

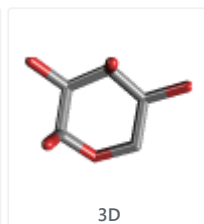
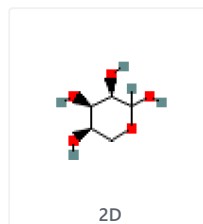
COMPOUND SUMMARY

D-Ribose

PubChem CID

10975657

Structure

[Find Similar Structures](#)

Molecular Formula

C₅H₁₀O₅

Synonyms

D-Rib
D-Ribopyranose
D-Ribopyranoside
D-Ribose
Rib[More...](#)

Molecular Weight

150.13

Dates

Modify	Create
2022-11-12	2006-10-26

D-ribopyranose is a D-ribose and the D-enantiomer of ribopyranose. It is a ribopyranose and a D-ribose. It is an enantiomer of a [L-ribopyranose](#).

[► ChEBI](#)

D-Ribose is a natural product found in [Tamarix aphylla](#), [Streptomyces sporangiiformans](#), and [Cannabis sativa](#) with data available.

[► LOTUS - the natural products occurrence database](#)

D-Ribose is a metabolite found in or produced by [Saccharomyces cerevisiae](#).

► [Yeast Metabolome Database \(YMDB\)](#)

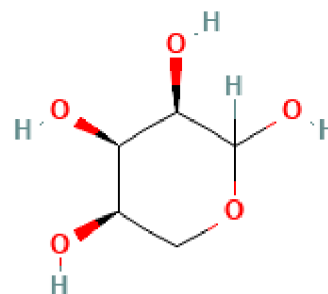
1 Structures



1.1 2D Structure



Chemical Structure
Depiction



► PubChem

1.2 3D Conformer



► PubChem

IUPAC Condensed	Rib
LINUCS	<chem>[D-Ribp]</chem>
IUPAC	D-ribo-pentopyranose
WURCS	WURCS=2.0/1,1,0/[a222h-1x_1-5]/1/

► PubChem

Permethyated Mass	206.11542378
Monosaccharide Composition	Xxx ₁

► GlyGen

3 Names and Identifiers



3.1 Computed Descriptors



3.1.1 IUPAC Name



(3R,4R,5R)-oxane-2,3,4,5-tetrol

Computed by Lexichem TK 2.7.0 (PubChem release 2021.05.07)

► [PubChem](#)

3.1.2 InChI



InChI=1S/C5H10O5/c6-2-1-10-5(9)4(8)3(2)7/h2-9H,1H2/t2-,3-,4-,5-/m1/s1

Computed by InChI 1.0.6 (PubChem release 2021.05.07)

► [PubChem](#)

3.1.3 InChIKey



SRBFZHDQGSBBOR-SOOFDHNKSA-N

Computed by InChI 1.0.6 (PubChem release 2021.05.07)

► [PubChem](#)

3.1.4 Canonical SMILES



C1C(C(C(C(O1)O)O)O)O

Computed by OEChem 2.3.0 (PubChem release 2021.05.07)

► [PubChem](#)

3.1.5 Isomeric SMILES



C1[C@H]([C@H]([C@H](C(O1)O)O)O)O

Computed by OEChem 2.3.0 (PubChem release 2021.05.07)

► [PubChem](#)

3.2 Molecular Formula



C5H10O5

Computed by PubChem 2.1 (PubChem release 2021.05.07)

► [PubChem](#)

3.3 Other Identifiers



3.3.1 CAS



[10257-32-6](#)

► [CAS Common Chemistry](#); [ChemIDplus](#); [EPA DSSTox](#); [European Chemicals Agency \(ECHA\)](#)

50-69-1

► [DrugBank](#)

3.3.2 European Community (EC) Number



[700-481-3](#)

► [European Chemicals Agency \(ECHA\)](#)

3.3.3 DSSTox Substance ID



[DTXSID70450356](#)

► [EPA DSSTox](#)

3.3.4 Wikidata



[Q27120754](#)

► [Wikidata](#)

3.3.5 GlyTouCan Accession



G75380KK

► GlyCosmos Glycoscience Portal; GlyTouCan Project

3.4 Synonyms



3.4.1 MeSH Entry Terms



D Ribose
D-Ribose
Ribose

► Medical Subject Headings (MeSH)

