-5** | $^t$Bu | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-24-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-24-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-24-8** | $^t$Bu | * | H | * | $^i$Pr | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-25.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-25-1** | Ph | H | H | H | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-25-2** | Ph | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-25-3** | Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-25-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-25-5** | Ph | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-25-6** | Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-25-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-25-8** | Ph | * | H | * | $^i$Pr | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00317

Table IX-26.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-26-1** | p-Me-Ph | H | H | H | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-26-2** | p-Me-Ph | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-26-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-26-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-26-5** | p-Me-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-26-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-26-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-26-8** | p-Me-Ph | * | H | * | $^i$Pr | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-27.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-27-1** | p-F-Ph | H | H | H | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-27-2** | p-F-Ph | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-27-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-27-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-27-5** | p-F-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-27-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-27-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-27-8** | p-F-Ph | * | H | * | $^i$Pr | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-28.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-28-1** | p-Cl-Ph | H | H | H | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-28-2** | p-Cl-Ph | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-28-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-28-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-28-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-28-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-28-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-28-8** | p-Cl-Ph | * | H | * | $^i$Pr | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00318

Table IX-29.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-29-1** | p-Br-Ph | H | H | H | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-29-2** | p-Br-Ph | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-29-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-29-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-29-5** | p-Br-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-29-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-29-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-29-8** | p-Br-Ph | * | H | * | $^i$Pr | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-30.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-30-1** | p-I-Ph | H | H | H | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-30-2** | p-I-Ph | H | H | $CH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-30-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-30-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-30-5** | p-I-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-30-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-30-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | $CH_3$ | F | OH | H | H |
| **IX-30-8** | p-I-Ph | * | H | * | $^i$Pr | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-31.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-31-1** | $CH_3$ | H | H | H | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-31-2** | $CH_3$ | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-31-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-31-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-31-5** | $CH_3$ | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-31-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-31-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-31-8** | $CH_3$ | * | H | * | $^n$Bu | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00319

Table IX-32.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-32-1** | Et | H | H | H | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-32-2** | Et | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-32-3** | Et | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-32-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-32-5** | Et | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-32-6** | Et | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-32-7** | Et | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-32-8** | Et | * | H | * | $^n$Bu | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-33.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-33-1** | $^i$Pr | H | H | H | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-33-2** | $^i$Pr | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-33-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-33-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-33-5** | $^i$Pr | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-33-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-33-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-33-8** | $^i$Pr | * | H | * | $^n$Bu | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-34.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-34-1** | $^t$Bu | H | H | H | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-34-2** | $^t$Bu | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-34-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-34-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-34-5** | $^t$Bu | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-34-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-34-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-34-8** | $^t$Bu | * | H | * | $^n$Bu | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00320

Table IX-35.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-35-1** | Ph | H | H | H | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-35-2** | Ph | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-35-3** | Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-35-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-35-5** | Ph | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-35-6** | Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-35-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-35-8** | Ph | * | H | * | $^n$Bu | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-36.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-36-1** | p-Me-Ph | H | H | H | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-36-2** | p-Me-Ph | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-36-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-36-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-36-5** | p-Me-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-36-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-36-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-36-8** | p-Me-Ph | * | H | * | $^n$Bu | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-37.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-37-1** | p-F-Ph | H | H | H | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-37-2** | p-F-Ph | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-37-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-37-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-37-5** | p-F-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-37-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-37-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-37-8** | p-F-Ph | * | H | * | $^n$Bu | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00321

Table IX-38.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-38-1** | p-Cl-Ph | H | H | H | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-38-2** | p-Cl-Ph | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-38-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-38-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-38-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-38-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-38-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-38-8** | p-Cl-Ph | * | H | * | $^n$Bu | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-39.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-39-1** | p-Br-Ph | H | H | H | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-39-2** | p-Br-Ph | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-39-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-39-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-39-5** | p-Br-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-39-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-39-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-39-8** | p-Br-Ph | * | H | * | $^n$Bu | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-40.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-40-1** | p-I-Ph | H | H | H | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-40-2** | p-I-Ph | H | H | $CH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-40-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-40-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-40-5** | p-I-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-40-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-40-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | $CH_3$ | F | OH | H | H |
| **IX-40-8** | p-I-Ph | * | H | * | $^n$Bu | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00322

Table IX-41.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-41-1** | $CH_3$ | H | H | H | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-41-2** | $CH_3$ | H | H | $CH_3$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-41-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-41-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-41-5** | $CH_3$ | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-41-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-41-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-41-8** | $CH_3$ | * | H | * | Bz | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-42.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-42-1** | Et | H | H | H | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-42-2** | Et | H | H | $CH_3$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-42-3** | Et | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-42-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-42-5** | Et | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-42-6** | Et | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-42-7** | Et | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-42-8** | Et | * | H | * | Bz | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-43.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-43-1** | $^i$Pr | H | H | H | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-43-2** | $^i$Pr | H | H | $CH_3$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-43-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-43-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-43-5** | $^i$Pr | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-43-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-43-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-43-8** | $^i$Pr | * | H | * | Bz | H | $CH_3$ | F | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00323

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-44.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-44-1** | $^t$Bu | H | H | H | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-44-2** | $^t$Bu | H | H | $CH_3$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-44-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-44-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-44-5** | $^t$Bu | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-44-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-44-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-44-8** | $^t$Bu | * | H | * | Bz | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-45.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-45-1** | Ph | H | H | H | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-45-2** | Ph | H | H | $CH_3$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-45-3** | Ph | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-45-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-45-5** | Ph | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-45-6** | Ph | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-45-7** | Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-45-8** | Ph | * | H | * | Bz | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-46.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-46-1** | p-Me-Ph | H | H | H | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-46-2** | p-Me-Ph | H | H | $CH_3$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-46-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-46-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-46-5** | p-Me-Ph | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-46-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-46-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | F | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00324

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-46-8** | p-Me-Ph | * | H | * | Bz | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-47.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-47-1** | p-F-Ph | H | H | H | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-47-2** | p-F-Ph | H | H | $CH_3$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-47-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-47-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-47-5** | p-F-Ph | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-47-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-47-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-47-8** | p-F-Ph | * | H | * | Bz | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-48.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-48-1** | p-Cl-Ph | H | H | H | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-48-2** | p-Cl-Ph | H | H | $CH_3$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-48-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-48-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-48-5** | p-Cl-Ph | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-48-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-48-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-48-8** | p-Cl-Ph | * | H | * | Bz | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-49.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-49-1** | p-Br-Ph | H | H | H | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-49-2** | p-Br-Ph | H | H | $CH_3$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-49-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-49-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-49-5** | p-Br-Ph | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | F | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00325

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-49-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-49-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-49-8** | p-Br-Ph | * | H | * | Bz | H | $CH_3$ | F | OH | H | H |

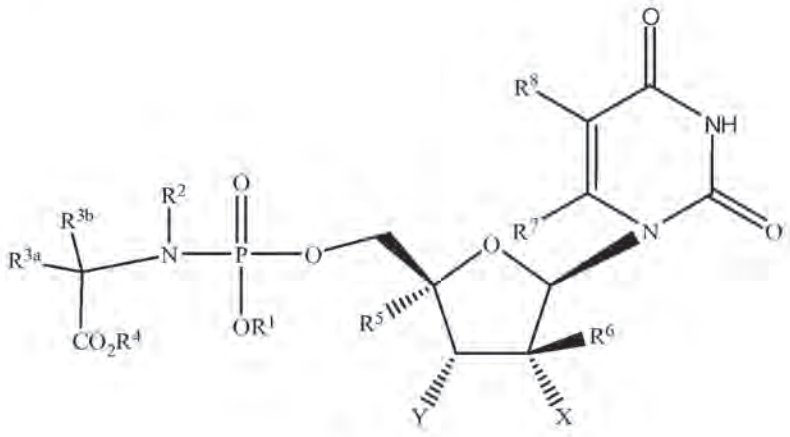
*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table IX-50.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **IX-50-1** | p-I-Ph | H | H | H | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-50-2** | p-I-Ph | H | H | $CH_3$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-50-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-50-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-50-5** | p-I-Ph | H | H | $CH_2Ph$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-50-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-50-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | $CH_3$ | F | OH | H | H |
| **IX-50-8** | p-I-Ph | * | H | * | Bz | H | $CH_3$ | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

5




**X**

Table X-1.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-1-1** | $CH_3$ | H | H | H | $CH_3$ | H | F | F | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00326

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-1-2** | $CH_3$ | H | H | $CH_3$ | $CH_3$ | H | F | F | OH | H | H |
| **X-1-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H |
| **X-1-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H |
| **X-1-5** | $CH_3$ | H | H | $CH_2Ph$ | $CH_3$ | H | F | F | OH | H | H |
| **X-1-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | F | OH | H | H |
| **X-1-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | F | OH | H | H |
| **X-1-8** | $CH_3$ | * | H | * | $CH_3$ | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-2.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-2-1** | Et | H | H | H | $CH_3$ | H | F | F | OH | H | H |
| **X-2-2** | Et | H | H | $CH_3$ | $CH_3$ | H | F | F | OH | H | H |
| **X-2-3** | Et | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H |
| **X-2-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H |
| **X-2-5** | Et | H | H | $CH_2Ph$ | $CH_3$ | H | F | F | OH | H | H |
| **X-2-6** | Et | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | F | OH | H | H |
| **X-2-7** | Et | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | F | OH | H | H |
| **X-2-8** | Et | * | H | * | $CH_3$ | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-3.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-3-1** | $^i$Pr | H | H | H | $CH_3$ | H | F | F | OH | H | H |
| **X-3-2** | $^i$Pr | H | H | $CH_3$ | $CH_3$ | H | F | F | OH | H | H |
| **X-3-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H |
| **X-3-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H |
| **X-3-5** | $^i$Pr | H | H | $CH_2Ph$ | $CH_3$ | H | F | F | OH | H | H |
| **X-3-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | F | OH | H | H |
| **X-3-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | F | OH | H | H |
| **X-3-8** | $^i$Pr | * | H | * | $CH_3$ | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-4.



Gilead Exhibit 2018
PGR2023-00046 - Page 00327

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-4-1** | $^t$Bu | H | H | H | $CH_3$ | H | F | F | OH | H | H |
| **X-4-2** | $^t$Bu | H | H | $CH_3$ | $CH_3$ | H | F | F | OH | H | H |
| **X-4-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H |
| **X-4-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H |
| **X-4-5** | $^t$Bu | H | H | $CH_2Ph$ | $CH_3$ | H | F | F | OH | H | H |
| **X-4-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | F | OH | H | H |
| **X-4-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | F | OH | H | H |
| **X-4-8** | $^t$Bu | * | H | * | $CH_3$ | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-5.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-5-1** | Ph | H | H | H | $CH_3$ | H | F | F | OH | H | H |
| **X-5-2** | Ph | H | H | $CH_3$ | $CH_3$ | H | F | F | OH | H | H |
| **X-5-3** | Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H |
| **X-5-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H |
| **X-5-5** | Ph | H | H | $CH_2Ph$ | $CH_3$ | H | F | F | OH | H | H |
| **X-5-6** | Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | F | OH | H | H |
| **X-5-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | F | OH | H | H |
| **X-5-8** | Ph | * | H | * | $CH_3$ | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-6.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-6-1** | p-Me-Ph | H | H | H | $CH_3$ | H | F | F | OH | H | H |
| **X-6-2** | p-Me-Ph | H | H | $CH_3$ | $CH_3$ | H | F | F | OH | H | H |
| **X-6-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H |
| **X-6-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H |
| **X-6-5** | p-Me-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | F | F | OH | H | H |
| **X-6-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | F | OH | H | H |
| **X-6-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | F | OH | H | H |
| **X-6-8** | p-Me-Ph | * | H | * | $CH_3$ | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00328

Table X-7.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-7-1** | p-F-Ph | H | H | H | $CH_3$ | H | F | F | OH | H | H |
| **X-7-2** | p-F-Ph | H | H | $CH_3$ | $CH_3$ | H | F | F | OH | H | H |
| **X-7-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H |
| **X-7-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H |
| **X-7-6** | p-F-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | F | F | OH | H | H |
| **X-7-7** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | F | OH | H | H |
| **X-7-8** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | F | OH | H | H |
| **X-7-20** | p-F-Ph | * | H | * | $CH_3$ | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-8.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-8-1** | p-Cl-Ph | H | H | H | $CH_3$ | H | F | F | OH | H | H |
| **X-8-2** | p-Cl-Ph | H | H | $CH_3$ | $CH_3$ | H | F | F | OH | H | H |
| **X-8-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H |
| **X-8-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H |
| **X-8-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | F | F | OH | H | H |
| **X-8-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | F | OH | H | H |
| **X-8-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | F | OH | H | H |
| **X-8-8** | p-Cl-Ph | * | H | * | $CH_3$ | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-9.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-9-1** | p-Br-Ph | H | H | H | $CH_3$ | H | F | F | OH | H | H |
| **X-9-2** | p-Br-Ph | H | H | $CH_3$ | $CH_3$ | H | F | F | OH | H | H |
| **X-9-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H |
| **X-9-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H |
| **X-9-6** | p-Br-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | F | F | OH | H | H |
| **X-9-7** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | F | OH | H | H |
| **X-9-8** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | F | OH | H | H |
| **X-9-20** | p-Br-Ph | * | H | * | $CH_3$ | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00329

Table X-10.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-10-1** | p-I-Ph | H | H | H | $CH_3$ | H | F | F | OH | H | H |
| **X-10-2** | p-I-Ph | H | H | $CH_3$ | $CH_3$ | H | F | F | OH | H | H |
| **X-10-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H |
| **X-10-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | F | F | OH | H | H |
| **X-10-5** | p-I-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | F | F | OH | H | H |
| **X-10-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | F | F | OH | H | H |
| **X-10-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | F | F | OH | H | H |
| **X-10-8** | p-I-Ph | * | H | * | $CH_3$ | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-11.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-11-1** | $CH_3$ | H | H | H | Et | H | F | F | OH | H | H |
| **X-11-2** | $CH_3$ | H | H | $CH_3$ | Et | H | F | F | OH | H | H |
| **X-11-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Et | H | F | F | OH | H | H |
| **X-11-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | F | OH | H | H |
| **X-11-5** | $CH_3$ | H | H | $CH_2Ph$ | Et | H | F | F | OH | H | H |
| **X-11-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Et | H | F | F | OH | H | H |
| **X-11-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Et | H | F | F | OH | H | H |
| **X-11-8** | $CH_3$ | * | H | * | Et | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-12.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-12-1** | Et | H | H | H | Et | H | F | F | OH | H | H |
| **X-12-2** | Et | H | H | $CH_3$ | Et | H | F | F | OH | H | H |
| **X-12-3** | Et | H | H | $CH(CH_3)_2$ | Et | H | F | F | OH | H | H |
| **X-12-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | F | OH | H | H |
| **X-12-5** | Et | H | H | $CH_2Ph$ | Et | H | F | F | OH | H | H |
| **X-12-6** | Et | H | H | $CH_2$-indol-3-yl | Et | H | F | F | OH | H | H |
| **X-12-7** | Et | H | H | $CH_2CH_2SCH_3$ | Et | H | F | F | OH | H | H |
| **X-12-8** | Et | * | H | * | Et | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00330

Table X-13.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-13-1** | $^i$Pr | H | H | H | Et | H | F | F | OH | H | H |
| **X-13-2** | $^i$Pr | H | H | $CH_3$ | Et | H | F | F | OH | H | H |
| **X-13-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Et | H | F | F | OH | H | H |
| **X-13-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | F | OH | H | H |
| **X-13-5** | $^i$Pr | H | H | $CH_2Ph$ | Et | H | F | F | OH | H | H |
| **X-13-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Et | H | F | F | OH | H | H |
| **X-13-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Et | H | F | F | OH | H | H |
| **X-13-8** | $^i$Pr | * | H | * | Et | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-14.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-14-1** | $^t$Bu | H | H | H | Et | H | F | F | OH | H | H |
| **X-14-2** | $^t$Bu | H | H | $CH_3$ | Et | H | F | F | OH | H | H |
| **X-14-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | Et | H | F | F | OH | H | H |
| **X-14-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | F | OH | H | H |
| **X-14-5** | $^t$Bu | H | H | $CH_2Ph$ | Et | H | F | F | OH | H | H |
| **X-14-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | Et | H | F | F | OH | H | H |
| **X-14-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | Et | H | F | F | OH | H | H |
| **X-14-8** | $^t$Bu | * | H | * | Et | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-15.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-15-1** | Ph | H | H | H | Et | H | F | F | OH | H | H |
| **X-15-2** | Ph | H | H | $CH_3$ | Et | H | F | F | OH | H | H |
| **X-15-3** | Ph | H | H | $CH(CH_3)_2$ | Et | H | F | F | OH | H | H |
| **X-15-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | F | OH | H | H |
| **X-15-5** | Ph | H | H | $CH_2Ph$ | Et | H | F | F | OH | H | H |
| **X-15-6** | Ph | H | H | $CH_2$-indol-3-yl | Et | H | F | F | OH | H | H |
| **X-15-7** | Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | F | F | OH | H | H |
| **X-15-8** | Ph | * | H | * | Et | H | F | F | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00331

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-16.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-16-1** | p-Me-Ph | H | H | H | Et | H | F | F | OH | H | H |
| **X-16-2** | p-Me-Ph | H | H | $CH_3$ | Et | H | F | F | OH | H | H |
| **X-16-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | Et | H | F | F | OH | H | H |
| **X-16-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | F | OH | H | H |
| **X-16-5** | p-Me-Ph | H | H | $CH_2Ph$ | Et | H | F | F | OH | H | H |
| **X-16-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | Et | H | F | F | OH | H | H |
| **X-16-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | F | F | OH | H | H |
| **X-16-8** | p-Me-Ph | * | H | * | Et | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-17.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-17-1** | p-F-Ph | H | H | H | Et | H | F | F | OH | H | H |
| **X-17-2** | p-F-Ph | H | H | $CH_3$ | Et | H | F | F | OH | H | H |
| **X-17-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | Et | H | F | F | OH | H | H |
| **X-17-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | F | OH | H | H |
| **X-17-5** | p-F-Ph | H | H | $CH_2Ph$ | Et | H | F | F | OH | H | H |
| **X-17-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | Et | H | F | F | OH | H | H |
| **X-17-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | F | F | OH | H | H |
| **X-17-8** | p-F-Ph | * | H | * | Et | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-18.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-18-1** | p-Cl-Ph | H | H | H | Et | H | F | F | OH | H | H |
| **X-18-2** | p-Cl-Ph | H | H | $CH_3$ | Et | H | F | F | OH | H | H |
| **X-18-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | Et | H | F | F | OH | H | H |
| **X-18-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | F | OH | H | H |
| **X-18-5** | p-Cl-Ph | H | H | $CH_2Ph$ | Et | H | F | F | OH | H | H |
| **X-18-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | Et | H | F | F | OH | H | H |
| **X-18-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | F | F | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00332

