

CURRICULUM VITAE

Date Prepared: December 14, 2022

Name: DAN H. BAROUCH

Office Address: E / CLS – 1043
Director, Center for Virology and Vaccine Research
Department of Medicine
Beth Israel Deaconess Medical Center
330 Brookline Avenue
Boston, MA 02215

Home Address: 115 Willard Street
Newton, MA 02461

Work Phone: 617-735-4485

Work E-Mail: dbarouch@bidmc.harvard.edu

Work FAX: 617-735-4566

Place of Birth: Gottingen, Germany

Education

9/1989-6/1993	A.B.	Biochemistry	Harvard University
	<i>summa cum laude</i>		
6/1993-9/1995	D.Phil.	Immunology	Oxford University
	Research Advisor: Andrew J. McMichael, M.D.		
9/1995-6/1999	M.D.	Medicine	Harvard Medical School
	<i>summa cum laude</i>		

Postdoctoral Training

6/1996-7/2002	Fellow	Virology	Beth Israel Deaconess Medical Center
	Research Advisor: Norman L. Letvin, M.D.		
7/1999-7/2000	Intern	Medicine	Massachusetts General Hospital
7/2000-7/2001	Resident	Medicine	Massachusetts General Hospital
7/2001-7/2004	Fellow	Infectious Diseases	Massachusetts General Hospital Brigham and Women's Hospital

Faculty Academic Appointments

7/2002-8/2004	Instructor in Medicine	Harvard Medical School
8/2004-8/2006	Assistant Professor of Medicine	Harvard Medical School
8/2006-10/2010	Associate Professor of Medicine	Harvard Medical School
10/2010-3/2020	Professor of Medicine	Harvard Medical School
9/2015-10/2018	Professor of Microbiology and Immunobiology	Harvard Medical School
10/2018-	Professor of Immunology	Harvard Medical School
3/2020-	William Bosworth Castle Professor of Medicine	Harvard Medical School

Appointments at Hospitals / Affiliated Institutions

7/2001-7/2004	Fellow in Medicine Department of Medicine	Massachusetts General Hospital
7/2004-	Associate Physician in Medicine Division of Infectious Diseases	Brigham and Women's Hospital
7/2004-	Associate Physician in Medicine Division of Infectious Diseases	Dana-Farber Cancer Institute
7/2004-	Staff Physician in Medicine Division of Infectious Diseases	Beth Israel Deaconess Medical Center
7/2004-6/2009	Faculty Division of Viral Pathogenesis	Beth Israel Deaconess Medical Center
1/2009-	Faculty and Steering Committee Ragon Institute of MGH, MIT, and Harvard	Massachusetts General Hospital
6/2009-8/2012	Division Chief Division of Vaccine Research	Beth Israel Deaconess Medical Center
4/2012-2/2015	Associate Immunologist	Massachusetts General Hospital
8/2012-	Founder and Director Center for Virology and Vaccine Research	Beth Israel Deaconess Medical Center
2/2015-	Immunologist	Massachusetts General Hospital

2/2015-2/2019

Research Associate

CAPRISA, Durban, South Africa

Major Administrative Leadership Positions

Local

- | | |
|-----------|--|
| 2006 | Organizer, 6 th Annual Harvard Medical School Center for AIDS Research (CFAR) Symposium on HIV Vaccines: Key Immunologic Challenges |
| 2009-2012 | Chief, Division of Vaccine Research, Department of Medicine, Beth Israel Deaconess Medical Center |
| 2010 | Co-Organizer, 10 th Annual Harvard Medical School Center for AIDS Research (CFAR) Symposium on Innate Immunity in HIV Pathogenesis and Vaccine Design |
| 2011 | Organizer, Harvard Medical School Center for AIDS Research (CFAR) and Ragon Institute Symposium on HIV Prevention |
| 2012- | Director, Center for Virology and Vaccine Research, Department of Medicine, Beth Israel Deaconess Medical Center |
| 2020- | Steering Committee and Vaccine Working Group Co-Leader, Massachusetts Consortium for Pathogen Readiness (MassCPR) |

International

- | | |
|------|--|
| 2007 | Scientific Organizing Committee, AIDS Vaccine 2007, Seattle, WA |
| 2008 | Conference Chair, Keystone Symposium on HIV Vaccines: Progress and Prospects, Banff, Canada |
| 2008 | Scientific Organizing Committee, AIDS Vaccine 2008, Cape Town, South Africa |
| 2009 | Scientific Organizing Committee, AIDS Vaccine 2009, Paris, France |
| 2010 | Scientific Organizing Committee, AIDS Vaccine 2010, Atlanta, GA |
| 2011 | Scientific Organizing Committee, AIDS Vaccine 2011, Bangkok, Thailand |
| 2012 | Conference Chair, AIDS Vaccine 2012, Boston, MA |
| 2012 | Conference Co-Chair, Keystone Symposium on Immunologic Mechanisms of Vaccination, Ottawa, Canada |
| 2013 | Scientific Organizing Committee, AIDS Vaccine 2013, Barcelona, Spain |