3.4.2 Depositor-Supplied Synonyms



D-Rib	(3R,4R,5R)-tetrahydro-2H-pyran-2,3,4,5-tetrol
D-Ribopyranose	Ribiose
D-Ribopyranoside	EC 700-481-3
D-Ribose	SCHEMBL339948
Rib	CHEBI:47006
Ribopyranose	DTXSID70450356
Ribopyranoside	C21057
Ribose	Q27120754
10257-32-6	WURCS=2.0/1,1,0/[a222h-1x_1-5]/1/
Ribopyranose (7Cl,8Cl,9Cl)	
(3R,4R,5R)-Oxane-2,3,4,5-tetrol	
(3R,4R,5R)-Tetrahydro-2H-pyran-2,3,4,5-tetraol	
10257-33-7	

► PubChem

4 Chemical and Physical Properties

4.1 Computed Properties

Property Name	Property Value	Reference
Molecular Weight	150.13	Computed by PubChem 2.1 (PubChem release 2021.05.07)
XLogP3-AA	-2.5	Computed by XLogP3 3.0 (PubChem release 2021.05.07)
Hydrogen Bond Donor Count	4	Computed by Cactvs 3.4.8.18 (PubChem release 2021.05.07)
Hydrogen Bond Acceptor Count	5	Computed by Cactvs 3.4.8.18 (PubChem release 2021.05.07)
Rotatable Bond Count	0	Computed by Cactvs 3.4.8.18 (PubChem release 2021.05.07)
Exact Mass	150.05282342	Computed by PubChem 2.1 (PubChem release 2021.05.07)
Monoisotopic Mass	150.05282342	Computed by PubChem 2.1 (PubChem release 2021.05.07)
Topological Polar Surface Area	90.2 Å²	Computed by Cactvs 3.4.8.18 (PubChem release 2021.05.07)
Heavy Atom Count	10	Computed by PubChem
Formal Charge	0	Computed by PubChem
Complexity	117	Computed by Cactvs 3.4.8.18 (PubChem release 2021.05.07)
Isotope Atom Count	0	Computed by PubChem
Defined Atom Stereocenter Count	3	Computed by PubChem
Undefined Atom Stereocenter Count	1	Computed by PubChem
Defined Bond Stereocenter Count	0	Computed by PubChem
Undefined Bond Stereocenter Count	0	Computed by PubChem
Covalently-Bonded Unit Count	1	Computed by PubChem
Compound Is Canonicalized	Yes	Computed by PubChem (release 2021.05.07)

► PubChem

4.2 Experimental Properties

4.2.1 Collision Cross Section

135.3 Å² [M+Na]⁺ [CCS Type: DT, Method: single field calibrated with Agilent tune mix (Agilent)]

<https://pubs.acs.org/doi/abs/10.1021/acs.analchem.6b03091>

► CCSbase

135.2 Å² [M+Na]⁺ [CCS Type: DT, Method: single field calibrated with ESI Low Concentration Tuning Mix (Agilent)]

<https://pubs.acs.org/doi/abs/10.1021/acs.analchem.8b04322>

► CCSbase

5 Spectral Information

5.1 Mass Spectrometry

5.1.1 LC-MS

Showing 2 of 5 [View More](#) 

MoNA ID	FiehnHILIC001489
MS Category	Experimental
MS Type	LC-MS
MS Level	MS2
Precursor Type	[M-H]-
Precursor m/z	149.0447
Instrument	Thermo Q Exactive HF
Instrument Type	LC-ESI-QFT
Ionization Mode	negative
Collision Energy	HCD (NCE 20-30-40%)
Top 5 Peaks	59.01258 100 71.01237 46.88 148.90872 43.20 89.02288 9.99 130.89479 9.63
SPLASH	splash10-0a4i-9300000000-5d6c40433d32873303f4
Thumbnail	

Submitter	Megan Showalter, University of California, Davis
-----------	--

► [MassBank of North America \(MoNA\)](#)

MoNA ID	FiehnHILIC001490
MS Category	Experimental
MS Type	LC-MS
MS Level	MS2
Precursor Type	[M-H]-
Precursor m/z	149.0447
Instrument	Thermo Q Exactive HF
Instrument Type	LC-ESI-QFT
Ionization Mode	negative
Collision Energy	HCD (NCE 20-30-40%)
Top 5 Peaks	59.0126 100 148.90904 64.48 71.01237 49.01 89.0231 12.65 100.73466 8.02
SPLASH	splash10-0a4j-9400000000-686f05ef692e6dafe9e1

Thumbnail	
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Submitter	Megan Showalter, University of California, Davis
-----------	--

▶ [MassBank of North America \(MoNA\)](#)