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-18-8** | p-Cl-Ph | * | H | * | Et | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-19.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-19-1** | p-Br-Ph | H | H | H | Et | H | F | F | OH | H | H |
| **X-19-2** | p-Br-Ph | H | H | $CH_3$ | Et | H | F | F | OH | H | H |
| **X-19-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | Et | H | F | F | OH | H | H |
| **X-19-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | F | OH | H | H |
| **X-19-5** | p-Br-Ph | H | H | $CH_2Ph$ | Et | H | F | F | OH | H | H |
| **X-19-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | Et | H | F | F | OH | H | H |
| **X-19-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | F | F | OH | H | H |
| **X-19-8** | p-Br-Ph | * | H | * | Et | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-20.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ |
|---|---|---|---|---|---|---|---|---|---|---|
| **X-20-1** | p-I-Ph | H | H | H | Et | H | F | F | OH | H |
| **X-20-2** | p-I-Ph | H | H | $CH_3$ | Et | H | F | F | OH | H |
| **X-20-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | Et | H | F | F | OH | H |
| **X-20-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | F | F | OH | H |
| **X-20-5** | p-I-Ph | H | H | $CH_2Ph$ | Et | H | F | F | OH | H |
| **X-20-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | Et | H | F | F | OH | H |
| **X-20-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | F | F | OH | H |
| **X-20-8** | p-I-Ph | * | H | * | Et | H | F | F | OH | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-21.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-21-1** | $CH_3$ | H | H | H | $^i$Pr | H | F | F | OH | H | H |
| **X-21-2** | $CH_3$ | H | H | $CH_3$ | $^i$Pr | H | F | F | OH | H | H |
| **X-21-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H |
| **X-21-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H |
| **X-21-5** | $CH_3$ | H | H | $CH_2Ph$ | $^i$Pr | H | F | F | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00333

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-21-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | F | OH | H | H |
| **X-21-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | F | OH | H | H |
| **X-21-8** | $CH_3$ | * | H | * | $^i$Pr | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-22.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-22-1** | Et | H | H | H | $^i$Pr | H | F | F | OH | H | H |
| **X-22-2** | Et | H | H | $CH_3$ | $^i$Pr | H | F | F | OH | H | H |
| **X-22-3** | Et | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H |
| **X-22-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H |
| **X-22-5** | Et | H | H | $CH_2Ph$ | $^i$Pr | H | F | F | OH | H | H |
| **X-22-6** | Et | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | F | OH | H | H |
| **X-22-7** | Et | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | F | OH | H | H |
| **X-22-8** | Et | * | H | * | $^i$Pr | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-23.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-23-1** | $^i$Pr | H | H | H | $^i$Pr | H | F | F | OH | H | H |
| **X-23-2** | $^i$Pr | H | H | $CH_3$ | $^i$Pr | H | F | F | OH | H | H |
| **X-23-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H |
| **X-23-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H |
| **X-23-5** | $^i$Pr | H | H | $CH_2Ph$ | $^i$Pr | H | F | F | OH | H | H |
| **X-23-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | F | OH | H | H |
| **X-23-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | F | OH | H | H |
| **X-23-8** | $^i$Pr | * | H | * | $^i$Pr | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-24.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-24-1** | $^t$Bu | H | H | H | $^i$Pr | H | F | F | OH | H | H |
| **X-24-2** | $^t$Bu | H | H | $CH_3$ | $^i$Pr | H | F | F | OH | H | H |
| **X-24-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00334

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-24-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H |
| **X-24-5** | $^t$Bu | H | H | $CH_2Ph$ | $^i$Pr | H | F | F | OH | H | H |
| **X-24-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | F | OH | H | H |
| **X-24-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | F | OH | H | H |
| **X-24-8** | $^t$Bu | * | H | * | $^i$Pr | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-25.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-25-1** | Ph | H | H | H | $^i$Pr | H | F | F | OH | H | H |
| **X-25-2** | Ph | H | H | $CH_3$ | $^i$Pr | H | F | F | OH | H | H |
| **X-25-3** | Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H |
| **X-25-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H |
| **X-25-5** | Ph | H | H | $CH_2Ph$ | $^i$Pr | H | F | F | OH | H | H |
| **X-25-6** | Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | F | OH | H | H |
| **X-25-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | F | OH | H | H |
| **X-25-8** | Ph | * | H | * | $^i$Pr | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-26.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-26-1** | p-Me-Ph | H | H | H | $^i$Pr | H | F | F | OH | H | H |
| **X-26-2** | p-Me-Ph | H | H | $CH_3$ | $^i$Pr | H | F | F | OH | H | H |
| **X-26-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H |
| **X-26-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H |
| **X-26-5** | p-Me-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | F | F | OH | H | H |
| **X-26-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | F | OH | H | H |
| **X-26-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | F | OH | H | H |
| **X-26-8** | p-Me-Ph | * | H | * | $^i$Pr | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-27.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-27-1** | p-F-Ph | H | H | H | $^i$Pr | H | F | F | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00335

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-27-2** | p-F-Ph | H | H | $CH_3$ | $^i$Pr | H | F | F | OH | H | H |
| **X-27-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H |
| **X-27-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H |
| **X-27-5** | p-F-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | F | F | OH | H | H |
| **X-27-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | F | OH | H | H |
| **X-27-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | F | OH | H | H |
| **X-27-8** | p-F-Ph | * | H | * | $^i$Pr | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-28.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-28-1** | p-Cl-Ph | H | H | H | $^i$Pr | H | F | F | OH | H | H |
| **X-28-2** | p-Cl-Ph | H | H | $CH_3$ | $^i$Pr | H | F | F | OH | H | H |
| **X-28-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H |
| **X-28-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H |
| **X-28-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | F | F | OH | H | H |
| **X-28-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | F | OH | H | H |
| **X-28-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | F | OH | H | H |
| **X-28-8** | p-Cl-Ph | * | H | * | $^i$Pr | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-29.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-29-1** | p-Br-Ph | H | H | H | $^i$Pr | H | F | F | OH | H | H |
| **X-29-2** | p-Br-Ph | H | H | $CH_3$ | $^i$Pr | H | F | F | OH | H | H |
| **X-29-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H |
| **X-29-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H |
| **X-29-5** | p-Br-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | F | F | OH | H | H |
| **X-29-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | F | OH | H | H |
| **X-29-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | F | OH | H | H |
| **X-29-8** | p-Br-Ph | * | H | * | $^i$Pr | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-30.



Gilead Exhibit 2018
PGR2023-00046 - Page 00336

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-30-1** | p-I-Ph | H | H | H | $^i$Pr | H | F | F | OH | H | H |
| **X-30-2** | p-I-Ph | H | H | $CH_3$ | $^i$Pr | H | F | F | OH | H | H |
| **X-30-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H |
| **X-30-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | F | F | OH | H | H |
| **X-30-5** | p-I-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | F | F | OH | H | H |
| **X-30-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | F | F | OH | H | H |
| **X-30-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | F | F | OH | H | H |
| **X-30-8** | p-I-Ph | * | H | * | $^i$Pr | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-31.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-31-1** | $CH_3$ | H | H | H | $^n$Bu | H | F | F | OH | H | H |
| **X-31-2** | $CH_3$ | H | H | $CH_3$ | $^n$Bu | H | F | F | OH | H | H |
| **X-31-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H |
| **X-31-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H |
| **X-31-5** | $CH_3$ | H | H | $CH_2Ph$ | $^n$Bu | H | F | F | OH | H | H |
| **X-31-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | F | OH | H | H |
| **X-31-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | F | OH | H | H |
| **X-31-8** | $CH_3$ | * | H | * | $^n$Bu | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-32.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-32-1** | Et | H | H | H | $^n$Bu | H | F | F | OH | H | H |
| **X-32-2** | Et | H | H | $CH_3$ | $^n$Bu | H | F | F | OH | H | H |
| **X-32-3** | Et | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H |
| **X-32-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H |
| **X-32-5** | Et | H | H | $CH_2Ph$ | $^n$Bu | H | F | F | OH | H | H |
| **X-32-6** | Et | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | F | OH | H | H |
| **X-32-7** | Et | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | F | OH | H | H |
| **X-32-8** | Et | * | H | * | $^n$Bu | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00337

Table X-33.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-33-1** | $^i$Pr | H | H | H | $^n$Bu | H | F | F | OH | H | H |
| **X-33-2** | $^i$Pr | H | H | $CH_3$ | $^n$Bu | H | F | F | OH | H | H |
| **X-33-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H |
| **X-33-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H |
| **X-33-5** | $^i$Pr | H | H | $CH_2Ph$ | $^n$Bu | H | F | F | OH | H | H |
| **X-33-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | F | OH | H | H |
| **X-33-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | F | OH | H | H |
| **X-33-8** | $^i$Pr | * | H | * | $^n$Bu | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-34.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-34-1** | $^t$Bu | H | H | H | $^n$Bu | H | F | F | OH | H | H |
| **X-34-2** | $^t$Bu | H | H | $CH_3$ | $^n$Bu | H | F | F | OH | H | H |
| **X-34-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H |
| **X-34-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H |
| **X-34-5** | $^t$Bu | H | H | $CH_2Ph$ | $^n$Bu | H | F | F | OH | H | H |
| **X-34-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | F | OH | H | H |
| **X-34-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | F | OH | H | H |
| **X-34-8** | $^t$Bu | * | H | * | $^n$Bu | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-35.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-35-1** | Ph | H | H | H | $^n$Bu | H | F | F | OH | H | H |
| **X-35-2** | Ph | H | H | $CH_3$ | $^n$Bu | H | F | F | OH | H | H |
| **X-35-3** | Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H |
| **X-35-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H |
| **X-35-5** | Ph | H | H | $CH_2Ph$ | $^n$Bu | H | F | F | OH | H | H |
| **X-35-6** | Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | F | OH | H | H |
| **X-35-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | F | OH | H | H |
| **X-35-8** | Ph | * | H | * | $^n$Bu | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00338

Table X-36.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-36-1** | p-Me-Ph | H | H | H | $^n$Bu | H | F | F | OH | H | H |
| **X-36-2** | p-Me-Ph | H | H | $CH_3$ | $^n$Bu | H | F | F | OH | H | H |
| **X-36-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H |
| **X-36-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H |
| **X-36-5** | p-Me-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | F | F | OH | H | H |
| **X-36-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | F | OH | H | H |
| **X-36-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | F | OH | H | H |
| **X-36-8** | p-Me-Ph | * | H | * | $^n$Bu | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-37.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-37-1** | p-F-Ph | H | H | H | $^n$Bu | H | F | F | OH | H | H |
| **X-37-2** | p-F-Ph | H | H | $CH_3$ | $^n$Bu | H | F | F | OH | H | H |
| **X-37-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H |
| **X-37-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H |
| **X-37-5** | p-F-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | F | F | OH | H | H |
| **X-37-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | F | OH | H | H |
| **X-37-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | F | OH | H | H |
| **X-37-8** | p-F-Ph | * | H | * | $^n$Bu | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-38.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-38-1** | p-Cl-Ph | H | H | H | $^n$Bu | H | F | F | OH | H | H |
| **X-38-2** | p-Cl-Ph | H | H | $CH_3$ | $^n$Bu | H | F | F | OH | H | H |
| **X-38-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H |
| **X-38-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H |
| **X-38-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | F | F | OH | H | H |
| **X-38-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | F | OH | H | H |
| **X-38-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | F | OH | H | H |
| **X-38-8** | p-Cl-Ph | * | H | * | $^n$Bu | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00339

Table X-39.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-39-1** | p-Br-Ph | H | H | H | $^n$Bu | H | F | F | OH | H | H |
| **X-39-2** | p-Br-Ph | H | H | $CH_3$ | $^n$Bu | H | F | F | OH | H | H |
| **X-39-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H |
| **X-39-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H |
| **X-39-5** | p-Br-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | F | F | OH | H | H |
| **X-39-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | F | OH | H | H |
| **X-39-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | F | OH | H | H |
| **X-39-8** | p-Br-Ph | * | H | * | $^n$Bu | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-40.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-40-1** | p-I-Ph | H | H | H | $^n$Bu | H | F | F | OH | H | H |
| **X-40-2** | p-I-Ph | H | H | $CH_3$ | $^n$Bu | H | F | F | OH | H | H |
| **X-40-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H |
| **X-40-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | F | F | OH | H | H |
| **X-40-5** | p-I-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | F | F | OH | H | H |
| **X-40-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | F | F | OH | H | H |
| **X-40-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | F | F | OH | H | H |
| **X-40-8** | p-I-Ph | * | H | * | $^n$Bu | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-41.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-41-1** | $CH_3$ | H | H | H | Bz | H | F | F | OH | H | H |
| **X-41-2** | $CH_3$ | H | H | $CH_3$ | Bz | H | F | F | OH | H | H |
| **X-41-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Bz | H | F | F | OH | H | H |
| **X-41-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | F | OH | H | H |
| **X-41-5** | $CH_3$ | H | H | $CH_2Ph$ | Bz | H | F | F | OH | H | H |
| **X-41-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Bz | H | F | F | OH | H | H |
| **X-41-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | F | OH | H | H |
| **X-41-8** | $CH_3$ | * | H | * | Bz | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00340

Table X-42.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-42-1** | Et | H | H | H | Bz | H | F | F | OH | H | H |
| **X-42-2** | Et | H | H | $CH_3$ | Bz | H | F | F | OH | H | H |
| **X-42-3** | Et | H | H | $CH(CH_3)_2$ | Bz | H | F | F | OH | H | H |
| **X-42-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | F | OH | H | H |
| **X-42-5** | Et | H | H | $CH_2Ph$ | Bz | H | F | F | OH | H | H |
| **X-42-6** | Et | H | H | $CH_2$-indol-3-yl | Bz | H | F | F | OH | H | H |
| **X-42-7** | Et | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | F | OH | H | H |
| **X-42-8** | Et | * | H | * | Bz | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-43.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-43-1** | $^i$Pr | H | H | H | Bz | H | F | F | OH | H | H |
| **X-43-2** | $^i$Pr | H | H | $CH_3$ | Bz | H | F | F | OH | H | H |
| **X-43-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Bz | H | F | F | OH | H | H |
| **X-43-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | F | OH | H | H |
| **X-43-5** | $^i$Pr | H | H | $CH_2Ph$ | Bz | H | F | F | OH | H | H |
| **X-43-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Bz | H | F | F | OH | H | H |
| **X-43-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | F | OH | H | H |
| **X-43-8** | $^i$Pr | * | H | * | Bz | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-44.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-44-1** | $^t$Bu | H | H | H | Bz | H | F | F | OH | H | H |
| **X-44-2** | $^t$Bu | H | H | $CH_3$ | Bz | H | F | F | OH | H | H |
| **X-44-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | Bz | H | F | F | OH | H | H |
| **X-44-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | F | OH | H | H |
| **X-44-5** | $^t$Bu | H | H | $CH_2Ph$ | Bz | H | F | F | OH | H | H |
| **X-44-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | Bz | H | F | F | OH | H | H |
| **X-44-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | F | OH | H | H |
| **X-44-8** | $^t$Bu | * | H | * | Bz | H | F | F | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00341

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-45.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-45-1** | Ph | H | H | H | Bz | H | F | F | OH | H | H |
| **X-45-2** | Ph | H | H | $CH_3$ | Bz | H | F | F | OH | H | H |
| **X-45-3** | Ph | H | H | $CH(CH_3)_2$ | Bz | H | F | F | OH | H | H |
| **X-45-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | F | OH | H | H |
| **X-45-5** | Ph | H | H | $CH_2Ph$ | Bz | H | F | F | OH | H | H |
| **X-45-6** | Ph | H | H | $CH_2$-indol-3-yl | Bz | H | F | F | OH | H | H |
| **X-45-7** | Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | F | OH | H | H |
| **X-45-8** | Ph | * | H | * | Bz | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-46.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-46-1** | p-Me-Ph | H | H | H | Bz | H | F | F | OH | H | H |
| **X-46-2** | p-Me-Ph | H | H | $CH_3$ | Bz | H | F | F | OH | H | H |
| **X-46-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | Bz | H | F | F | OH | H | H |
| **X-46-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | F | OH | H | H |
| **X-46-5** | p-Me-Ph | H | H | $CH_2Ph$ | Bz | H | F | F | OH | H | H |
| **X-46-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | F | F | OH | H | H |
| **X-46-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | F | OH | H | H |
| **X-46-8** | p-Me-Ph | * | H | * | Bz | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-47.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-47-1** | p-F-Ph | H | H | H | Bz | H | F | F | OH | H | H |
| **X-47-2** | p-F-Ph | H | H | $CH_3$ | Bz | H | F | F | OH | H | H |
| **X-47-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | Bz | H | F | F | OH | H | H |
| **X-47-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | F | OH | H | H |
| **X-47-5** | p-F-Ph | H | H | $CH_2Ph$ | Bz | H | F | F | OH | H | H |
| **X-47-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | F | F | OH | H | H |
| **X-47-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | F | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00342

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-47-8** | p-F-Ph | * | H | * | Bz | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-48.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-48-1** | p-Cl-Ph | H | H | H | Bz | H | F | F | OH | H | H |
| **X-48-2** | p-Cl-Ph | H | H | $CH_3$ | Bz | H | F | F | OH | H | H |
| **X-48-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | Bz | H | F | F | OH | H | H |
| **X-48-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | F | OH | H | H |
| **X-48-5** | p-Cl-Ph | H | H | $CH_2Ph$ | Bz | H | F | F | OH | H | H |
| **X-48-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | F | F | OH | H | H |
| **X-48-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | F | OH | H | H |
| **X-48-8** | p-Cl-Ph | * | H | * | Bz | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-49.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-49-1** | p-Br-Ph | H | H | H | Bz | H | F | F | OH | H | H |
| **X-49-2** | p-Br-Ph | H | H | $CH_3$ | Bz | H | F | F | OH | H | H |
| **X-49-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | Bz | H | F | F | OH | H | H |
| **X-49-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | F | OH | H | H |
| **X-49-5** | p-Br-Ph | H | H | $CH_2Ph$ | Bz | H | F | F | OH | H | H |
| **X-49-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | F | F | OH | H | H |
| **X-49-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | F | OH | H | H |
| **X-49-8** | p-Br-Ph | * | H | * | Bz | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table X-50.

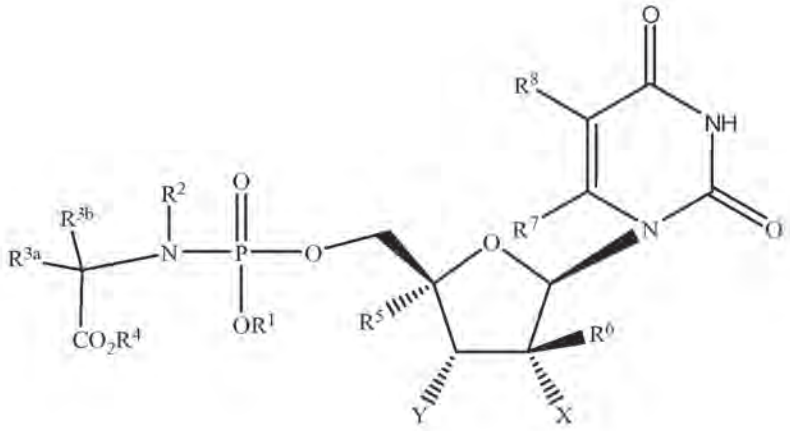
| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-50-1** | p-I-Ph | H | H | H | Bz | H | F | F | OH | H | H |
| **X-50-2** | p-I-Ph | H | H | $CH_3$ | Bz | H | F | F | OH | H | H |
| **X-50-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | Bz | H | F | F | OH | H | H |
| **X-50-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | F | F | OH | H | H |
| **X-50-5** | p-I-Ph | H | H | $CH_2Ph$ | Bz | H | F | F | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00343

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **X-50-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | F | F | OH | H | H |
| **X-50-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | F | F | OH | H | H |
| **X-50-8** | p-I-Ph | * | H | * | Bz | H | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.