2014	Scientific Organizing Committee, Research for Prevention Conference: AIDS Vaccine, Microbicide, and ARV-Based Prevention Science 2014 (HIV R4P), Cape Town, South Africa
2016	Scientific Organizing Committee, Research for Prevention Conference: AIDS Vaccine, Microbicide, and ARV-Based Prevention Science 2016 (HIV R4P), Chicago, IL
2020	Co-Chair, CoVPN 3502 / REGN 2069, Phase 3 Regeneron Antibodies for Prevention of COVID-19 in Household Contacts (REACH) Study
2022-	Steering Committee, National Academies of Sciences, Engineering, and Medicine Forum on Microbiobial Threats, Washington, DC

Committee Service

Local

2005-	Harvard University Center for AIDS Research (CFAR)
2005-	Director, Vaccine Program
2005-	Member, Executive Committee
2007-	Committee on Virology, Harvard Medical School
2007-	Faculty
2007-	Ph.D. Qualifying Examination Committees
2008-	Ph.D. Dissertation Examination Committees
2010-	Ph.D. Dissertation Advisory Committees
2009-	Ragon Institute of MGH, MIT, and Harvard
2009-	Director, Vaccine Program
2009-	Member, Scientific Steering Committee
2011-2012	Research Vision Strategy Committee, Beth Israel Deaconess Medical Center
2011-	Committee on Immunology, Harvard Medical School
2011-2012	Cancer Vaccine Project Scientific Advisory Board, Broad Institute
2012-	Ad Hoc Professor Promotion Committees, Harvard Medical School
2015-	Multidisciplinary T32 AI007387 AIDS Training Grant, Harvard Medical School
2015-2019	Executive Committee
2019-	Associate Program Director
2018-	Subcommittee on Admissions, Harvard-MIT M.D./Ph.D. Program, Harvard Medical School
2018-	Advisory Board, Dana Farber / Harvard Cancer Center DNA Resource Core

2018- Governance Committee, Immunotherapy Institute, Beth Israel Deaconess Medical Center

2020- Member, Harvard Medical School Standing Committee on Promotions, Reappointments and Appointments (P&R)

2020- Senior Common Room, Pforzheimer House, Harvard College

2021- Admissions Committee, Department of Immunology, Harvard Medical School

2021- Faculty Reviewer, Admissions Committee, Harvard College

2021- Member, Harvard Medical School Initiative for RNA Medicine (HIRM)

International

2007- HIV Vaccine Trials Network (HVTN)
2007-2010 Member, Concept Working Group
2008, 2017 Member, External Advisory Board
2012-2019 Member, Scientific Governance Committee
2019- Member, Executive Management Team
2020- Co-Principal Investigator

2008 Program for Appropriate Technology in Health (PATH)
Science and Technology Working Group

2008-2010 Global HIV Vaccine Enterprise
2008-2010 Co-Chair, Young and Early Career Investigator Committee
2009 Member, Scientific Strategic Plan Working Group
2009 Member, Strategic Advisory Board

2009- LANL HIV Immunology/Vaccine Database
Editorial Board

2012 Marie Curie ADVance Training Network
Supervisory Board

2012 NIH/NIAID P01AI088564 (PI: Shaw, George M.)
Scientific Advisory Board

2014- NIH/NIAID IMPAACT Network
HIV Cure Scientific Committee

2014-2015 International AIDS Society HIV Cure (IAS-Cure)
International Scientific Working Group

2015 NIH/NIAID ACTG Network

	HIV Reservoirs and Viral Eradication Transformative Science Group (Cure TSG)
2017	University of California San Francisco (UCSF) Center for AIDS Research (CFAR) External Advisory Board
2018-	NIH/NIAID ACTG Network Antiretroviral Strategies Transformative Science Group (ARTS TSG)
2018-	Coalition for Epidemic Preparedness Innovations (CEPI) Systems Immunology Task Force
2020-	World Health Organization (WHO) COVID-19 Animal Models Working Group
2020-	COVID-19 Prevention Network (CoVPN) 2020- Member, Executive Management Team
2020-	NIH/NCI Serological Sciences Network (SeroNet) Steering Committee
2021-	Stanford Center for Human Systems Immunology Scientific Advisory Board
2022-	National Institute for Infectious Diseases, Lazzaro Spallanzani, Rome, Italy Scientific Advisory Board
2022-	COVID-19 Vaccine Communication and Education Network (CoVAXCEN), Northwestern University Steering Committee
2022-	Coronavirus Vaccines Roadmap (CVR), CIDRAP, University of Minnesota Task Force