6 Related Records

6.1 Related Compounds with Annotation

► PubChem

6.2 Related Compounds

Same Connectivity	93 Records
Same Stereo	14 Records
Same Isotope	62 Records
Same Parent, Connectivity	117 Records
Same Parent, Stereo	14 Records
Same Parent, Isotope	86 Records
Mixtures, Components, and Neutralized Forms	10 Records
Similar Compounds	1,410 Records
Similar Conformers	1,906 Records

► PubChem

6.3 Substances

6.3.1 Related Substances

All	69 Records
Same	57 Records
Mixture	12 Records

 PubChem

6.3.2 Substances by Category

 PubChem

6.4 Entrez Crosslinks

PubMed	4 Records
Taxonomy	3 Records
Gene	9 Records

► PubChem

7 Chemical Vendors



► PubChem

8 Drug and Medication Information



8.1 Clinical Trials



8.1.1 ClinicalTrials.gov



► ClinicalTrials.gov

9 Food Additives and Ingredients

9.1 FDA Generally Recognized as Safe - GRAS Notices

Substance	D-Ribose
GRN Number	243
Intended Use	Ingredient in several food categories provided that D-ribose is used in conjunction with an additional carbohydrate energy source
FDA Letter	FDA has no questions
Notifier	Bioenergy, Inc.
Date of Filing	Feb 8, 2008
Date of Closure	Nov 10, 2008

► [FDA Center for Food Safety and Applied Nutrition \(CFSAN\)](#)

Substance	D-Ribose
GRN Number	100
Intended Use	Use in food in general, including meat and poultry products, for multiple technical effects
FDA Letter	Notice does not provide a basis for a GRAS determination
Notifier	Bioenergy, Inc.
Date of Filing	Mar 14, 2002
Date of Closure	Sep 3, 2002

► [FDA Center for Food Safety and Applied Nutrition \(CFSAN\)](#)

10 Associated Disorders and Diseases



► [Comparative Toxicogenomics Database \(CTD\)](#)

11 Literature



11.1 Coronavirus Studies



► PubChem

11.2 NLM Curated PubMed Citations



► PubChem

11.3 Springer Nature References



► Springer Nature

11.4 Thieme References



► Thieme Chemistry

11.5 Depositor Provided PubMed Citations



► PubChem

11.6 General References



Tromans et al. A biomimetic receptor for glucose. Nature Chemistry, doi: 10.1038/s41557-018-0155-z, published online 12 November 2018

► Nature Chemistry

11.7 Chemical Co-Occurrences in Literature



► PubChem

11.8 Chemical-Gene Co-Occurrences in Literature



► PubChem

11.9 Chemical-Disease Co-Occurrences in Literature



► PubChem

12 Patents



12.1 Depositor-Supplied Patent Identifiers



► PubChem

[Link to all deposited patent identifiers](#)

► PubChem

12.2 WIPO PATENTSCOPE



Patents are available for this chemical structure:

<https://patentscope.wipo.int/search/en/result.jsf?inchikey=SRBFZHDQGSBBOR-SOOFDHNKSA-N>

► PATENTSCOPE (WIPO)

13 Interactions and Pathways



13.1 Chemical-Target Interactions



► [Comparative Toxicogenomics Database \(CTD\)](#)

14 Taxonomy



Ribose is a metabolite found in or produced by [Escherichia coli \(strain K12, MG1655\)](#).

► [E. coli Metabolome Database \(ECMDB\)](#)

Zebrafish Pathway Metabolite MetFrag Local CSV (Beta) | [DOI:10.5281/zenodo.3457553](#)

► [ECI Group, LCSB, University of Luxembourg](#)

The LOTUS Initiative for Open Natural Products Research: frozen dataset union wikidata (with metadata) | [DOI:10.5281/zenodo.5794106](https://doi.org/10.5281/zenodo.5794106)

► [LOTUS - the natural products occurrence database](#)

D-Ribose is a metabolite found in or produced by [Saccharomyces cerevisiae](#).

► [Yeast Metabolome Database \(YMDB\)](#)

15 Classification



15.1 MeSH Tree



► Medical Subject Headings (MeSH)

15.2 ChEBI Ontology



► ChEBI

15.3 ChemIDplus



► ChemIDplus

15.4 NORMAN Suspect List Exchange Classification



► NORMAN Suspect List Exchange

15.5 CCSBase Classification



► CCSbase

15.6 EPA DSSTox Classification



► EPA DSSTox

15.7 LOTUS Tree



► LOTUS - the natural products occurrence database

16 Information Sources



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1. CAS Common Chemistry

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D-Ribopyranose

https://commonchemistry.cas.org/detail?cas_rn=10257-32-6

2. ChemIDplus

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<https://www.nlm.nih.gov/copyright.html>