**XI**

Table XI-1.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-1-1** | $CH_3$ | H | H | H | $CH_3$ | H | H | F | OH | H | H |
| **XI-1-2** | $CH_3$ | H | H | $CH_3$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-1-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-1-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-1-5** | $CH_3$ | H | H | $CH_2Ph$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-1-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | H | F | OH | H | H |
| **XI-1-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-1-8** | $CH_3$ | * | H | * | $CH_3$ | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-2.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-2-1** | Et | H | H | H | $CH_3$ | H | H | F | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00344

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-2-2** | Et | H | H | $CH_3$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-2-3** | Et | H | H | $CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-2-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-2-5** | Et | H | H | $CH_2Ph$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-2-6** | Et | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | H | F | OH | H | H |
| **XI-2-7** | Et | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-2-8** | Et | * | H | * | $CH_3$ | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-3.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-3-1** | $^i$Pr | H | H | H | $CH_3$ | H | H | F | OH | H | H |
| **XI-3-2** | $^i$Pr | H | H | $CH_3$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-3-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-3-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-3-5** | $^i$Pr | H | H | $CH_2Ph$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-3-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | H | F | OH | H | H |
| **XI-3-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-3-8** | $^i$Pr | * | H | * | $CH_3$ | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-4.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-4-1** | $^t$Bu | H | H | H | $CH_3$ | H | H | F | OH | H | H |
| **XI-4-2** | $^t$Bu | H | H | $CH_3$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-4-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-4-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-4-5** | $^t$Bu | H | H | $CH_2Ph$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-4-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | H | F | OH | H | H |
| **XI-4-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-4-8** | $^t$Bu | * | H | * | $CH_3$ | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-5.



Gilead Exhibit 2018
PGR2023-00046 - Page 00345

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-5-1** | Ph | H | H | H | $CH_3$ | H | H | F | OH | H | H |
| **XI-5-2** | Ph | H | H | $CH_3$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-5-3** | Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-5-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-5-5** | Ph | H | H | $CH_2Ph$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-5-6** | Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | H | F | OH | H | H |
| **XI-5-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-5-8** | Ph | * | H | * | $CH_3$ | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-6.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-6-1** | p-Me-Ph | H | H | H | $CH_3$ | H | H | F | OH | H | H |
| **XI-6-2** | p-Me-Ph | H | H | $CH_3$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-6-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-6-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-6-5** | p-Me-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-6-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | H | F | OH | H | H |
| **XI-6-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-6-8** | p-Me-Ph | * | H | * | $CH_3$ | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-7.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-7-1** | p-F-Ph | H | H | H | $CH_3$ | H | H | F | OH | H | H |
| **XI-7-2** | p-F-Ph | H | H | $CH_3$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-7-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-7-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-7-6** | p-F-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-7-7** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | H | F | OH | H | H |
| **XI-7-8** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-7-20** | p-F-Ph | * | H | * | $CH_3$ | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00346

Table XI-8.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-8-1** | p-Cl-Ph | H | H | H | $CH_3$ | H | H | F | OH | H | H |
| **XI-8-2** | p-Cl-Ph | H | H | $CH_3$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-8-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-8-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-8-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-8-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | H | F | OH | H | H |
| **XI-8-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-8-8** | p-Cl-Ph | * | H | * | $CH_3$ | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-9.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-9-1** | p-Br-Ph | H | H | H | $CH_3$ | H | H | F | OH | H | H |
| **XI-9-2** | p-Br-Ph | H | H | $CH_3$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-9-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-9-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-9-6** | p-Br-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-9-7** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | H | F | OH | H | H |
| **XI-9-8** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-9-20** | p-Br-Ph | * | H | * | $CH_3$ | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-10.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-10-1** | p-I-Ph | H | H | H | $CH_3$ | H | H | F | OH | H | H |
| **XI-10-2** | p-I-Ph | H | H | $CH_3$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-10-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-10-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-10-5** | p-I-Ph | H | H | $CH_2Ph$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-10-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | H | H | F | OH | H | H |
| **XI-10-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | H | H | F | OH | H | H |
| **XI-10-8** | p-I-Ph | * | H | * | $CH_3$ | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00347

Table XI-11.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-11-1** | $CH_3$ | H | H | H | Et | H | H | F | OH | H | H |
| **XI-11-2** | $CH_3$ | H | H | $CH_3$ | Et | H | H | F | OH | H | H |
| **XI-11-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Et | H | H | F | OH | H | H |
| **XI-11-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Et | H | H | F | OH | H | H |
| **XI-11-5** | $CH_3$ | H | H | $CH_2Ph$ | Et | H | H | F | OH | H | H |
| **XI-11-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Et | H | H | F | OH | H | H |
| **XI-11-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Et | H | H | F | OH | H | H |
| **XI-11-8** | $CH_3$ | * | H | * | Et | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-12.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-12-1** | Et | H | H | H | Et | H | H | F | OH | H | H |
| **XI-12-2** | Et | H | H | $CH_3$ | Et | H | H | F | OH | H | H |
| **XI-12-3** | Et | H | H | $CH(CH_3)_2$ | Et | H | H | F | OH | H | H |
| **XI-12-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Et | H | H | F | OH | H | H |
| **XI-12-5** | Et | H | H | $CH_2Ph$ | Et | H | H | F | OH | H | H |
| **XI-12-6** | Et | H | H | $CH_2$-indol-3-yl | Et | H | H | F | OH | H | H |
| **XI-12-7** | Et | H | H | $CH_2CH_2SCH_3$ | Et | H | H | F | OH | H | H |
| **XI-12-8** | Et | * | H | * | Et | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-13.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-13-1** | $^i$Pr | H | H | H | Et | H | H | F | OH | H | H |
| **XI-13-2** | $^i$Pr | H | H | $CH_3$ | Et | H | H | F | OH | H | H |
| **XI-13-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Et | H | H | F | OH | H | H |
| **XI-13-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Et | H | H | F | OH | H | H |
| **XI-13-5** | $^i$Pr | H | H | $CH_2Ph$ | Et | H | H | F | OH | H | H |
| **XI-13-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Et | H | H | F | OH | H | H |
| **XI-13-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Et | H | H | F | OH | H | H |
| **XI-13-8** | $^i$Pr | * | H | * | Et | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00348

Table XI-14.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-14-1** | $^t$Bu | H | H | H | Et | H | H | F | OH | H | H |
| **XI-14-2** | $^t$Bu | H | H | $CH_3$ | Et | H | H | F | OH | H | H |
| **XI-14-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | Et | H | H | F | OH | H | H |
| **XI-14-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | Et | H | H | F | OH | H | H |
| **XI-14-5** | $^t$Bu | H | H | $CH_2Ph$ | Et | H | H | F | OH | H | H |
| **XI-14-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | Et | H | H | F | OH | H | H |
| **XI-14-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | Et | H | H | F | OH | H | H |
| **XI-14-8** | $^t$Bu | * | H | * | Et | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-15.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-15-1** | Ph | H | H | H | Et | H | H | F | OH | H | H |
| **XI-15-2** | Ph | H | H | $CH_3$ | Et | H | H | F | OH | H | H |
| **XI-15-3** | Ph | H | H | $CH(CH_3)_2$ | Et | H | H | F | OH | H | H |
| **XI-15-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | H | F | OH | H | H |
| **XI-15-5** | Ph | H | H | $CH_2Ph$ | Et | H | H | F | OH | H | H |
| **XI-15-6** | Ph | H | H | $CH_2$-indol-3-yl | Et | H | H | F | OH | H | H |
| **XI-15-7** | Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | H | F | OH | H | H |
| **XI-15-8** | Ph | * | H | * | Et | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-16.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-16-1** | p-Me-Ph | H | H | H | Et | H | H | F | OH | H | H |
| **XI-16-2** | p-Me-Ph | H | H | $CH_3$ | Et | H | H | F | OH | H | H |
| **XI-16-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | Et | H | H | F | OH | H | H |
| **XI-16-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | H | F | OH | H | H |
| **XI-16-5** | p-Me-Ph | H | H | $CH_2Ph$ | Et | H | H | F | OH | H | H |
| **XI-16-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | Et | H | H | F | OH | H | H |
| **XI-16-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | H | F | OH | H | H |
| **XI-16-8** | p-Me-Ph | * | H | * | Et | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00349

Table XI-17.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-17-1** | p-F-Ph | H | H | H | Et | H | H | F | OH | H | H |
| **XI-17-2** | p-F-Ph | H | H | $CH_3$ | Et | H | H | F | OH | H | H |
| **XI-17-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | Et | H | H | F | OH | H | H |
| **XI-17-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | H | F | OH | H | H |
| **XI-17-5** | p-F-Ph | H | H | $CH_2Ph$ | Et | H | H | F | OH | H | H |
| **XI-17-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | Et | H | H | F | OH | H | H |
| **XI-17-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | H | F | OH | H | H |
| **XI-17-8** | p-F-Ph | * | H | * | Et | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-18.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-18-1** | p-Cl-Ph | H | H | H | Et | H | H | F | OH | H | H |
| **XI-18-2** | p-Cl-Ph | H | H | $CH_3$ | Et | H | H | F | OH | H | H |
| **XI-18-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | Et | H | H | F | OH | H | H |
| **XI-18-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | H | F | OH | H | H |
| **XI-18-5** | p-Cl-Ph | H | H | $CH_2Ph$ | Et | H | H | F | OH | H | H |
| **XI-18-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | Et | H | H | F | OH | H | H |
| **XI-18-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | H | F | OH | H | H |
| **XI-18-8** | p-Cl-Ph | * | H | * | Et | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-19.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-19-1** | p-Br-Ph | H | H | H | Et | H | H | F | OH | H | H |
| **XI-19-2** | p-Br-Ph | H | H | $CH_3$ | Et | H | H | F | OH | H | H |
| **XI-19-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | Et | H | H | F | OH | H | H |
| **XI-19-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | H | F | OH | H | H |
| **XI-19-5** | p-Br-Ph | H | H | $CH_2Ph$ | Et | H | H | F | OH | H | H |
| **XI-19-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | Et | H | H | F | OH | H | H |
| **XI-19-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | H | F | OH | H | H |
| **XI-19-8** | p-Br-Ph | * | H | * | Et | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00350

Table XI-20.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-20-1** | p-I-Ph | H | H | H | Et | H | H | F | OH | H | H |
| **XI-20-2** | p-I-Ph | H | H | $CH_3$ | Et | H | H | F | OH | H | H |
| **XI-20-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | Et | H | H | F | OH | H | H |
| **XI-20-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | H | H | F | OH | H | H |
| **XI-20-5** | p-I-Ph | H | H | $CH_2Ph$ | Et | H | H | F | OH | H | H |
| **XI-20-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | Et | H | H | F | OH | H | H |
| **XI-20-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | Et | H | H | F | OH | H | H |
| **XI-20-8** | p-I-Ph | * | H | * | Et | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-21.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-21-1** | $CH_3$ | H | H | H | $^i$Pr | H | H | F | OH | H | H |
| **XI-21-2** | $CH_3$ | H | H | $CH_3$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-21-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-21-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-21-5** | $CH_3$ | H | H | $CH_2Ph$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-21-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | H | F | OH | H | H |
| **XI-21-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-21-8** | $CH_3$ | * | H | * | $^i$Pr | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-22.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-22-1** | Et | H | H | H | $^i$Pr | H | H | F | OH | H | H |
| **XI-22-2** | Et | H | H | $CH_3$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-22-3** | Et | H | H | $CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-22-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-22-5** | Et | H | H | $CH_2Ph$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-22-6** | Et | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | H | F | OH | H | H |
| **XI-22-7** | Et | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-22-8** | Et | * | H | * | $^i$Pr | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00351

Table XI-23.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-23-1** | $^i$Pr | H | H | H | $^i$Pr | H | H | F | OH | H | H |
| **XI-23-2** | $^i$Pr | H | H | $CH_3$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-23-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-23-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-23-5** | $^i$Pr | H | H | $CH_2Ph$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-23-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | H | F | OH | H | H |
| **XI-23-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-23-8** | $^i$Pr | * | H | * | $^i$Pr | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-24.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-24-1** | $^t$Bu | H | H | H | $^i$Pr | H | H | F | OH | H | H |
| **XI-24-2** | $^t$Bu | H | H | $CH_3$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-24-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-24-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-24-5** | $^t$Bu | H | H | $CH_2Ph$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-24-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | H | F | OH | H | H |
| **XI-24-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-24-8** | $^t$Bu | * | H | * | $^i$Pr | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-25.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-25-1** | Ph | H | H | H | $^i$Pr | H | H | F | OH | H | H |
| **XI-25-2** | Ph | H | H | $CH_3$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-25-3** | Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-25-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-25-5** | Ph | H | H | $CH_2Ph$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-25-6** | Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | H | F | OH | H | H |
| **XI-25-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-25-8** | Ph | * | H | * | $^i$Pr | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00352

Table XI-26.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-26-1** | p-Me-Ph | H | H | H | $^i$Pr | H | H | F | OH | H | H |
| **XI-26-2** | p-Me-Ph | H | H | $CH_3$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-26-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-26-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-26-5** | p-Me-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-26-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | H | F | OH | H | H |
| **XI-26-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-26-8** | p-Me-Ph | * | H | * | $^i$Pr | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-27.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-27-1** | p-F-Ph | H | H | H | $^i$Pr | H | H | F | OH | H | H |
| **XI-27-2** | p-F-Ph | H | H | $CH_3$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-27-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-27-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-27-5** | p-F-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-27-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | H | F | OH | H | H |
| **XI-27-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-27-8** | p-F-Ph | * | H | * | $^i$Pr | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-28.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-28-1** | p-Cl-Ph | H | H | H | $^i$Pr | H | H | F | OH | H | H |
| **XI-28-2** | p-Cl-Ph | H | H | $CH_3$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-28-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-28-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-28-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-28-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | H | F | OH | H | H |
| **XI-28-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-28-8** | p-Cl-Ph | * | H | * | $^i$Pr | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00353

Table XI-29.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-29-1** | p-Br-Ph | H | H | H | $^i$Pr | H | H | F | OH | H | H |
| **XI-29-2** | p-Br-Ph | H | H | $CH_3$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-29-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-29-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-29-5** | p-Br-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-29-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | H | F | OH | H | H |
| **XI-29-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-29-8** | p-Br-Ph | * | H | * | $^i$Pr | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-30.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-30-1** | p-I-Ph | H | H | H | $^i$Pr | H | H | F | OH | H | H |
| **XI-30-2** | p-I-Ph | H | H | $CH_3$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-30-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-30-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-30-5** | p-I-Ph | H | H | $CH_2Ph$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-30-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | H | H | F | OH | H | H |
| **XI-30-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | H | H | F | OH | H | H |
| **XI-30-8** | p-I-Ph | * | H | * | $^i$Pr | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-31.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-31-1** | $CH_3$ | H | H | H | $^n$Bu | H | H | F | OH | H | H |
| **XI-31-2** | $CH_3$ | H | H | $CH_3$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-31-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-31-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-31-5** | $CH_3$ | H | H | $CH_2Ph$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-31-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | H | F | OH | H | H |
| **XI-31-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-31-8** | $CH_3$ | * | H | * | $^n$Bu | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00354

Table XI-32.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-32-1** | Et | H | H | H | $^n$Bu | H | H | F | OH | H | H |
| **XI-32-2** | Et | H | H | $CH_3$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-32-3** | Et | H | H | $CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-32-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-32-5** | Et | H | H | $CH_2Ph$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-32-6** | Et | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | H | F | OH | H | H |
| **XI-32-7** | Et | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-32-8** | Et | * | H | * | $^n$Bu | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-33.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-33-1** | $^i$Pr | H | H | H | $^n$Bu | H | H | F | OH | H | H |
| **XI-33-2** | $^i$Pr | H | H | $CH_3$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-33-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-33-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-33-5** | $^i$Pr | H | H | $CH_2Ph$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-33-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | H | F | OH | H | H |
| **XI-33-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-33-8** | $^i$Pr | * | H | * | $^n$Bu | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-34.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-34-1** | $^t$Bu | H | H | H | $^n$Bu | H | H | F | OH | H | H |
| **XI-34-2** | $^t$Bu | H | H | $CH_3$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-34-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-34-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-34-5** | $^t$Bu | H | H | $CH_2Ph$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-34-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | H | F | OH | H | H |
| **XI-34-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-34-8** | $^t$Bu | * | H | * | $^n$Bu | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00355

Table XI-35.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-35-1** | Ph | H | H | H | $^n$Bu | H | H | F | OH | H | H |
| **XI-35-2** | Ph | H | H | $CH_3$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-35-3** | Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-35-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-35-5** | Ph | H | H | $CH_2Ph$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-35-6** | Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | H | F | OH | H | H |
| **XI-35-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-35-8** | Ph | * | H | * | $^n$Bu | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-36.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-36-1** | p-Me-Ph | H | H | H | $^n$Bu | H | H | F | OH | H | H |
| **XI-36-2** | p-Me-Ph | H | H | $CH_3$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-36-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-36-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-36-5** | p-Me-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-36-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | H | F | OH | H | H |
| **XI-36-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-36-8** | p-Me-Ph | * | H | * | $^n$Bu | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-37.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-37-1** | p-F-Ph | H | H | H | $^n$Bu | H | H | F | OH | H | H |
| **XI-37-2** | p-F-Ph | H | H | $CH_3$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-37-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-37-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-37-5** | p-F-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-37-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | H | F | OH | H | H |
| **XI-37-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-37-8** | p-F-Ph | * | H | * | $^n$Bu | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00356

Table XI-38.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-38-1** | p-Cl-Ph | H | H | H | $^n$Bu | H | H | F | OH | H | H |
| **XI-38-2** | p-Cl-Ph | H | H | $CH_3$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-38-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-38-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-38-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-38-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | H | F | OH | H | H |
| **XI-38-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-38-8** | p-Cl-Ph | * | H | * | $^n$Bu | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-39.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-39-1** | p-Br-Ph | H | H | H | $^n$Bu | H | H | F | OH | H | H |
| **XI-39-2** | p-Br-Ph | H | H | $CH_3$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-39-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-39-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-39-5** | p-Br-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-39-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | H | F | OH | H | H |
| **XI-39-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-39-8** | p-Br-Ph | * | H | * | $^n$Bu | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-40.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-40-1** | p-I-Ph | H | H | H | $^n$Bu | H | H | F | OH | H | H |
| **XI-40-2** | p-I-Ph | H | H | $CH_3$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-40-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-40-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-40-5** | p-I-Ph | H | H | $CH_2Ph$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-40-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | H | H | F | OH | H | H |
| **XI-40-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | H | H | F | OH | H | H |
| **XI-40-8** | p-I-Ph | * | H | * | $^n$Bu | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00357

Table XI-41.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-41-1** | $CH_3$ | H | H | H | Bz | H | H | F | OH | H | H |
| **XI-41-2** | $CH_3$ | H | H | $CH_3$ | Bz | H | H | F | OH | H | H |
| **XI-41-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Bz | H | H | F | OH | H | H |
| **XI-41-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Bz | H | H | F | OH | H | H |
| **XI-41-5** | $CH_3$ | H | H | $CH_2Ph$ | Bz | H | H | F | OH | H | H |
| **XI-41-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Bz | H | H | F | OH | H | H |
| **XI-41-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Bz | H | H | F | OH | H | H |
| **XI-41-8** | $CH_3$ | * | H | * | Bz | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-42.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-42-1** | Et | H | H | H | Bz | H | H | F | OH | H | H |
| **XI-42-2** | Et | H | H | $CH_3$ | Bz | H | H | F | OH | H | H |
| **XI-42-3** | Et | H | H | $CH(CH_3)_2$ | Bz | H | H | F | OH | H | H |
| **XI-42-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Bz | H | H | F | OH | H | H |
| **XI-42-5** | Et | H | H | $CH_2Ph$ | Bz | H | H | F | OH | H | H |
| **XI-42-6** | Et | H | H | $CH_2$-indol-3-yl | Bz | H | H | F | OH | H | H |
| **XI-42-7** | Et | H | H | $CH_2CH_2SCH_3$ | Bz | H | H | F | OH | H | H |
| **XI-42-8** | Et | * | H | * | Bz | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-43.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-43-1** | $^i$Pr | H | H | H | Bz | H | H | F | OH | H | H |
| **XI-43-2** | $^i$Pr | H | H | $CH_3$ | Bz | H | H | F | OH | H | H |
| **XI-43-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Bz | H | H | F | OH | H | H |
| **XI-43-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Bz | H | H | F | OH | H | H |
| **XI-43-5** | $^i$Pr | H | H | $CH_2Ph$ | Bz | H | H | F | OH | H | H |
| **XI-43-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Bz | H | H | F | OH | H | H |
| **XI-43-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Bz | H | H | F | OH | H | H |
| **XI-43-8** | $^i$Pr | * | H | * | Bz | H | H | F | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00358

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-44.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-44-1** | $^t$Bu | H | H | H | Bz | H | H | F | OH | H | H |
| **XI-44-2** | $^t$Bu | H | H | $CH_3$ | Bz | H | H | F | OH | H | H |
| **XI-44-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | Bz | H | H | F | OH | H | H |
| **XI-44-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | Bz | H | H | F | OH | H | H |
| **XI-44-5** | $^t$Bu | H | H | $CH_2Ph$ | Bz | H | H | F | OH | H | H |
| **XI-44-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | Bz | H | H | F | OH | H | H |
| **XI-44-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | Bz | H | H | F | OH | H | H |
| **XI-44-8** | $^t$Bu | * | H | * | Bz | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-45.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-45-1** | Ph | H | H | H | Bz | H | H | F | OH | H | H |
| **XI-45-2** | Ph | H | H | $CH_3$ | Bz | H | H | F | OH | H | H |
| **XI-45-3** | Ph | H | H | $CH(CH_3)_2$ | Bz | H | H | F | OH | H | H |
| **XI-45-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | H | F | OH | H | H |
| **XI-45-5** | Ph | H | H | $CH_2Ph$ | Bz | H | H | F | OH | H | H |
| **XI-45-6** | Ph | H | H | $CH_2$-indol-3-yl | Bz | H | H | F | OH | H | H |
| **XI-45-7** | Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | H | F | OH | H | H |
| **XI-45-8** | Ph | * | H | * | Bz | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-46.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-46-1** | p-Me-Ph | H | H | H | Bz | H | H | F | OH | H | H |
| **XI-46-2** | p-Me-Ph | H | H | $CH_3$ | Bz | H | H | F | OH | H | H |
| **XI-46-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | Bz | H | H | F | OH | H | H |
| **XI-46-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | H | F | OH | H | H |
| **XI-46-5** | p-Me-Ph | H | H | $CH_2Ph$ | Bz | H | H | F | OH | H | H |
| **XI-46-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | H | F | OH | H | H |
| **XI-46-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | H | F | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00359

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-46-8** | p-Me-Ph | * | H | * | Bz | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-47.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-47-1** | p-F-Ph | H | H | H | Bz | H | H | F | OH | H | H |
| **XI-47-2** | p-F-Ph | H | H | $CH_3$ | Bz | H | H | F | OH | H | H |
| **XI-47-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | Bz | H | H | F | OH | H | H |
| **XI-47-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | H | F | OH | H | H |
| **XI-47-5** | p-F-Ph | H | H | $CH_2Ph$ | Bz | H | H | F | OH | H | H |
| **XI-47-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | H | F | OH | H | H |
| **XI-47-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | H | F | OH | H | H |
| **XI-47-8** | p-F-Ph | * | H | * | Bz | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-48.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-48-1** | p-Cl-Ph | H | H | H | Bz | H | H | F | OH | H | H |
| **XI-48-2** | p-Cl-Ph | H | H | $CH_3$ | Bz | H | H | F | OH | H | H |
| **XI-48-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | Bz | H | H | F | OH | H | H |
| **XI-48-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | H | F | OH | H | H |
| **XI-48-5** | p-Cl-Ph | H | H | $CH_2Ph$ | Bz | H | H | F | OH | H | H |
| **XI-48-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | H | F | OH | H | H |
| **XI-48-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | H | F | OH | H | H |
| **XI-48-8** | p-Cl-Ph | * | H | * | Bz | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-49.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-49-1** | p-Br-Ph | H | H | H | Bz | H | H | F | OH | H | H |
| **XI-49-2** | p-Br-Ph | H | H | $CH_3$ | Bz | H | H | F | OH | H | H |
| **XI-49-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | Bz | H | H | F | OH | H | H |
| **XI-49-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | H | F | OH | H | H |
| **XI-49-5** | p-Br-Ph | H | H | $CH_2Ph$ | Bz | H | H | F | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00360

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-49-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | H | F | OH | H | H |
| **XI-49-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | H | F | OH | H | H |
| **XI-49-8** | p-Br-Ph | * | H | * | Bz | H | H | F | OH | H | H |

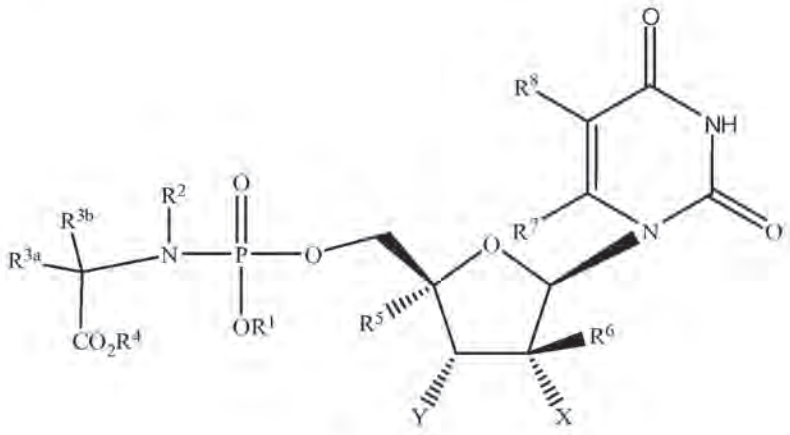
*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XI-50.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XI-50-1** | p-I-Ph | H | H | H | Bz | H | H | F | OH | H | H |
| **XI-50-2** | p-I-Ph | H | H | $CH_3$ | Bz | H | H | F | OH | H | H |
| **XI-50-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | Bz | H | H | F | OH | H | H |
| **XI-50-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | H | H | F | OH | H | H |
| **XI-50-5** | p-I-Ph | H | H | $CH_2Ph$ | Bz | H | H | F | OH | H | H |
| **XI-50-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | Bz | H | H | F | OH | H | H |
| **XI-50-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | H | H | F | OH | H | H |
| **XI-50-8** | p-I-Ph | * | H | * | Bz | H | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

5




**XII**

Table XII-1.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-1-1** | $CH_3$ | H | H | H | $CH_3$ | $N_3$ | F | F | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00361

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-1-2** | $CH_3$ | H | H | $CH_3$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-1-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-1-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-1-5** | $CH_3$ | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-1-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-1-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-1-8** | $CH_3$ | * | H | * | $CH_3$ | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-2.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-2-1** | Et | H | H | H | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-2-2** | Et | H | H | $CH_3$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-2-3** | Et | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-2-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-2-5** | Et | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-2-6** | Et | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-2-7** | Et | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-2-8** | Et | * | H | * | $CH_3$ | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-3.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-3-1** | $^i$Pr | H | H | H | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-3-2** | $^i$Pr | H | H | $CH_3$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-3-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-3-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-3-5** | $^i$Pr | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-3-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-3-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-3-8** | $^i$Pr | * | H | * | $CH_3$ | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-4.



Gilead Exhibit 2018
PGR2023-00046 - Page 00362

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-4-1** | $^t$Bu | H | H | H | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-4-2** | $^t$Bu | H | H | $CH_3$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-4-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-4-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-4-5** | $^t$Bu | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-4-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-4-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-4-8** | $^t$Bu | * | H | * | $CH_3$ | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-5.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-5-1** | Ph | H | H | H | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-5-2** | Ph | H | H | $CH_3$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-5-3** | Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-5-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-5-5** | Ph | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-5-6** | Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-5-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-5-8** | Ph | * | H | * | $CH_3$ | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-6.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-6-1** | p-Me-Ph | H | H | H | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-6-2** | p-Me-Ph | H | H | $CH_3$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-6-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-6-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-6-5** | p-Me-Ph | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-6-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-6-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-6-8** | p-Me-Ph | * | H | * | $CH_3$ | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00363

Table XII-7.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-7-1** | p-F-Ph | H | H | H | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-7-2** | p-F-Ph | H | H | $CH_3$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-7-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-7-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-7-6** | p-F-Ph | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-7-7** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-7-8** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-7-20** | p-F-Ph | * | H | * | $CH_3$ | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-8.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-8-1** | p-Cl-Ph | H | H | H | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-8-2** | p-Cl-Ph | H | H | $CH_3$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-8-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-8-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-8-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-8-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-8-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-8-8** | p-Cl-Ph | * | H | * | $CH_3$ | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-9.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-9-1** | p-Br-Ph | H | H | H | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-9-2** | p-Br-Ph | H | H | $CH_3$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-9-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-9-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-9-6** | p-Br-Ph | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-9-7** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-9-8** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-9-20** | p-Br-Ph | * | H | * | $CH_3$ | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00364

Table XII-10.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-10-1** | p-I-Ph | H | H | H | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-10-2** | p-I-Ph | H | H | $CH_3$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-10-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-10-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-10-5** | p-I-Ph | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-10-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-10-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | F | F | OH | H | H |
| **XII-10-8** | p-I-Ph | * | H | * | $CH_3$ | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-11.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-11-1** | $CH_3$ | H | H | H | Et | $N_3$ | F | F | OH | H | H |
| **XII-11-2** | $CH_3$ | H | H | $CH_3$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-11-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-11-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-11-5** | $CH_3$ | H | H | $CH_2Ph$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-11-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | F | F | OH | H | H |
| **XII-11-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-11-8** | $CH_3$ | * | H | * | Et | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-12.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-12-1** | Et | H | H | H | Et | $N_3$ | F | F | OH | H | H |
| **XII-12-2** | Et | H | H | $CH_3$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-12-3** | Et | H | H | $CH(CH_3)_2$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-12-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-12-5** | Et | H | H | $CH_2Ph$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-12-6** | Et | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | F | F | OH | H | H |
| **XII-12-7** | Et | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-12-8** | Et | * | H | * | Et | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00365

Table XII-13.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-13-1** | $^i$Pr | H | H | H | Et | $N_3$ | F | F | OH | H | H |
| **XII-13-2** | $^i$Pr | H | H | $CH_3$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-13-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-13-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-13-5** | $^i$Pr | H | H | $CH_2Ph$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-13-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | F | F | OH | H | H |
| **XII-13-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-13-8** | $^i$Pr | * | H | * | Et | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-14.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-14-1** | $^t$Bu | H | H | H | Et | $N_3$ | F | F | OH | H | H |
| **XII-14-2** | $^t$Bu | H | H | $CH_3$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-14-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-14-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-14-5** | $^t$Bu | H | H | $CH_2Ph$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-14-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | F | F | OH | H | H |
| **XII-14-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-14-8** | $^t$Bu | * | H | * | Et | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-15.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|



Gilead Exhibit 2018
PGR2023-00046 - Page 00366

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-15-1** | Ph | H | H | H | Et | $N_3$ | F | F | OH | H | H |
| **XII-15-2** | Ph | H | H | $CH_3$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-15-3** | Ph | H | H | $CH(CH_3)_2$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-15-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-15-5** | Ph | H | H | $CH_2Ph$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-15-6** | Ph | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | F | F | OH | H | H |
| **XII-15-7** | Ph | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-15-8** | Ph | * | H | * | Et | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-16.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-16-1** | p-Me-Ph | H | H | H | Et | $N_3$ | F | F | OH | H | H |
| **XII-16-2** | p-Me-Ph | H | H | $CH_3$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-16-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-16-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-16-5** | p-Me-Ph | H | H | $CH_2Ph$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-16-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | F | F | OH | H | H |
| **XII-16-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-16-8** | p-Me-Ph | * | H | * | Et | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-17.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-17-1** | p-F-Ph | H | H | H | Et | $N_3$ | F | F | OH | H | H |
| **XII-17-2** | p-F-Ph | H | H | $CH_3$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-17-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-17-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-17-5** | p-F-Ph | H | H | $CH_2Ph$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-17-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | F | F | OH | H | H |
| **XII-17-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-17-8** | p-F-Ph | * | H | * | Et | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00367

Table XII-18.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-18-1** | p-Cl-Ph | H | H | H | Et | $N_3$ | F | F | OH | H | H |
| **XII-18-2** | p-Cl-Ph | H | H | $CH_3$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-18-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-18-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-18-5** | p-Cl-Ph | H | H | $CH_2Ph$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-18-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | F | F | OH | H | H |
| **XII-18-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-18-8** | p-Cl-Ph | * | H | * | Et | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-19.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-19-1** | p-Br-Ph | H | H | H | Et | $N_3$ | F | F | OH | H | H |
| **XII-19-2** | p-Br-Ph | H | H | $CH_3$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-19-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-19-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-19-5** | p-Br-Ph | H | H | $CH_2Ph$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-19-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | F | F | OH | H | H |
| **XII-19-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | F | F | OH | H | H |
| **XII-19-8** | p-Br-Ph | * | H | * | Et | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-20.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ |
|---|---|---|---|---|---|---|---|---|---|---|
| **XII-20-1** | p-I-Ph | H | H | H | Et | $N_3$ | F | F | OH | H |
| **XII-20-2** | p-I-Ph | H | H | $CH_3$ | Et | $N_3$ | F | F | OH | H |
| **XII-20-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | Et | $N_3$ | F | F | OH | H |
| **XII-20-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | F | F | OH | H |
| **XII-20-5** | p-I-Ph | H | H | $CH_2Ph$ | Et | $N_3$ | F | F | OH | H |
| **XII-20-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | F | F | OH | H |
| **XII-20-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | F | F | OH | H |
| **XII-20-8** | p-I-Ph | * | H | * | Et | $N_3$ | F | F | OH | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00368

Table XII-21.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-21-1** | $CH_3$ | H | H | H | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-21-2** | $CH_3$ | H | H | $CH_3$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-21-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-21-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-21-5** | $CH_3$ | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-21-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-21-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-21-8** | $CH_3$ | * | H | * | $^i$Pr | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-22.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-22-1** | Et | H | H | H | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-22-2** | Et | H | H | $CH_3$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-22-3** | Et | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-22-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-22-5** | Et | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-22-6** | Et | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-22-7** | Et | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-22-8** | Et | * | H | * | $^i$Pr | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-23.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-23-1** | $^i$Pr | H | H | H | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-23-2** | $^i$Pr | H | H | $CH_3$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-23-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-23-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-23-5** | $^i$Pr | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-23-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-23-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-23-8** | $^i$Pr | * | H | * | $^i$Pr | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00369

Table XII-24.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-24-1** | $^t$Bu | H | H | H | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-24-2** | $^t$Bu | H | H | $CH_3$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-24-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-24-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-24-5** | $^t$Bu | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-24-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-24-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-24-8** | $^t$Bu | * | H | * | $^i$Pr | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-25.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-25-1** | Ph | H | H | H | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-25-2** | Ph | H | H | $CH_3$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-25-3** | Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-25-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-25-5** | Ph | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-25-6** | Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-25-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-25-8** | Ph | * | H | * | $^i$Pr | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-26.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-26-1** | p-Me-Ph | H | H | H | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-26-2** | p-Me-Ph | H | H | $CH_3$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-26-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-26-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-26-5** | p-Me-Ph | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-26-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-26-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-26-8** | p-Me-Ph | * | H | * | $^i$Pr | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00370

Table XII-27.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-27-1** | p-F-Ph | H | H | H | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-27-2** | p-F-Ph | H | H | $CH_3$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-27-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-27-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-27-5** | p-F-Ph | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-27-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-27-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-27-8** | p-F-Ph | * | H | * | $^i$Pr | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-28.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-28-1** | p-Cl-Ph | H | H | H | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-28-2** | p-Cl-Ph | H | H | $CH_3$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-28-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-28-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-28-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-28-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-28-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-28-8** | p-Cl-Ph | * | H | * | $^i$Pr | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-29.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-29-1** | p-Br-Ph | H | H | H | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-29-2** | p-Br-Ph | H | H | $CH_3$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-29-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-29-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-29-5** | p-Br-Ph | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-29-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-29-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-29-8** | p-Br-Ph | * | H | * | $^i$Pr | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00371

Table XII-30.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-30-1** | p-I-Ph | H | H | H | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-30-2** | p-I-Ph | H | H | $CH_3$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-30-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-30-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-30-5** | p-I-Ph | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-30-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-30-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | F | F | OH | H | H |
| **XII-30-8** | p-I-Ph | * | H | * | $^i$Pr | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-31.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-31-1** | $CH_3$ | H | H | H | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-31-2** | $CH_3$ | H | H | $CH_3$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-31-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-31-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-31-5** | $CH_3$ | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-31-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-31-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-31-8** | $CH_3$ | * | H | * | $^n$Bu | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-32.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-32-1** | Et | H | H | H | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-32-2** | Et | H | H | $CH_3$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-32-3** | Et | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-32-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-32-5** | Et | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-32-6** | Et | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-32-7** | Et | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-32-8** | Et | * | H | * | $^n$Bu | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00372

Table XII-33.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-33-1** | $^i$Pr | H | H | H | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-33-2** | $^i$Pr | H | H | $CH_3$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-33-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-33-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-33-5** | $^i$Pr | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-33-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-33-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-33-8** | $^i$Pr | * | H | * | $^n$Bu | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-34.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-34-1** | $^t$Bu | H | H | H | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-34-2** | $^t$Bu | H | H | $CH_3$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-34-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-34-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-34-5** | $^t$Bu | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-34-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-34-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-34-8** | $^t$Bu | * | H | * | $^n$Bu | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-35.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-35-1** | Ph | H | H | H | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-35-2** | Ph | H | H | $CH_3$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-35-3** | Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-35-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-35-5** | Ph | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-35-6** | Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-35-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-35-8** | Ph | * | H | * | $^n$Bu | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00373