D-Ribopyranose

<https://chem.nlm.nih.gov/chemidplus/sid/0010257326>

ChemIDplus Chemical Information Classification

<https://chem.nlm.nih.gov/chemidplus/>

3. DrugBank

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https://www.drugbank.ca/legal/terms_of_use

Ribose

<https://www.drugbank.ca/drugs/DB15073>

4. EPA DSSTox

LICENSE

<https://www.epa.gov/privacy/privacy-act-laws-policies-and-resources>

D-ribose

<https://comptox.epa.gov/dashboard/DTXSID70450356>

CompTox Chemicals Dashboard Chemical Lists

<https://comptox.epa.gov/dashboard/chemical-lists/>

5. European Chemicals Agency (ECHA)

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<https://echa.europa.eu/web/guest/legal-notice>

D-Ribopyranose

<https://echa.europa.eu/substance-information/-/substanceinfo/100.225.002>

6. **CCSbase**

D-Ribose

CCSbase Classification

<https://ccsbase.net/>

7. **ChEBI**

D-ribopyranose

<http://www.ebi.ac.uk/chebi/searchId.do?chebiId=ChEBI:47006>

ChEBI Ontology

<http://www.ebi.ac.uk/chebi/userManualForward.do#ChEBI%20Ontology>

8. **E. coli Metabolome Database (ECMDB)**

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ECMDB is offered to the public as a freely available resource.

<https://ecmdb.ca/citations>

<https://ecmdb.ca/compounds/M2MDB000116>

9. **LOTUS - the natural products occurrence database**

LICENSE

The code for LOTUS is released under the GNU General Public License v3.0.

<https://lotus.nprod.net/>

LOTUS Tree

<https://lotus.naturalproducts.net/>

10. **West Coast Metabolomics Center-UC Davis**

Ribose

11. **Yeast Metabolome Database (YMDB)**

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YMDB is offered to the public as a freely available resource.

<http://www.ymdb.ca/downloads>

<http://www.ymdb.ca/compounds/YMDB00253>

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<https://clinicaltrials.gov/ct2/about-site/terms-conditions#Use>

<https://clinicaltrials.gov/>

13. **Comparative Toxicogenomics Database (CTD)**

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<http://ctdbase.org/about/legal.jsp>

<https://ctdbase.org/detail.go?type=chem&acc=D012266>

14. **ECI Group, LCSB, University of Luxembourg**

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15. **FDA Center for Food Safety and Applied Nutrition (CFSAN)**

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<https://www.fda.gov/about-fda/about-website/website-policies#linking>

D-Ribose

<https://www.cfsanappsexternal.fda.gov/scripts/fdcc/?set=GRASNotices&id=243>

D-Ribose

<https://www.cfsanappsexternal.fda.gov/scripts/fdcc/?set=GRASNotices&id=100>

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<https://glycosmos.org/glycans/show/G75380KK>

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<https://glytoucan.org/Structures/Glycans/G75380KK>

18. **GlyGen**

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<https://www.glygen.org/license.html>

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<https://www.glygen.org/glycan/G75380KK>

19. **MassBank of North America (MoNA)**

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<https://mona.fiehnlab.ucdavis.edu/documentation/license>

Ribose

<https://mona.fiehnlab.ucdavis.edu/spectra/browse?query=compound.metaData%3Dq%3D%27name%3D%3D%22InChIKey%22%20and%20value%3D%3D%22SRBFZHDQGSBBOR-SOOFDHNKSA-N%22%27>

20. Nature Chemistry

<https://pubchem.ncbi.nlm.nih.gov/substance/375892340>

21. PubChem

<https://pubchem.ncbi.nlm.nih.gov>

22. Springer Nature

<https://pubchem.ncbi.nlm.nih.gov/substance/?source=15745&sourceid=10043502-138639178>

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D-ribopyranose

<https://www.wikidata.org/wiki/Q27120754>

25. Medical Subject Headings (MeSH)

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Ribose

<https://www.ncbi.nlm.nih.gov/mesh/68012266>

MeSH Tree

<http://www.nlm.nih.gov/mesh/meshhome.html>

26. NORMAN Suspect List Exchange

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NORMAN Suspect List Exchange Classification

<https://www.norman-network.com/nds/SLE/>

27. PATENTSCOPE (WIPO)

<https://pubchem.ncbi.nlm.nih.gov/compound/10975657>

SID 403525274

<https://pubchem.ncbi.nlm.nih.gov/substance/403525274>