Table XII-36.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-36-1** | p-Me-Ph | H | H | H | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-36-2** | p-Me-Ph | H | H | $CH_3$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-36-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-36-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-36-5** | p-Me-Ph | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-36-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-36-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-36-8** | p-Me-Ph | * | H | * | $^n$Bu | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-37.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-37-1** | p-F-Ph | H | H | H | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-37-2** | p-F-Ph | H | H | $CH_3$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-37-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-37-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-37-5** | p-F-Ph | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-37-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-37-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-37-8** | p-F-Ph | * | H | * | $^n$Bu | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-38.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-38-1** | p-Cl-Ph | H | H | H | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-38-2** | p-Cl-Ph | H | H | $CH_3$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-38-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-38-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-38-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-38-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-38-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-38-8** | p-Cl-Ph | * | H | * | $^n$Bu | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00374

Table XII-39.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-39-1** | p-Br-Ph | H | H | H | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-39-2** | p-Br-Ph | H | H | $CH_3$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-39-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-39-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-39-5** | p-Br-Ph | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-39-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-39-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-39-8** | p-Br-Ph | * | H | * | $^n$Bu | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-40.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-40-1** | p-I-Ph | H | H | H | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-40-2** | p-I-Ph | H | H | $CH_3$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-40-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-40-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-40-5** | p-I-Ph | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-40-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-40-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | F | F | OH | H | H |
| **XII-40-8** | p-I-Ph | * | H | * | $^n$Bu | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-41.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-41-1** | $CH_3$ | H | H | H | Bz | $N_3$ | F | F | OH | H | H |
| **XII-41-2** | $CH_3$ | H | H | $CH_3$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-41-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-41-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-41-5** | $CH_3$ | H | H | $CH_2Ph$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-41-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | F | F | OH | H | H |
| **XII-41-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-41-8** | $CH_3$ | * | H | * | Bz | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00375

Table XII-42.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-42-1** | Et | H | H | H | Bz | $N_3$ | F | F | OH | H | H |
| **XII-42-2** | Et | H | H | $CH_3$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-42-3** | Et | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-42-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-42-5** | Et | H | H | $CH_2Ph$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-42-6** | Et | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | F | F | OH | H | H |
| **XII-42-7** | Et | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-42-8** | Et | * | H | * | Bz | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-43.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-43-1** | $^i$Pr | H | H | H | Bz | $N_3$ | F | F | OH | H | H |
| **XII-43-2** | $^i$Pr | H | H | $CH_3$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-43-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-43-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-43-5** | $^i$Pr | H | H | $CH_2Ph$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-43-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | F | F | OH | H | H |
| **XII-43-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-43-8** | $^i$Pr | * | H | * | Bz | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-44.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-44-1** | $^t$Bu | H | H | H | Bz | $N_3$ | F | F | OH | H | H |
| **XII-44-2** | $^t$Bu | H | H | $CH_3$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-44-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-44-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-44-5** | $^t$Bu | H | H | $CH_2Ph$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-44-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | F | F | OH | H | H |
| **XII-44-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-44-8** | $^t$Bu | * | H | * | Bz | $N_3$ | F | F | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00376

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-45.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-45-1** | Ph | H | H | H | Bz | $N_3$ | F | F | OH | H | H |
| **XII-45-2** | Ph | H | H | $CH_3$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-45-3** | Ph | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-45-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-45-5** | Ph | H | H | $CH_2Ph$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-45-6** | Ph | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | F | F | OH | H | H |
| **XII-45-7** | Ph | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-45-8** | Ph | * | H | * | Bz | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-46.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-46-1** | p-Me-Ph | H | H | H | Bz | $N_3$ | F | F | OH | H | H |
| **XII-46-2** | p-Me-Ph | H | H | $CH_3$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-46-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-46-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-46-5** | p-Me-Ph | H | H | $CH_2Ph$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-46-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | F | F | OH | H | H |
| **XII-46-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-46-8** | p-Me-Ph | * | H | * | Bz | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-47.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-47-1** | p-F-Ph | H | H | H | Bz | $N_3$ | F | F | OH | H | H |
| **XII-47-2** | p-F-Ph | H | H | $CH_3$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-47-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-47-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-47-5** | p-F-Ph | H | H | $CH_2Ph$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-47-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | F | F | OH | H | H |
| **XII-47-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | F | F | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00377

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-47-8** | p-F-Ph | * | H | * | Bz | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-48.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-48-1** | p-Cl-Ph | H | H | H | Bz | $N_3$ | F | F | OH | H | H |
| **XII-48-2** | p-Cl-Ph | H | H | $CH_3$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-48-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-48-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-48-5** | p-Cl-Ph | H | H | $CH_2Ph$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-48-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | F | F | OH | H | H |
| **XII-48-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-48-8** | p-Cl-Ph | * | H | * | Bz | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-49.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-49-1** | p-Br-Ph | H | H | H | Bz | $N_3$ | F | F | OH | H | H |
| **XII-49-2** | p-Br-Ph | H | H | $CH_3$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-49-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-49-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-49-5** | p-Br-Ph | H | H | $CH_2Ph$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-49-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | F | F | OH | H | H |
| **XII-49-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-49-8** | p-Br-Ph | * | H | * | Bz | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XII-50.

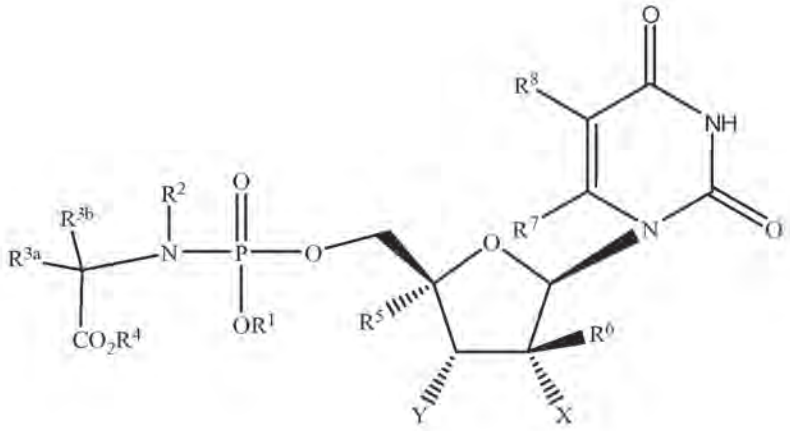
| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-50-1** | p-I-Ph | H | H | H | Bz | $N_3$ | F | F | OH | H | H |
| **XII-50-2** | p-I-Ph | H | H | $CH_3$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-50-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-50-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-50-5** | p-I-Ph | H | H | $CH_2Ph$ | Bz | $N_3$ | F | F | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00378

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XII-50-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | F | F | OH | H | H |
| **XII-50-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | F | F | OH | H | H |
| **XII-50-8** | p-I-Ph | * | H | * | Bz | $N_3$ | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



**XIII**

Table XIII-1.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-1-1** | $CH_3$ | H | H | H | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-1-2** | $CH_3$ | H | H | $CH_3$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-1-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-1-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-1-5** | $CH_3$ | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-1-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-1-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-1-8** | $CH_3$ | * | H | * | $CH_3$ | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-2.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-2-1** | Et | H | H | H | $CH_3$ | $N_3$ | H | F | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00379

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-2-2** | Et | H | H | $CH_3$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-2-3** | Et | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-2-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-2-5** | Et | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-2-6** | Et | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-2-7** | Et | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-2-8** | Et | * | H | * | $CH_3$ | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-3.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-3-1** | $^i$Pr | H | H | H | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-3-2** | $^i$Pr | H | H | $CH_3$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-3-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-3-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-3-5** | $^i$Pr | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-3-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-3-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-3-8** | $^i$Pr | * | H | * | $CH_3$ | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-4.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-4-1** | $^t$Bu | H | H | H | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-4-2** | $^t$Bu | H | H | $CH_3$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-4-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-4-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-4-5** | $^t$Bu | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-4-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-4-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-4-8** | $^t$Bu | * | H | * | $CH_3$ | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-5.



Gilead Exhibit 2018
PGR2023-00046 - Page 00380

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-5-1** | Ph | H | H | H | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-5-2** | Ph | H | H | $CH_3$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-5-3** | Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-5-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-5-5** | Ph | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-5-6** | Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-5-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-5-8** | Ph | * | H | * | $CH_3$ | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-6.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-6-1** | p-Me-Ph | H | H | H | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-6-2** | p-Me-Ph | H | H | $CH_3$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-6-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-6-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-6-5** | p-Me-Ph | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-6-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-6-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-6-8** | p-Me-Ph | * | H | * | $CH_3$ | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-7.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-7-1** | p-F-Ph | H | H | H | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-7-2** | p-F-Ph | H | H | $CH_3$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-7-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-7-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-7-6** | p-F-Ph | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-7-7** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-7-8** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-7-20** | p-F-Ph | * | H | * | $CH_3$ | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00381

Table XIII-8.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-8-1** | p-Cl-Ph | H | H | H | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-8-2** | p-Cl-Ph | H | H | $CH_3$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-8-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-8-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-8-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-8-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-8-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-8-8** | p-Cl-Ph | * | H | * | $CH_3$ | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-9.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-9-1** | p-Br-Ph | H | H | H | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-9-2** | p-Br-Ph | H | H | $CH_3$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-9-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-9-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-9-6** | p-Br-Ph | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-9-7** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-9-8** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-9-20** | p-Br-Ph | * | H | * | $CH_3$ | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-10.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-10-1** | p-I-Ph | H | H | H | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-10-2** | p-I-Ph | H | H | $CH_3$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-10-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-10-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-10-5** | p-I-Ph | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-10-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-10-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | H | F | OH | H | H |
| **XIII-10-8** | p-I-Ph | * | H | * | $CH_3$ | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00382

Table XIII-11.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-11-1** | $CH_3$ | H | H | H | Et | $N_3$ | H | F | OH | H | H |
| **XIII-11-2** | $CH_3$ | H | H | $CH_3$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-11-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-11-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-11-5** | $CH_3$ | H | H | $CH_2Ph$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-11-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | H | F | OH | H | H |
| **XIII-11-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-11-8** | $CH_3$ | * | H | * | Et | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-12.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-12-1** | Et | H | H | H | Et | $N_3$ | H | F | OH | H | H |
| **XIII-12-2** | Et | H | H | $CH_3$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-12-3** | Et | H | H | $CH(CH_3)_2$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-12-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-12-5** | Et | H | H | $CH_2Ph$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-12-6** | Et | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | H | F | OH | H | H |
| **XIII-12-7** | Et | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-12-8** | Et | * | H | * | Et | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-13.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-13-1** | $^i$Pr | H | H | H | Et | $N_3$ | H | F | OH | H | H |
| **XIII-13-2** | $^i$Pr | H | H | $CH_3$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-13-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-13-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-13-5** | $^i$Pr | H | H | $CH_2Ph$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-13-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | H | F | OH | H | H |
| **XIII-13-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-13-8** | $^i$Pr | * | H | * | Et | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00383

Table XIII-14.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-14-1** | $^t$Bu | H | H | H | Et | $N_3$ | H | F | OH | H | H |
| **XIII-14-2** | $^t$Bu | H | H | $CH_3$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-14-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-14-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-14-5** | $^t$Bu | H | H | $CH_2Ph$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-14-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | H | F | OH | H | H |
| **XIII-14-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-14-8** | $^t$Bu | * | H | * | Et | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-15.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-15-1** | Ph | H | H | H | Et | $N_3$ | H | F | OH | H | H |
| **XIII-15-2** | Ph | H | H | $CH_3$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-15-3** | Ph | H | H | $CH(CH_3)_2$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-15-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-15-5** | Ph | H | H | $CH_2Ph$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-15-6** | Ph | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | H | F | OH | H | H |
| **XIII-15-7** | Ph | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-15-8** | Ph | * | H | * | Et | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-16.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-16-1** | p-Me-Ph | H | H | H | Et | $N_3$ | H | F | OH | H | H |
| **XIII-16-2** | p-Me-Ph | H | H | $CH_3$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-16-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-16-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-16-5** | p-Me-Ph | H | H | $CH_2Ph$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-16-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | H | F | OH | H | H |
| **XIII-16-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-16-8** | p-Me-Ph | * | H | * | Et | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00384

Table XIII-17.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-17-1** | p-F-Ph | H | H | H | Et | $N_3$ | H | F | OH | H | H |
| **XIII-17-2** | p-F-Ph | H | H | $CH_3$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-17-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-17-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-17-5** | p-F-Ph | H | H | $CH_2Ph$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-17-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | H | F | OH | H | H |
| **XIII-17-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-17-8** | p-F-Ph | * | H | * | Et | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-18.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-18-1** | p-Cl-Ph | H | H | H | Et | $N_3$ | H | F | OH | H | H |
| **XIII-18-2** | p-Cl-Ph | H | H | $CH_3$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-18-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-18-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-18-5** | p-Cl-Ph | H | H | $CH_2Ph$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-18-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | H | F | OH | H | H |
| **XIII-18-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-18-8** | p-Cl-Ph | * | H | * | Et | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-19.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-19-1** | p-Br-Ph | H | H | H | Et | $N_3$ | H | F | OH | H | H |
| **XIII-19-2** | p-Br-Ph | H | H | $CH_3$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-19-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-19-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-19-5** | p-Br-Ph | H | H | $CH_2Ph$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-19-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | H | F | OH | H | H |
| **XIII-19-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-19-8** | p-Br-Ph | * | H | * | Et | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00385

Table XIII-20.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-20-1** | p-I-Ph | H | H | H | Et | $N_3$ | H | F | OH | H | H |
| **XIII-20-2** | p-I-Ph | H | H | $CH_3$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-20-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-20-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-20-5** | p-I-Ph | H | H | $CH_2Ph$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-20-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | H | F | OH | H | H |
| **XIII-20-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | H | F | OH | H | H |
| **XIII-20-8** | p-I-Ph | * | H | * | Et | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-21.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-21-1** | $CH_3$ | H | H | H | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-21-2** | $CH_3$ | H | H | $CH_3$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-21-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-21-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-21-5** | $CH_3$ | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-21-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-21-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-21-8** | $CH_3$ | * | H | * | $^i$Pr | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-22.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-22-1** | Et | H | H | H | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-22-2** | Et | H | H | $CH_3$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-22-3** | Et | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-22-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-22-5** | Et | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-22-6** | Et | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-22-7** | Et | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-22-8** | Et | * | H | * | $^i$Pr | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00386

Table XIII-23.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-23-1** | $^i$Pr | H | H | H | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-23-2** | $^i$Pr | H | H | $CH_3$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-23-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-23-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-23-5** | $^i$Pr | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-23-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-23-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-23-8** | $^i$Pr | * | H | * | $^i$Pr | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-24.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-24-1** | $^t$Bu | H | H | H | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-24-2** | $^t$Bu | H | H | $CH_3$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-24-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-24-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-24-5** | $^t$Bu | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-24-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-24-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-24-8** | $^t$Bu | * | H | * | $^i$Pr | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-25.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-25-1** | Ph | H | H | H | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-25-2** | Ph | H | H | $CH_3$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-25-3** | Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-25-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-25-5** | Ph | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-25-6** | Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-25-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-25-8** | Ph | * | H | * | $^i$Pr | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00387

Table XIII-26.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-26-1** | p-Me-Ph | H | H | H | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-26-2** | p-Me-Ph | H | H | $CH_3$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-26-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-26-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-26-5** | p-Me-Ph | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-26-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-26-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-26-8** | p-Me-Ph | * | H | * | $^i$Pr | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-27.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-27-1** | p-F-Ph | H | H | H | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-27-2** | p-F-Ph | H | H | $CH_3$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-27-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-27-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-27-5** | p-F-Ph | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-27-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-27-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-27-8** | p-F-Ph | * | H | * | $^i$Pr | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-28.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-28-1** | p-Cl-Ph | H | H | H | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-28-2** | p-Cl-Ph | H | H | $CH_3$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-28-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-28-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-28-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-28-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-28-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-28-8** | p-Cl-Ph | * | H | * | $^i$Pr | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00388

Table XIII-29.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-29-1** | p-Br-Ph | H | H | H | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-29-2** | p-Br-Ph | H | H | $CH_3$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-29-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-29-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-29-5** | p-Br-Ph | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-29-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-29-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-29-8** | p-Br-Ph | * | H | * | $^i$Pr | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-30.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-30-1** | p-I-Ph | H | H | H | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-30-2** | p-I-Ph | H | H | $CH_3$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-30-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-30-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-30-5** | p-I-Ph | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-30-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-30-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | H | F | OH | H | H |
| **XIII-30-8** | p-I-Ph | * | H | * | $^i$Pr | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-31.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-31-1** | $CH_3$ | H | H | H | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-31-2** | $CH_3$ | H | H | $CH_3$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-31-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-31-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-31-5** | $CH_3$ | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-31-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-31-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-31-8** | $CH_3$ | * | H | * | $^n$Bu | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00389

Table XIII-32.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-32-1** | Et | H | H | H | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-32-2** | Et | H | H | $CH_3$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-32-3** | Et | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-32-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-32-5** | Et | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-32-6** | Et | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-32-7** | Et | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-32-8** | Et | * | H | * | $^n$Bu | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-33.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-33-1** | $^i$Pr | H | H | H | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-33-2** | $^i$Pr | H | H | $CH_3$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-33-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-33-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-33-5** | $^i$Pr | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-33-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-33-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-33-8** | $^i$Pr | * | H | * | $^n$Bu | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-34.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-34-1** | $^t$Bu | H | H | H | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-34-2** | $^t$Bu | H | H | $CH_3$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-34-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-34-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-34-5** | $^t$Bu | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-34-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-34-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-34-8** | $^t$Bu | * | H | * | $^n$Bu | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00390

Table XIII-35.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-35-1** | Ph | H | H | H | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-35-2** | Ph | H | H | $CH_3$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-35-3** | Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-35-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-35-5** | Ph | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-35-6** | Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-35-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-35-8** | Ph | * | H | * | $^n$Bu | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-36.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-36-1** | p-Me-Ph | H | H | H | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-36-2** | p-Me-Ph | H | H | $CH_3$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-36-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-36-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-36-5** | p-Me-Ph | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-36-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-36-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-36-8** | p-Me-Ph | * | H | * | $^n$Bu | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-37.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-37-1** | p-F-Ph | H | H | H | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-37-2** | p-F-Ph | H | H | $CH_3$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-37-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-37-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-37-5** | p-F-Ph | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-37-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-37-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-37-8** | p-F-Ph | * | H | * | $^n$Bu | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00391

Table XIII-38.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-38-1** | p-Cl-Ph | H | H | H | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-38-2** | p-Cl-Ph | H | H | $CH_3$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-38-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-38-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-38-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-38-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-38-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-38-8** | p-Cl-Ph | * | H | * | $^n$Bu | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-39.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-39-1** | p-Br-Ph | H | H | H | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-39-2** | p-Br-Ph | H | H | $CH_3$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-39-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-39-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-39-5** | p-Br-Ph | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-39-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-39-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-39-8** | p-Br-Ph | * | H | * | $^n$Bu | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-40.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-40-1** | p-I-Ph | H | H | H | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-40-2** | p-I-Ph | H | H | $CH_3$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-40-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-40-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-40-5** | p-I-Ph | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-40-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-40-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | H | F | OH | H | H |
| **XIII-40-8** | p-I-Ph | * | H | * | $^n$Bu | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00392

Table XIII-41.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-41-1** | $CH_3$ | H | H | H | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-41-2** | $CH_3$ | H | H | $CH_3$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-41-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-41-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-41-5** | $CH_3$ | H | H | $CH_2Ph$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-41-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-41-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-41-8** | $CH_3$ | * | H | * | Bz | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-42.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-42-1** | Et | H | H | H | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-42-2** | Et | H | H | $CH_3$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-42-3** | Et | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-42-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-42-5** | Et | H | H | $CH_2Ph$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-42-6** | Et | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-42-7** | Et | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-42-8** | Et | * | H | * | Bz | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-43.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-43-1** | $^i$Pr | H | H | H | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-43-2** | $^i$Pr | H | H | $CH_3$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-43-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-43-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-43-5** | $^i$Pr | H | H | $CH_2Ph$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-43-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-43-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-43-8** | $^i$Pr | * | H | * | Bz | $N_3$ | H | F | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00393

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-44.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-44-1** | $^t$Bu | H | H | H | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-44-2** | $^t$Bu | H | H | $CH_3$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-44-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-44-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-44-5** | $^t$Bu | H | H | $CH_2Ph$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-44-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-44-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-44-8** | $^t$Bu | * | H | * | Bz | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-45.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-45-1** | Ph | H | H | H | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-45-2** | Ph | H | H | $CH_3$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-45-3** | Ph | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-45-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-45-5** | Ph | H | H | $CH_2Ph$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-45-6** | Ph | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-45-7** | Ph | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-45-8** | Ph | * | H | * | Bz | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-46.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-46-1** | p-Me-Ph | H | H | H | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-46-2** | p-Me-Ph | H | H | $CH_3$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-46-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-46-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-46-5** | p-Me-Ph | H | H | $CH_2Ph$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-46-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-46-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | H | F | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00394

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-46-8** | p-Me-Ph | * | H | * | Bz | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-47.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-47-1** | p-F-Ph | H | H | H | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-47-2** | p-F-Ph | H | H | $CH_3$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-47-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-47-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-47-5** | p-F-Ph | H | H | $CH_2Ph$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-47-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-47-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-47-8** | p-F-Ph | * | H | * | Bz | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-48.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-48-1** | p-Cl-Ph | H | H | H | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-48-2** | p-Cl-Ph | H | H | $CH_3$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-48-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-48-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-48-5** | p-Cl-Ph | H | H | $CH_2Ph$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-48-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-48-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-48-8** | p-Cl-Ph | * | H | * | Bz | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-49.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-49-1** | p-Br-Ph | H | H | H | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-49-2** | p-Br-Ph | H | H | $CH_3$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-49-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-49-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-49-5** | p-Br-Ph | H | H | $CH_2Ph$ | Bz | $N_3$ | H | F | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00395

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-49-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-49-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-49-8** | p-Br-Ph | * | H | * | Bz | $N_3$ | H | F | OH | H | H |

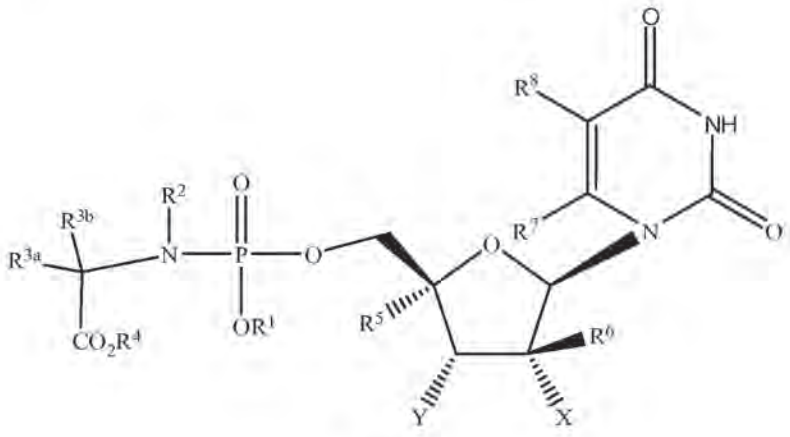
*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIII-50.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIII-50-1** | p-I-Ph | H | H | H | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-50-2** | p-I-Ph | H | H | $CH_3$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-50-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-50-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-50-5** | p-I-Ph | H | H | $CH_2Ph$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-50-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-50-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | H | F | OH | H | H |
| **XIII-50-8** | p-I-Ph | * | H | * | Bz | $N_3$ | H | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

5




**XIV**

Table XIV-1.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-1-1** | $CH_3$ | H | H | H | $CH_3$ | $N_3$ | F | H | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00396

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-1-2** | $CH_3$ | H | H | $CH_3$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-1-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-1-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-1-5** | $CH_3$ | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-1-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-1-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-1-8** | $CH_3$ | * | H | * | $CH_3$ | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-2.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-2-1** | Et | H | H | H | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-2-2** | Et | H | H | $CH_3$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-2-3** | Et | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-2-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-2-5** | Et | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-2-6** | Et | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-2-7** | Et | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-2-8** | Et | * | H | * | $CH_3$ | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-3.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-3-1** | $^iPr$ | H | H | H | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-3-2** | $^iPr$ | H | H | $CH_3$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-3-3** | $^iPr$ | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-3-4** | $^iPr$ | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-3-5** | $^iPr$ | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-3-6** | $^iPr$ | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-3-7** | $^iPr$ | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-3-8** | $^iPr$ | * | H | * | $CH_3$ | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-4.



Gilead Exhibit 2018
PGR2023-00046 - Page 00397

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-4-1** | $^t$Bu | H | H | H | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-4-2** | $^t$Bu | H | H | $CH_3$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-4-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-4-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-4-5** | $^t$Bu | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-4-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-4-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-4-8** | $^t$Bu | * | H | * | $CH_3$ | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-5.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-5-1** | Ph | H | H | H | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-5-2** | Ph | H | H | $CH_3$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-5-3** | Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-5-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-5-5** | Ph | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-5-6** | Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-5-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-5-8** | Ph | * | H | * | $CH_3$ | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-6.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-6-1** | p-Me-Ph | H | H | H | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-6-2** | p-Me-Ph | H | H | $CH_3$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-6-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-6-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-6-5** | p-Me-Ph | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-6-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-6-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-6-8** | p-Me-Ph | * | H | * | $CH_3$ | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00398

Table XIV-7.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-7-1** | p-F-Ph | H | H | H | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-7-2** | p-F-Ph | H | H | $CH_3$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-7-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-7-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-7-6** | p-F-Ph | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-7-7** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-7-8** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-7-20** | p-F-Ph | * | H | * | $CH_3$ | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-8.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-8-1** | p-Cl-Ph | H | H | H | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-8-2** | p-Cl-Ph | H | H | $CH_3$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-8-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-8-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-8-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-8-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-8-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-8-8** | p-Cl-Ph | * | H | * | $CH_3$ | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-9.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-9-1** | p-Br-Ph | H | H | H | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-9-2** | p-Br-Ph | H | H | $CH_3$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-9-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-9-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-9-6** | p-Br-Ph | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-9-7** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-9-8** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-9-20** | p-Br-Ph | * | H | * | $CH_3$ | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00399

Table XIV-10.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-10-1** | p-I-Ph | H | H | H | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-10-2** | p-I-Ph | H | H | $CH_3$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-10-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-10-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-10-5** | p-I-Ph | H | H | $CH_2Ph$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-10-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-10-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | $N_3$ | F | H | OH | H | H |
| **XIV-10-8** | p-I-Ph | * | H | * | $CH_3$ | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-11.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-11-1** | $CH_3$ | H | H | H | Et | $N_3$ | F | H | OH | H | H |
| **XIV-11-2** | $CH_3$ | H | H | $CH_3$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-11-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-11-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-11-5** | $CH_3$ | H | H | $CH_2Ph$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-11-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | F | H | OH | H | H |
| **XIV-11-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-11-8** | $CH_3$ | * | H | * | Et | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-12.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-12-1** | Et | H | H | H | Et | $N_3$ | F | H | OH | H | H |
| **XIV-12-2** | Et | H | H | $CH_3$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-12-3** | Et | H | H | $CH(CH_3)_2$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-12-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-12-5** | Et | H | H | $CH_2Ph$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-12-6** | Et | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | F | H | OH | H | H |
| **XIV-12-7** | Et | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-12-8** | Et | * | H | * | Et | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00400

Table XIV-13.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-13-1** | $^i$Pr | H | H | H | Et | $N_3$ | F | H | OH | H | H |
| **XIV-13-2** | $^i$Pr | H | H | $CH_3$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-13-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-13-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-13-5** | $^i$Pr | H | H | $CH_2Ph$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-13-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | F | H | OH | H | H |
| **XIV-13-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-13-8** | $^i$Pr | * | H | * | Et | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-14.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-14-1** | $^t$Bu | H | H | H | Et | $N_3$ | F | H | OH | H | H |
| **XIV-14-2** | $^t$Bu | H | H | $CH_3$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-14-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-14-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-14-5** | $^t$Bu | H | H | $CH_2Ph$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-14-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | F | H | OH | H | H |
| **XIV-14-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-14-8** | $^t$Bu | * | H | * | Et | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-15.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-15-1** | Ph | H | H | H | Et | $N_3$ | F | H | OH | H | H |
| **XIV-15-2** | Ph | H | H | $CH_3$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-15-3** | Ph | H | H | $CH(CH_3)_2$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-15-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-15-5** | Ph | H | H | $CH_2Ph$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-15-6** | Ph | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | F | H | OH | H | H |
| **XIV-15-7** | Ph | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-15-8** | Ph | * | H | * | Et | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00401

Table XIV-16.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-16-1** | p-Me-Ph | H | H | H | Et | $N_3$ | F | H | OH | H | H |
| **XIV-16-2** | p-Me-Ph | H | H | $CH_3$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-16-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-16-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-16-5** | p-Me-Ph | H | H | $CH_2Ph$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-16-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | F | H | OH | H | H |
| **XIV-16-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-16-8** | p-Me-Ph | * | H | * | Et | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-17.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-17-1** | p-F-Ph | H | H | H | Et | $N_3$ | F | H | OH | H | H |
| **XIV-17-2** | p-F-Ph | H | H | $CH_3$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-17-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-17-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-17-5** | p-F-Ph | H | H | $CH_2Ph$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-17-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | F | H | OH | H | H |
| **XIV-17-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-17-8** | p-F-Ph | * | H | * | Et | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-18.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-18-1** | p-Cl-Ph | H | H | H | Et | $N_3$ | F | H | OH | H | H |
| **XIV-18-2** | p-Cl-Ph | H | H | $CH_3$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-18-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-18-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-18-5** | p-Cl-Ph | H | H | $CH_2Ph$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-18-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | F | H | OH | H | H |
| **XIV-18-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-18-8** | p-Cl-Ph | * | H | * | Et | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00402

Table XIV-19.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-19-1** | p-Br-Ph | H | H | H | Et | $N_3$ | F | H | OH | H | H |
| **XIV-19-2** | p-Br-Ph | H | H | $CH_3$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-19-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-19-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-19-5** | p-Br-Ph | H | H | $CH_2Ph$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-19-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | F | H | OH | H | H |
| **XIV-19-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-19-8** | p-Br-Ph | * | H | * | Et | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-20.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-20-1** | p-I-Ph | H | H | H | Et | $N_3$ | F | H | OH | H | H |
| **XIV-20-2** | p-I-Ph | H | H | $CH_3$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-20-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-20-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-20-5** | p-I-Ph | H | H | $CH_2Ph$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-20-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | Et | $N_3$ | F | H | OH | H | H |
| **XIV-20-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | Et | $N_3$ | F | H | OH | H | H |
| **XIV-20-8** | p-I-Ph | * | H | * | Et | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-21.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-21-1** | $CH_3$ | H | H | H | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-21-2** | $CH_3$ | H | H | $CH_3$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-21-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-21-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-21-5** | $CH_3$ | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-21-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-21-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-21-8** | $CH_3$ | * | H | * | $^i$Pr | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00403

Table XIV-22.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-22-1** | Et | H | H | H | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-22-2** | Et | H | H | $CH_3$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-22-3** | Et | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-22-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-22-5** | Et | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-22-6** | Et | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-22-7** | Et | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-22-8** | Et | * | H | * | $^i$Pr | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-23.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-23-1** | $^i$Pr | H | H | H | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-23-2** | $^i$Pr | H | H | $CH_3$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-23-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-23-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-23-5** | $^i$Pr | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-23-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-23-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-23-8** | $^i$Pr | * | H | * | $^i$Pr | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-24.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-24-1** | $^t$Bu | H | H | H | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-24-2** | $^t$Bu | H | H | $CH_3$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-24-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-24-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-24-5** | $^t$Bu | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-24-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-24-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-24-8** | $^t$Bu | * | H | * | $^i$Pr | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00404

Table XIV-25.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-25-1** | Ph | H | H | H | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-25-2** | Ph | H | H | $CH_3$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-25-3** | Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-25-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-25-5** | Ph | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-25-6** | Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-25-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-25-8** | Ph | * | H | * | $^i$Pr | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-26.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-26-1** | p-Me-Ph | H | H | H | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-26-2** | p-Me-Ph | H | H | $CH_3$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-26-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-26-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-26-5** | p-Me-Ph | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-26-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-26-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-26-8** | p-Me-Ph | * | H | * | $^i$Pr | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-27.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-27-1** | p-F-Ph | H | H | H | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-27-2** | p-F-Ph | H | H | $CH_3$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-27-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-27-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-27-5** | p-F-Ph | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-27-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-27-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-27-8** | p-F-Ph | * | H | * | $^i$Pr | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00405

Table XIV-28.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-28-1** | p-Cl-Ph | H | H | H | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-28-2** | p-Cl-Ph | H | H | $CH_3$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-28-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-28-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-28-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-28-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-28-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-28-8** | p-Cl-Ph | * | H | * | $^i$Pr | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-29.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-29-1** | p-Br-Ph | H | H | H | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-29-2** | p-Br-Ph | H | H | $CH_3$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-29-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-29-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-29-5** | p-Br-Ph | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-29-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-29-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-29-8** | p-Br-Ph | * | H | * | $^i$Pr | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-30.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-30-1** | p-I-Ph | H | H | H | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-30-2** | p-I-Ph | H | H | $CH_3$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-30-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-30-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-30-5** | p-I-Ph | H | H | $CH_2Ph$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-30-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-30-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | $N_3$ | F | H | OH | H | H |
| **XIV-30-8** | p-I-Ph | * | H | * | $^i$Pr | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00406

Table XIV-31.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-31-1** | $CH_3$ | H | H | H | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-31-2** | $CH_3$ | H | H | $CH_3$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-31-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-31-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-31-5** | $CH_3$ | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-31-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-31-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-31-8** | $CH_3$ | * | H | * | $^n$Bu | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-32.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-32-1** | Et | H | H | H | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-32-2** | Et | H | H | $CH_3$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-32-3** | Et | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-32-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-32-5** | Et | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-32-6** | Et | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-32-7** | Et | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-32-8** | Et | * | H | * | $^n$Bu | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-33.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-33-1** | $^i$Pr | H | H | H | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-33-2** | $^i$Pr | H | H | $CH_3$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-33-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-33-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-33-5** | $^i$Pr | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-33-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-33-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-33-8** | $^i$Pr | * | H | * | $^n$Bu | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00407

Table XIV-34.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-34-1** | $^t$Bu | H | H | H | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-34-2** | $^t$Bu | H | H | $CH_3$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-34-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-34-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-34-5** | $^t$Bu | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-34-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-34-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-34-8** | $^t$Bu | * | H | * | $^n$Bu | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-35.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-35-1** | Ph | H | H | H | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-35-2** | Ph | H | H | $CH_3$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-35-3** | Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-35-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-35-5** | Ph | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-35-6** | Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-35-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-35-8** | Ph | * | H | * | $^n$Bu | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-36.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-36-1** | p-Me-Ph | H | H | H | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-36-2** | p-Me-Ph | H | H | $CH_3$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-36-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-36-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-36-5** | p-Me-Ph | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-36-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-36-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-36-8** | p-Me-Ph | * | H | * | $^n$Bu | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00408

Table XIV-37.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-37-1** | p-F-Ph | H | H | H | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-37-2** | p-F-Ph | H | H | $CH_3$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-37-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-37-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-37-5** | p-F-Ph | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-37-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-37-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-37-8** | p-F-Ph | * | H | * | $^n$Bu | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-38.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-38-1** | p-Cl-Ph | H | H | H | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-38-2** | p-Cl-Ph | H | H | $CH_3$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-38-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-38-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-38-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-38-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-38-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-38-8** | p-Cl-Ph | * | H | * | $^n$Bu | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-39.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-39-1** | p-Br-Ph | H | H | H | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-39-2** | p-Br-Ph | H | H | $CH_3$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-39-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-39-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-39-5** | p-Br-Ph | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-39-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-39-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-39-8** | p-Br-Ph | * | H | * | $^n$Bu | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00409

Table XIV-40.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-40-1** | p-I-Ph | H | H | H | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-40-2** | p-I-Ph | H | H | $CH_3$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-40-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-40-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-40-5** | p-I-Ph | H | H | $CH_2Ph$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-40-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-40-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | $N_3$ | F | H | OH | H | H |
| **XIV-40-8** | p-I-Ph | * | H | * | $^n$Bu | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-41.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-41-1** | $CH_3$ | H | H | H | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-41-2** | $CH_3$ | H | H | $CH_3$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-41-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-41-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-41-5** | $CH_3$ | H | H | $CH_2Ph$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-41-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-41-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-41-8** | $CH_3$ | * | H | * | Bz | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-42.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-42-1** | Et | H | H | H | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-42-2** | Et | H | H | $CH_3$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-42-3** | Et | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-42-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-42-5** | Et | H | H | $CH_2Ph$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-42-6** | Et | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-42-7** | Et | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-42-8** | Et | * | H | * | Bz | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00410

Table XIV-43.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-43-1** | $^i$Pr | H | H | H | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-43-2** | $^i$Pr | H | H | $CH_3$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-43-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-43-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-43-5** | $^i$Pr | H | H | $CH_2Ph$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-43-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-43-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-43-8** | $^i$Pr | * | H | * | Bz | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-44.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-44-1** | $^t$Bu | H | H | H | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-44-2** | $^t$Bu | H | H | $CH_3$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-44-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-44-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-44-5** | $^t$Bu | H | H | $CH_2Ph$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-44-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-44-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-44-8** | $^t$Bu | * | H | * | Bz | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-45.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-45-1** | Ph | H | H | H | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-45-2** | Ph | H | H | $CH_3$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-45-3** | Ph | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-45-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-45-5** | Ph | H | H | $CH_2Ph$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-45-6** | Ph | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-45-7** | Ph | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-45-8** | Ph | * | H | * | Bz | $N_3$ | F | H | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00411

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-46.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-46-1** | p-Me-Ph | H | H | H | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-46-2** | p-Me-Ph | H | H | $CH_3$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-46-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-46-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-46-5** | p-Me-Ph | H | H | $CH_2Ph$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-46-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-46-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-46-8** | p-Me-Ph | * | H | * | Bz | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-47.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-47-1** | p-F-Ph | H | H | H | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-47-2** | p-F-Ph | H | H | $CH_3$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-47-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-47-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-47-5** | p-F-Ph | H | H | $CH_2Ph$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-47-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-47-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-47-8** | p-F-Ph | * | H | * | Bz | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-48.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-48-1** | p-Cl-Ph | H | H | H | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-48-2** | p-Cl-Ph | H | H | $CH_3$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-48-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-48-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-48-5** | p-Cl-Ph | H | H | $CH_2Ph$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-48-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-48-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | F | H | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00412

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-48-8** | p-Cl-Ph | * | H | * | Bz | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XIV-49.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-49-1** | p-Br-Ph | H | H | H | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-49-2** | p-Br-Ph | H | H | $CH_3$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-49-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-49-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-49-5** | p-Br-Ph | H | H | $CH_2Ph$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-49-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-49-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-49-8** | p-Br-Ph | * | H | * | Bz | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

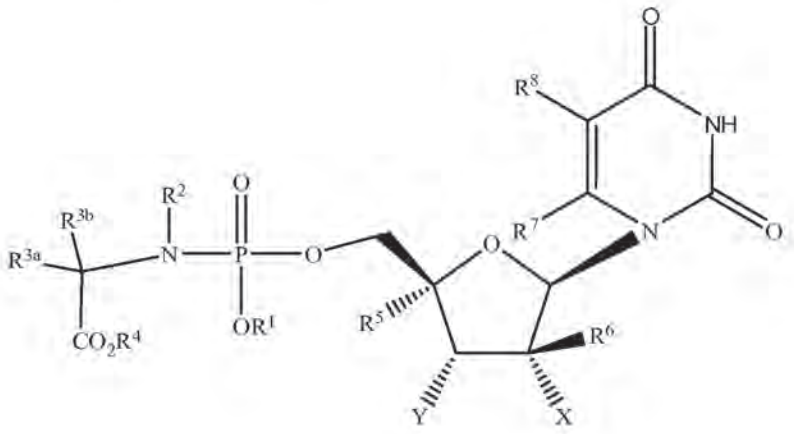
Table XIV-50.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XIV-50-1** | p-I-Ph | H | H | H | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-50-2** | p-I-Ph | H | H | $CH_3$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-50-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-50-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-50-5** | p-I-Ph | H | H | $CH_2Ph$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-50-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-50-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | $N_3$ | F | H | OH | H | H |
| **XIV-50-8** | p-I-Ph | * | H | * | Bz | $N_3$ | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00413



**XV**

Table XV-1.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-1-1** | $CH_3$ | H | H | H | $CH_3$ | F | F | H | OH | H | H |
| **XV-1-2** | $CH_3$ | H | H | $CH_3$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-1-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-1-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-1-5** | $CH_3$ | H | H | $CH_2Ph$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-1-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $CH_3$ | F | F | H | OH | H | H |
| **XV-1-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-1-8** | $CH_3$ | * | H | * | $CH_3$ | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-2.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-2-1** | Et | H | H | H | $CH_3$ | F | F | H | OH | H | H |
| **XV-2-2** | Et | H | H | $CH_3$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-2-3** | Et | H | H | $CH(CH_3)_2$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-2-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-2-5** | Et | H | H | $CH_2Ph$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-2-6** | Et | H | H | $CH_2$-indol-3-yl | $CH_3$ | F | F | H | OH | H | H |
| **XV-2-7** | Et | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-2-8** | Et | * | H | * | $CH_3$ | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00414

Table XV-3.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-3-1** | $^i$Pr | H | H | H | $CH_3$ | F | F | H | OH | H | H |
| **XV-3-2** | $^i$Pr | H | H | $CH_3$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-3-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-3-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-3-5** | $^i$Pr | H | H | $CH_2Ph$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-3-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $CH_3$ | F | F | H | OH | H | H |
| **XV-3-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-3-8** | $^i$Pr | * | H | * | $CH_3$ | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-4.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-4-1** | $^t$Bu | H | H | H | $CH_3$ | F | F | H | OH | H | H |
| **XV-4-2** | $^t$Bu | H | H | $CH_3$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-4-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-4-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-4-5** | $^t$Bu | H | H | $CH_2Ph$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-4-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $CH_3$ | F | F | H | OH | H | H |
| **XV-4-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-4-8** | $^t$Bu | * | H | * | $CH_3$ | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-5.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-5-1** | Ph | H | H | H | $CH_3$ | F | F | H | OH | H | H |
| **XV-5-2** | Ph | H | H | $CH_3$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-5-3** | Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-5-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-5-5** | Ph | H | H | $CH_2Ph$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-5-6** | Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | F | F | H | OH | H | H |
| **XV-5-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-5-8** | Ph | * | H | * | $CH_3$ | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00415

Table XV-6.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-6-1** | p-Me-Ph | H | H | H | $CH_3$ | F | F | H | OH | H | H |
| **XV-6-2** | p-Me-Ph | H | H | $CH_3$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-6-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-6-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-6-5** | p-Me-Ph | H | H | $CH_2Ph$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-6-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | F | F | H | OH | H | H |
| **XV-6-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-6-8** | p-Me-Ph | * | H | * | $CH_3$ | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-7.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-7-1** | p-F-Ph | H | H | H | $CH_3$ | F | F | H | OH | H | H |
| **XV-7-2** | p-F-Ph | H | H | $CH_3$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-7-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-7-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-7-6** | p-F-Ph | H | H | $CH_2Ph$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-7-7** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | F | F | H | OH | H | H |
| **XV-7-8** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-7-20** | p-F-Ph | * | H | * | $CH_3$ | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-8.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-8-1** | p-Cl-Ph | H | H | H | $CH_3$ | F | F | H | OH | H | H |
| **XV-8-2** | p-Cl-Ph | H | H | $CH_3$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-8-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-8-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-8-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-8-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | F | F | H | OH | H | H |
| **XV-8-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-8-8** | p-Cl-Ph | * | H | * | $CH_3$ | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00416

Table XV-9.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-9-1** | p-Br-Ph | H | H | H | $CH_3$ | F | F | H | OH | H | H |
| **XV-9-2** | p-Br-Ph | H | H | $CH_3$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-9-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-9-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-9-6** | p-Br-Ph | H | H | $CH_2Ph$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-9-7** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | F | F | H | OH | H | H |
| **XV-9-8** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-9-20** | p-Br-Ph | * | H | * | $CH_3$ | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-10.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-10-1** | p-I-Ph | H | H | H | $CH_3$ | F | F | H | OH | H | H |
| **XV-10-2** | p-I-Ph | H | H | $CH_3$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-10-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-10-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-10-5** | p-I-Ph | H | H | $CH_2Ph$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-10-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | F | F | H | OH | H | H |
| **XV-10-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | F | F | H | OH | H | H |
| **XV-10-8** | p-I-Ph | * | H | * | $CH_3$ | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-11.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-11-1** | $CH_3$ | H | H | H | Et | F | F | H | OH | H | H |
| **XV-11-2** | $CH_3$ | H | H | $CH_3$ | Et | F | F | H | OH | H | H |
| **XV-11-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Et | F | F | H | OH | H | H |
| **XV-11-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Et | F | F | H | OH | H | H |
| **XV-11-5** | $CH_3$ | H | H | $CH_2Ph$ | Et | F | F | H | OH | H | H |
| **XV-11-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Et | F | F | H | OH | H | H |
| **XV-11-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Et | F | F | H | OH | H | H |
| **XV-11-8** | $CH_3$ | * | H | * | Et | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00417

Table XV-12.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-12-1** | Et | H | H | H | Et | F | F | H | OH | H | H |
| **XV-12-2** | Et | H | H | $CH_3$ | Et | F | F | H | OH | H | H |
| **XV-12-3** | Et | H | H | $CH(CH_3)_2$ | Et | F | F | H | OH | H | H |
| **XV-12-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Et | F | F | H | OH | H | H |
| **XV-12-5** | Et | H | H | $CH_2Ph$ | Et | F | F | H | OH | H | H |
| **XV-12-6** | Et | H | H | $CH_2$-indol-3-yl | Et | F | F | H | OH | H | H |
| **XV-12-7** | Et | H | H | $CH_2CH_2SCH_3$ | Et | F | F | H | OH | H | H |
| **XV-12-8** | Et | * | H | * | Et | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-13.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-13-1** | $^i$Pr | H | H | H | Et | F | F | H | OH | H | H |
| **XV-13-2** | $^i$Pr | H | H | $CH_3$ | Et | F | F | H | OH | H | H |
| **XV-13-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Et | F | F | H | OH | H | H |
| **XV-13-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Et | F | F | H | OH | H | H |
| **XV-13-5** | $^i$Pr | H | H | $CH_2Ph$ | Et | F | F | H | OH | H | H |
| **XV-13-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Et | F | F | H | OH | H | H |
| **XV-13-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Et | F | F | H | OH | H | H |
| **XV-13-8** | $^i$Pr | * | H | * | Et | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-14.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-14-1** | $^t$Bu | H | H | H | Et | F | F | H | OH | H | H |
| **XV-14-2** | $^t$Bu | H | H | $CH_3$ | Et | F | F | H | OH | H | H |
| **XV-14-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | Et | F | F | H | OH | H | H |
| **XV-14-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | Et | F | F | H | OH | H | H |
| **XV-14-5** | $^t$Bu | H | H | $CH_2Ph$ | Et | F | F | H | OH | H | H |
| **XV-14-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | Et | F | F | H | OH | H | H |
| **XV-14-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | Et | F | F | H | OH | H | H |
| **XV-14-8** | $^t$Bu | * | H | * | Et | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00418

Table XV-15.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-15-1** | Ph | H | H | H | Et | F | F | H | OH | H | H |
| **XV-15-2** | Ph | H | H | $CH_3$ | Et | F | F | H | OH | H | H |
| **XV-15-3** | Ph | H | H | $CH(CH_3)_2$ | Et | F | F | H | OH | H | H |
| **XV-15-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | Et | F | F | H | OH | H | H |
| **XV-15-5** | Ph | H | H | $CH_2Ph$ | Et | F | F | H | OH | H | H |
| **XV-15-6** | Ph | H | H | $CH_2$-indol-3-yl | Et | F | F | H | OH | H | H |
| **XV-15-7** | Ph | H | H | $CH_2CH_2SCH_3$ | Et | F | F | H | OH | H | H |
| **XV-15-8** | Ph | * | H | * | Et | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-16.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-16-1** | p-Me-Ph | H | H | H | Et | F | F | H | OH | H | H |
| **XV-16-2** | p-Me-Ph | H | H | $CH_3$ | Et | F | F | H | OH | H | H |
| **XV-16-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | Et | F | F | H | OH | H | H |
| **XV-16-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | F | F | H | OH | H | H |
| **XV-16-5** | p-Me-Ph | H | H | $CH_2Ph$ | Et | F | F | H | OH | H | H |
| **XV-16-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | Et | F | F | H | OH | H | H |
| **XV-16-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | Et | F | F | H | OH | H | H |
| **XV-16-8** | p-Me-Ph | * | H | * | Et | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-17.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-17-1** | p-F-Ph | H | H | H | Et | F | F | H | OH | H | H |
| **XV-17-2** | p-F-Ph | H | H | $CH_3$ | Et | F | F | H | OH | H | H |
| **XV-17-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | Et | F | F | H | OH | H | H |
| **XV-17-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | F | F | H | OH | H | H |
| **XV-17-5** | p-F-Ph | H | H | $CH_2Ph$ | Et | F | F | H | OH | H | H |
| **XV-17-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | Et | F | F | H | OH | H | H |
| **XV-17-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | Et | F | F | H | OH | H | H |
| **XV-17-8** | p-F-Ph | * | H | * | Et | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00419

Table XV-18.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-18-1** | p-Cl-Ph | H | H | H | Et | F | F | H | OH | H | H |
| **XV-18-2** | p-Cl-Ph | H | H | $CH_3$ | Et | F | F | H | OH | H | H |
| **XV-18-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | Et | F | F | H | OH | H | H |
| **XV-18-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | F | F | H | OH | H | H |
| **XV-18-5** | p-Cl-Ph | H | H | $CH_2Ph$ | Et | F | F | H | OH | H | H |
| **XV-18-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | Et | F | F | H | OH | H | H |
| **XV-18-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | Et | F | F | H | OH | H | H |
| **XV-18-8** | p-Cl-Ph | * | H | * | Et | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-19.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-19-1** | p-Br-Ph | H | H | H | Et | F | F | H | OH | H | H |
| **XV-19-2** | p-Br-Ph | H | H | $CH_3$ | Et | F | F | H | OH | H | H |
| **XV-19-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | Et | F | F | H | OH | H | H |
| **XV-19-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | F | F | H | OH | H | H |
| **XV-19-5** | p-Br-Ph | H | H | $CH_2Ph$ | Et | F | F | H | OH | H | H |
| **XV-19-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | Et | F | F | H | OH | H | H |
| **XV-19-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | Et | F | F | H | OH | H | H |
| **XV-19-8** | p-Br-Ph | * | H | * | Et | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-20.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-20-1** | p-I-Ph | H | H | H | Et | F | F | H | OH | H | H |
| **XV-20-2** | p-I-Ph | H | H | $CH_3$ | Et | F | F | H | OH | H | H |
| **XV-20-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | Et | F | F | H | OH | H | H |
| **XV-20-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | Et | F | F | H | OH | H | H |
| **XV-20-5** | p-I-Ph | H | H | $CH_2Ph$ | Et | F | F | H | OH | H | H |
| **XV-20-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | Et | F | F | H | OH | H | H |
| **XV-20-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | Et | F | F | H | OH | H | H |
| **XV-20-8** | p-I-Ph | * | H | * | Et | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00420

Table XV-21.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-21-1** | $CH_3$ | H | H | H | $^i$Pr | F | F | H | OH | H | H |
| **XV-21-2** | $CH_3$ | H | H | $CH_3$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-21-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-21-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-21-5** | $CH_3$ | H | H | $CH_2Ph$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-21-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $^i$Pr | F | F | H | OH | H | H |
| **XV-21-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-21-8** | $CH_3$ | * | H | * | $^i$Pr | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-22.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-22-1** | Et | H | H | H | $^i$Pr | F | F | H | OH | H | H |
| **XV-22-2** | Et | H | H | $CH_3$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-22-3** | Et | H | H | $CH(CH_3)_2$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-22-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-22-5** | Et | H | H | $CH_2Ph$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-22-6** | Et | H | H | $CH_2$-indol-3-yl | $^i$Pr | F | F | H | OH | H | H |
| **XV-22-7** | Et | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-22-8** | Et | * | H | * | $^i$Pr | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-23.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-23-1** | $^i$Pr | H | H | H | $^i$Pr | F | F | H | OH | H | H |
| **XV-23-2** | $^i$Pr | H | H | $CH_3$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-23-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-23-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-23-5** | $^i$Pr | H | H | $CH_2Ph$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-23-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $^i$Pr | F | F | H | OH | H | H |
| **XV-23-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-23-8** | $^i$Pr | * | H | * | $^i$Pr | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00421

Table XV-24.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-24-1** | $^t$Bu | H | H | H | $^i$Pr | F | F | H | OH | H | H |
| **XV-24-2** | $^t$Bu | H | H | $CH_3$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-24-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-24-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-24-5** | $^t$Bu | H | H | $CH_2Ph$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-24-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $^i$Pr | F | F | H | OH | H | H |
| **XV-24-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-24-8** | $^t$Bu | * | H | * | $^i$Pr | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-25.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-25-1** | Ph | H | H | H | $^i$Pr | F | F | H | OH | H | H |
| **XV-25-2** | Ph | H | H | $CH_3$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-25-3** | Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-25-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-25-5** | Ph | H | H | $CH_2Ph$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-25-6** | Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | F | F | H | OH | H | H |
| **XV-25-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-25-8** | Ph | * | H | * | $^i$Pr | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-26.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-26-1** | p-Me-Ph | H | H | H | $^i$Pr | F | F | H | OH | H | H |
| **XV-26-2** | p-Me-Ph | H | H | $CH_3$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-26-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-26-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-26-5** | p-Me-Ph | H | H | $CH_2Ph$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-26-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | F | F | H | OH | H | H |
| **XV-26-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-26-8** | p-Me-Ph | * | H | * | $^i$Pr | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00422

Table XV-27.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-27-1** | p-F-Ph | H | H | H | $^i$Pr | F | F | H | OH | H | H |
| **XV-27-2** | p-F-Ph | H | H | $CH_3$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-27-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-27-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-27-5** | p-F-Ph | H | H | $CH_2Ph$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-27-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | F | F | H | OH | H | H |
| **XV-27-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-27-8** | p-F-Ph | * | H | * | $^i$Pr | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-28.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-28-1** | p-Cl-Ph | H | H | H | $^i$Pr | F | F | H | OH | H | H |
| **XV-28-2** | p-Cl-Ph | H | H | $CH_3$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-28-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-28-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-28-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-28-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | F | F | H | OH | H | H |
| **XV-28-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-28-8** | p-Cl-Ph | * | H | * | $^i$Pr | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-29.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-29-1** | p-Br-Ph | H | H | H | $^i$Pr | F | F | H | OH | H | H |
| **XV-29-2** | p-Br-Ph | H | H | $CH_3$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-29-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-29-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-29-5** | p-Br-Ph | H | H | $CH_2Ph$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-29-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | F | F | H | OH | H | H |
| **XV-29-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-29-8** | p-Br-Ph | * | H | * | $^i$Pr | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00423

Table XV-30.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-30-1** | p-I-Ph | H | H | H | $^i$Pr | F | F | H | OH | H | H |
| **XV-30-2** | p-I-Ph | H | H | $CH_3$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-30-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-30-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-30-5** | p-I-Ph | H | H | $CH_2Ph$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-30-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $^i$Pr | F | F | H | OH | H | H |
| **XV-30-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $^i$Pr | F | F | H | OH | H | H |
| **XV-30-8** | p-I-Ph | * | H | * | $^i$Pr | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-31.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-31-1** | $CH_3$ | H | H | H | $^n$Bu | F | F | H | OH | H | H |
| **XV-31-2** | $CH_3$ | H | H | $CH_3$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-31-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-31-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-31-5** | $CH_3$ | H | H | $CH_2Ph$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-31-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $^n$Bu | F | F | H | OH | H | H |
| **XV-31-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-31-8** | $CH_3$ | * | H | * | $^n$Bu | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-32.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-32-1** | Et | H | H | H | $^n$Bu | F | F | H | OH | H | H |
| **XV-32-2** | Et | H | H | $CH_3$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-32-3** | Et | H | H | $CH(CH_3)_2$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-32-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-32-5** | Et | H | H | $CH_2Ph$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-32-6** | Et | H | H | $CH_2$-indol-3-yl | $^n$Bu | F | F | H | OH | H | H |
| **XV-32-7** | Et | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-32-8** | Et | * | H | * | $^n$Bu | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00424

Table XV-33.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-33-1** | $^i$Pr | H | H | H | $^n$Bu | F | F | H | OH | H | H |
| **XV-33-2** | $^i$Pr | H | H | $CH_3$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-33-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-33-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-33-5** | $^i$Pr | H | H | $CH_2Ph$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-33-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $^n$Bu | F | F | H | OH | H | H |
| **XV-33-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-33-8** | $^i$Pr | * | H | * | $^n$Bu | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-34.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-34-1** | $^t$Bu | H | H | H | $^n$Bu | F | F | H | OH | H | H |
| **XV-34-2** | $^t$Bu | H | H | $CH_3$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-34-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-34-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-34-5** | $^t$Bu | H | H | $CH_2Ph$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-34-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $^n$Bu | F | F | H | OH | H | H |
| **XV-34-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-34-8** | $^t$Bu | * | H | * | $^n$Bu | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-35.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-35-1** | Ph | H | H | H | $^n$Bu | F | F | H | OH | H | H |
| **XV-35-2** | Ph | H | H | $CH_3$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-35-3** | Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-35-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-35-5** | Ph | H | H | $CH_2Ph$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-35-6** | Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | F | F | H | OH | H | H |
| **XV-35-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-35-8** | Ph | * | H | * | $^n$Bu | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00425

Table XV-36.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-36-1** | p-Me-Ph | H | H | H | $^n$Bu | F | F | H | OH | H | H |
| **XV-36-2** | p-Me-Ph | H | H | $CH_3$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-36-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-36-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-36-5** | p-Me-Ph | H | H | $CH_2Ph$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-36-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | F | F | H | OH | H | H |
| **XV-36-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-36-8** | p-Me-Ph | * | H | * | $^n$Bu | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-37.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-37-1** | p-F-Ph | H | H | H | $^n$Bu | F | F | H | OH | H | H |
| **XV-37-2** | p-F-Ph | H | H | $CH_3$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-37-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-37-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-37-5** | p-F-Ph | H | H | $CH_2Ph$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-37-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | F | F | H | OH | H | H |
| **XV-37-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-37-8** | p-F-Ph | * | H | * | $^n$Bu | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-38.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-38-1** | p-Cl-Ph | H | H | H | $^n$Bu | F | F | H | OH | H | H |
| **XV-38-2** | p-Cl-Ph | H | H | $CH_3$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-38-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-38-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-38-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-38-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | F | F | H | OH | H | H |
| **XV-38-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-38-8** | p-Cl-Ph | * | H | * | $^n$Bu | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00426

Table XV-39.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-39-1** | p-Br-Ph | H | H | H | $^n$Bu | F | F | H | OH | H | H |
| **XV-39-2** | p-Br-Ph | H | H | $CH_3$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-39-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-39-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-39-5** | p-Br-Ph | H | H | $CH_2Ph$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-39-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | F | F | H | OH | H | H |
| **XV-39-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-39-8** | p-Br-Ph | * | H | * | $^n$Bu | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-40.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-40-1** | p-I-Ph | H | H | H | $^n$Bu | F | F | H | OH | H | H |
| **XV-40-2** | p-I-Ph | H | H | $CH_3$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-40-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-40-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-40-5** | p-I-Ph | H | H | $CH_2Ph$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-40-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $^n$Bu | F | F | H | OH | H | H |
| **XV-40-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $^n$Bu | F | F | H | OH | H | H |
| **XV-40-8** | p-I-Ph | * | H | * | $^n$Bu | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-41.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-41-1** | $CH_3$ | H | H | H | Bz | F | F | H | OH | H | H |
| **XV-41-2** | $CH_3$ | H | H | $CH_3$ | Bz | F | F | H | OH | H | H |
| **XV-41-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Bz | F | F | H | OH | H | H |
| **XV-41-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Bz | F | F | H | OH | H | H |
| **XV-41-5** | $CH_3$ | H | H | $CH_2Ph$ | Bz | F | F | H | OH | H | H |
| **XV-41-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Bz | F | F | H | OH | H | H |
| **XV-41-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Bz | F | F | H | OH | H | H |
| **XV-41-8** | $CH_3$ | * | H | * | Bz | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00427

Table XV-42.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-42-1** | Et | H | H | H | Bz | F | F | H | OH | H | H |
| **XV-42-2** | Et | H | H | $CH_3$ | Bz | F | F | H | OH | H | H |
| **XV-42-3** | Et | H | H | $CH(CH_3)_2$ | Bz | F | F | H | OH | H | H |
| **XV-42-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Bz | F | F | H | OH | H | H |
| **XV-42-5** | Et | H | H | $CH_2Ph$ | Bz | F | F | H | OH | H | H |
| **XV-42-6** | Et | H | H | $CH_2$-indol-3-yl | Bz | F | F | H | OH | H | H |
| **XV-42-7** | Et | H | H | $CH_2CH_2SCH_3$ | Bz | F | F | H | OH | H | H |
| **XV-42-8** | Et | * | H | * | Bz | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-43.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-43-1** | $^i$Pr | H | H | H | Bz | F | F | H | OH | H | H |
| **XV-43-2** | $^i$Pr | H | H | $CH_3$ | Bz | F | F | H | OH | H | H |
| **XV-43-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Bz | F | F | H | OH | H | H |
| **XV-43-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Bz | F | F | H | OH | H | H |
| **XV-43-5** | $^i$Pr | H | H | $CH_2Ph$ | Bz | F | F | H | OH | H | H |
| **XV-43-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Bz | F | F | H | OH | H | H |
| **XV-43-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Bz | F | F | H | OH | H | H |
| **XV-43-8** | $^i$Pr | * | H | * | Bz | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-44.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-44-1** | $^t$Bu | H | H | H | Bz | F | F | H | OH | H | H |
| **XV-44-2** | $^t$Bu | H | H | $CH_3$ | Bz | F | F | H | OH | H | H |
| **XV-44-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | Bz | F | F | H | OH | H | H |
| **XV-44-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | Bz | F | F | H | OH | H | H |
| **XV-44-5** | $^t$Bu | H | H | $CH_2Ph$ | Bz | F | F | H | OH | H | H |
| **XV-44-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | Bz | F | F | H | OH | H | H |
| **XV-44-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | Bz | F | F | H | OH | H | H |
| **XV-44-8** | $^t$Bu | * | H | * | Bz | F | F | H | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00428

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-45.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-45-1** | Ph | H | H | H | Bz | F | F | H | OH | H | H |
| **XV-45-2** | Ph | H | H | $CH_3$ | Bz | F | F | H | OH | H | H |
| **XV-45-3** | Ph | H | H | $CH(CH_3)_2$ | Bz | F | F | H | OH | H | H |
| **XV-45-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | F | F | H | OH | H | H |
| **XV-45-5** | Ph | H | H | $CH_2Ph$ | Bz | F | F | H | OH | H | H |
| **XV-45-6** | Ph | H | H | $CH_2$-indol-3-yl | Bz | F | F | H | OH | H | H |
| **XV-45-7** | Ph | H | H | $CH_2CH_2SCH_3$ | Bz | F | F | H | OH | H | H |
| **XV-45-8** | Ph | * | H | * | Bz | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-46.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-46-1** | p-Me-Ph | H | H | H | Bz | F | F | H | OH | H | H |
| **XV-46-2** | p-Me-Ph | H | H | $CH_3$ | Bz | F | F | H | OH | H | H |
| **XV-46-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | Bz | F | F | H | OH | H | H |
| **XV-46-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | F | F | H | OH | H | H |
| **XV-46-5** | p-Me-Ph | H | H | $CH_2Ph$ | Bz | F | F | H | OH | H | H |
| **XV-46-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | Bz | F | F | H | OH | H | H |
| **XV-46-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | F | F | H | OH | H | H |
| **XV-46-8** | p-Me-Ph | * | H | * | Bz | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-47.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-47-1** | p-F-Ph | H | H | H | Bz | F | F | H | OH | H | H |
| **XV-47-2** | p-F-Ph | H | H | $CH_3$ | Bz | F | F | H | OH | H | H |
| **XV-47-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | Bz | F | F | H | OH | H | H |
| **XV-47-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | F | F | H | OH | H | H |
| **XV-47-5** | p-F-Ph | H | H | $CH_2Ph$ | Bz | F | F | H | OH | H | H |
| **XV-47-6** | p-F-Ph | H | H | $CH_2$-indol-3-yl | Bz | F | F | H | OH | H | H |
| **XV-47-7** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | F | F | H | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00429

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-47-8** | p-F-Ph | * | H | * | Bz | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-48.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-48-1** | p-Cl-Ph | H | H | H | Bz | F | F | H | OH | H | H |
| **XV-48-2** | p-Cl-Ph | H | H | $CH_3$ | Bz | F | F | H | OH | H | H |
| **XV-48-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | Bz | F | F | H | OH | H | H |
| **XV-48-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | F | F | H | OH | H | H |
| **XV-48-5** | p-Cl-Ph | H | H | $CH_2Ph$ | Bz | F | F | H | OH | H | H |
| **XV-48-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | Bz | F | F | H | OH | H | H |
| **XV-48-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | F | F | H | OH | H | H |
| **XV-48-8** | p-Cl-Ph | * | H | * | Bz | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-49.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-49-1** | p-Br-Ph | H | H | H | Bz | F | F | H | OH | H | H |
| **XV-49-2** | p-Br-Ph | H | H | $CH_3$ | Bz | F | F | H | OH | H | H |
| **XV-49-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | Bz | F | F | H | OH | H | H |
| **XV-49-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | F | F | H | OH | H | H |
| **XV-49-5** | p-Br-Ph | H | H | $CH_2Ph$ | Bz | F | F | H | OH | H | H |
| **XV-49-6** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | Bz | F | F | H | OH | H | H |
| **XV-49-7** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | F | F | H | OH | H | H |
| **XV-49-8** | p-Br-Ph | * | H | * | Bz | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XV-50.

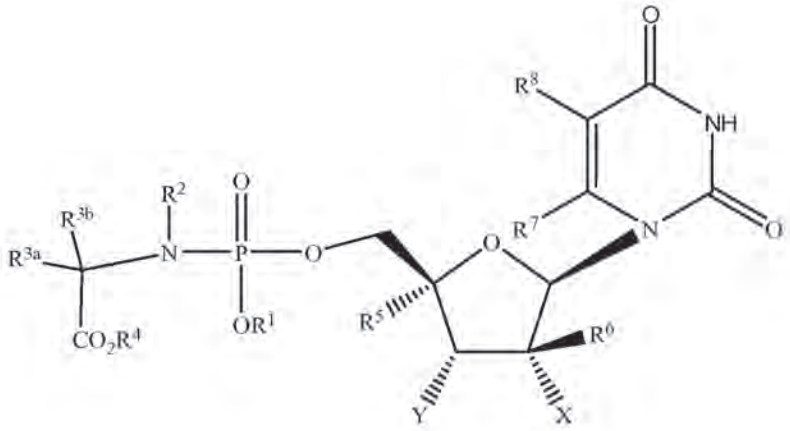
| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-50-1** | p-I-Ph | H | H | H | Bz | F | F | H | OH | H | H |
| **XV-50-2** | p-I-Ph | H | H | $CH_3$ | Bz | F | F | H | OH | H | H |
| **XV-50-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | Bz | F | F | H | OH | H | H |
| **XV-50-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | Bz | F | F | H | OH | H | H |
| **XV-50-5** | p-I-Ph | H | H | $CH_2Ph$ | Bz | F | F | H | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00430

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XV-50-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | Bz | F | F | H | OH | H | H |
| **XV-50-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | Bz | F | F | H | OH | H | H |
| **XV-50-8** | p-I-Ph | * | H | * | Bz | F | F | H | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



**XVI**

Table XVI-1.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XVI-1-1** | $CH_3$ | H | H | H | $CH_3$ | F | F | F | OH | H | H |
| **XVI-1-2** | $CH_3$ | H | H | $CH_3$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-1-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-1-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-1-5** | $CH_3$ | H | H | $CH_2Ph$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-1-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | $CH_3$ | F | F | F | OH | H | H |
| **XVI-1-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-1-8** | $CH_3$ | * | H | * | $CH_3$ | F | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XVI-2.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XVI-2-1** | Et | H | H | H | $CH_3$ | F | F | F | OH | H | H |



Gilead Exhibit 2018
PGR2023-00046 - Page 00431

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XVI-2-2** | Et | H | H | $CH_3$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-2-3** | Et | H | H | $CH(CH_3)_2$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-2-4** | Et | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-2-5** | Et | H | H | $CH_2Ph$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-2-6** | Et | H | H | $CH_2$-indol-3-yl | $CH_3$ | F | F | F | OH | H | H |
| **XVI-2-7** | Et | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-2-8** | Et | * | H | * | $CH_3$ | F | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XVI-3.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XVI-3-1** | $^i$Pr | H | H | H | $CH_3$ | F | F | F | OH | H | H |
| **XVI-3-2** | $^i$Pr | H | H | $CH_3$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-3-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-3-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-3-5** | $^i$Pr | H | H | $CH_2Ph$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-3-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | $CH_3$ | F | F | F | OH | H | H |
| **XVI-3-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-3-8** | $^i$Pr | * | H | * | $CH_3$ | F | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XVI-4.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XVI-4-1** | $^t$Bu | H | H | H | $CH_3$ | F | F | F | OH | H | H |
| **XVI-4-2** | $^t$Bu | H | H | $CH_3$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-4-3** | $^t$Bu | H | H | $CH(CH_3)_2$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-4-4** | $^t$Bu | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-4-5** | $^t$Bu | H | H | $CH_2Ph$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-4-6** | $^t$Bu | H | H | $CH_2$-indol-3-yl | $CH_3$ | F | F | F | OH | H | H |
| **XVI-4-7** | $^t$Bu | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-4-8** | $^t$Bu | * | H | * | $CH_3$ | F | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XVI-5.



Gilead Exhibit 2018
PGR2023-00046 - Page 00432

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XVI-5-1** | Ph | H | H | H | $CH_3$ | F | F | F | OH | H | H |
| **XVI-5-2** | Ph | H | H | $CH_3$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-5-3** | Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-5-4** | Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-5-5** | Ph | H | H | $CH_2Ph$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-5-6** | Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | F | F | F | OH | H | H |
| **XVI-5-7** | Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-5-8** | Ph | * | H | * | $CH_3$ | F | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XVI-6.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XVI-6-1** | p-Me-Ph | H | H | H | $CH_3$ | F | F | F | OH | H | H |
| **XVI-6-2** | p-Me-Ph | H | H | $CH_3$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-6-3** | p-Me-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-6-4** | p-Me-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-6-5** | p-Me-Ph | H | H | $CH_2Ph$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-6-6** | p-Me-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | F | F | F | OH | H | H |
| **XVI-6-7** | p-Me-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-6-8** | p-Me-Ph | * | H | * | $CH_3$ | F | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XVI-7.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XVI-7-1** | p-F-Ph | H | H | H | $CH_3$ | F | F | F | OH | H | H |
| **XVI-7-2** | p-F-Ph | H | H | $CH_3$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-7-3** | p-F-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-7-4** | p-F-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-7-6** | p-F-Ph | H | H | $CH_2Ph$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-7-7** | p-F-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | F | F | F | OH | H | H |
| **XVI-7-8** | p-F-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-7-20** | p-F-Ph | * | H | * | $CH_3$ | F | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00433

Table XVI-8.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XVI-8-1** | p-Cl-Ph | H | H | H | $CH_3$ | F | F | F | OH | H | H |
| **XVI-8-2** | p-Cl-Ph | H | H | $CH_3$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-8-3** | p-Cl-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-8-4** | p-Cl-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-8-5** | p-Cl-Ph | H | H | $CH_2Ph$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-8-6** | p-Cl-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | F | F | F | OH | H | H |
| **XVI-8-7** | p-Cl-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-8-8** | p-Cl-Ph | * | H | * | $CH_3$ | F | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XVI-9.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XVI-9-1** | p-Br-Ph | H | H | H | $CH_3$ | F | F | F | OH | H | H |
| **XVI-9-2** | p-Br-Ph | H | H | $CH_3$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-9-3** | p-Br-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-9-4** | p-Br-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-9-6** | p-Br-Ph | H | H | $CH_2Ph$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-9-7** | p-Br-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | F | F | F | OH | H | H |
| **XVI-9-8** | p-Br-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-9-20** | p-Br-Ph | * | H | * | $CH_3$ | F | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XVI-10.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XVI-10-1** | p-I-Ph | H | H | H | $CH_3$ | F | F | F | OH | H | H |
| **XVI-10-2** | p-I-Ph | H | H | $CH_3$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-10-3** | p-I-Ph | H | H | $CH(CH_3)_2$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-10-4** | p-I-Ph | H | H | $CH_2CH(CH_3)_2$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-10-5** | p-I-Ph | H | H | $CH_2Ph$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-10-6** | p-I-Ph | H | H | $CH_2$-indol-3-yl | $CH_3$ | F | F | F | OH | H | H |
| **XVI-10-7** | p-I-Ph | H | H | $CH_2CH_2SCH_3$ | $CH_3$ | F | F | F | OH | H | H |
| **XVI-10-8** | p-I-Ph | * | H | * | $CH_3$ | F | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00434

Table XVI-11.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XVI-11-1** | $CH_3$ | H | H | H | Et | F | F | F | OH | H | H |
| **XVI-11-2** | $CH_3$ | H | H | $CH_3$ | Et | F | F | F | OH | H | H |
| **XVI-11-3** | $CH_3$ | H | H | $CH(CH_3)_2$ | Et | F | F | F | OH | H | H |
| **XVI-11-4** | $CH_3$ | H | H | $CH_2CH(CH_3)_2$ | Et | F | F | F | OH | H | H |
| **XVI-11-5** | $CH_3$ | H | H | $CH_2Ph$ | Et | F | F | F | OH | H | H |
| **XVI-11-6** | $CH_3$ | H | H | $CH_2$-indol-3-yl | Et | F | F | F | OH | H | H |
| **XVI-11-7** | $CH_3$ | H | H | $CH_2CH_2SCH_3$ | Et | F | F | F | OH | H | H |
| **XVI-11-8** | $CH_3$ | * | H | * | Et | F | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XVI-12.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XVI-12-1** | Et | H | H | H | Et | F | F | F | OH | H | H |
| **XVI-12-2** | Et | H | H | $CH_3$ | Et | F | F | F | OH | H | H |
| **XVI-12-3** | Et | H | H | $CH(CH_3)_2$ | Et | F | F | F | OH | H | H |
| **XVI-12-4** | Et | H | H | $CH_2CH(CH_3)_2$ | Et | F | F | F | OH | H | H |
| **XVI-12-5** | Et | H | H | $CH_2Ph$ | Et | F | F | F | OH | H | H |
| **XVI-12-6** | Et | H | H | $CH_2$-indol-3-yl | Et | F | F | F | OH | H | H |
| **XVI-12-7** | Et | H | H | $CH_2CH_2SCH_3$ | Et | F | F | F | OH | H | H |
| **XVI-12-8** | Et | * | H | * | Et | F | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.

Table XVI-13.

| № | $R^1$ | $R^2$ | $R^{3a}$ | $R^{3b}$ | $R^4$ | $R^5$ | $R^6$ | X | Y | $R^7$ | $R^8$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **XVI-13-1** | $^i$Pr | H | H | H | Et | F | F | F | OH | H | H |
| **XVI-13-2** | $^i$Pr | H | H | $CH_3$ | Et | F | F | F | OH | H | H |
| **XVI-13-3** | $^i$Pr | H | H | $CH(CH_3)_2$ | Et | F | F | F | OH | H | H |
| **XVI-13-4** | $^i$Pr | H | H | $CH_2CH(CH_3)_2$ | Et | F | F | F | OH | H | H |
| **XVI-13-5** | $^i$Pr | H | H | $CH_2Ph$ | Et | F | F | F | OH | H | H |
| **XVI-13-6** | $^i$Pr | H | H | $CH_2$-indol-3-yl | Et | F | F | F | OH | H | H |
| **XVI-13-7** | $^i$Pr | H | H | $CH_2CH_2SCH_3$ | Et | F | F | F | OH | H | H |
| **XVI-13-8** | $^i$Pr | * | H | * | Et | F | F | F | OH | H | H |

*$R^2$ and $R^{3b}$ joined together by $(CH_2)_3$ to form five-membered ring.



Gilead Exhibit 2018
PGR2023-00046 - Page 00435