Professional Societies

1995-	Massachusetts Medical Society (MMS)
1995-	American Medical Association (AMA)
2001-	American College of Physicians (ACP)
	2001-2009 Member
	2009- Fellow
2001-	Infectious Diseases Society of America (IDSA)
	2001-2009 Member
	2009- Fellow
2001-	American Society of Internal Medicine (ASIM)

2001-	Massachusetts Infectious Diseases Society (MIDS)
2006-	American Society for Microbiology (ASM)
2006-	American Association of Immunologists (AAI)

Grant Review Activities

2004-2013	ZRG1 VACC Study Section, HIV Vaccines	NIH/NIAID
2004-2008	Ad Hoc Member	
2008-2011	Permanent Member	
2011-2013	Chair	
2004	ZAI1 CCH-MM1 Special Emphasis Panel	NIH/NIAID
	Biodefense & Emerging Infectious Disease Research Opportunities	
2004	ZAI1 VSG-MM1 Special Emphasis Panel	NIH/NIAID
	Biodefense & Emerging Infectious Disease Research Opportunities	
2004	ZAI1 PTM-MM1 Special Emphasis Panel	NIH/NIAID
	Challenge Grants: Biodefense and SARS Product Development	
2005	ZAI1 TS-MM4 Special Emphasis Panel	NIH/NIAID
	Challenge Grants: Biodefense and SARS Product Development	
2005	ZRG1 IMM-K12 Special Emphasis Panel	NIH/NIAID
	Non-HIV Microbial Vaccine Development	
2006	ZAI1 LW-MM1 Special Emphasis Panel	NIH/NIAID
	Partnerships for Hepatitis C Vaccine Development	
2006	ZAI1 MPM-AJ1 Special Emphasis Panel	NIH/NIAID
	HIV Vaccine Research and Design (HIVRAD) Program	
2006, 2012	Reviewer, Clinical Scientist Dev. Awards	Doris Duke Charitable Foundation
2007	Reviewer, Senior Research Fellowships	Wellcome Trust
2008	Reviewer, Senior Thesis, Dept. of Biology	Harvard College
2008-2009	Reviewer, HIV/AIDS Grants	Bill & Melinda Gates Foundation
2009	Reviewer, Canadian HIV Vaccine Initiative	Government of Canada, Bill & Melinda Gates Foundation
2009-2010	Reviewer, Early Stage Investigator Awards	HVTN/CHAVI/NIH/NIAID

2013-2014	Reviewer, HIV/AIDS Grants Strategic Health Innovation Partnerships	South Africa MRC
2020	Reviewer, GBCPR COVID-19 Grants	Harvard Medical School

Editorial Activities

Ad Hoc Reviewer

2001-	<i>Human Gene Therapy</i>
2001-	<i>American Journal of Clinical Dermatology</i>
2001-	<i>Blood</i>
2001-	<i>Journal of Virology</i>
2001-	<i>Virology</i>
2001-	<i>AIDS Research and Human Retroviruses</i>
2002-	<i>Science</i>
2002-	<i>Nature Medicine</i>
2002-	<i>Nature Reviews Immunology</i>
2002-	<i>Journal of Infectious Diseases</i>
2002-	<i>Trends in Molecular Medicine</i>
2003-	<i>Molecular Therapy</i>
2003-	<i>Nature</i>
2003-	<i>Clinical Infectious Diseases</i>
2004-	<i>Vaccine</i>
2004-	<i>Current Gene Therapy</i>
2004-	<i>Infection and Immunity</i>
2004-	<i>Journal of Clinical Microbiology</i>
2004-	<i>Clinical and Diagnostic Laboratory Immunology</i>
2004-	<i>Journal of Experimental Medicine</i>

2005- *Clinical and Experimental Immunology*

2005- *Journal of General Virology*

2005- *Journal of Immunology*

2005- *European Journal of Immunology*

2005- *Antimicrobial Agents and Chemotherapy*

2005- *Nature Immunology*

2006- *Open Virology Journal*

2006- *Current Opinion in Molecular Therapeutics*

2006- *Clinical and Vaccine Immunology*

2006- *Proceedings of the National Academy of Sciences*

2006- *Journal of Acquired Immunodeficiency Syndromes*

2007- *Virus Research*

2007- *Journal of Clinical Investigation*

2007- *PLoS Biology*

2007- *PLoS Medicine*

2008- *PLoS ONE*

2009- *Science Translational Medicine*

2009- *New England Journal of Medicine*

2010- *Mucosal Immunology*

2011- *Plos Pathogens*

2011- *OMICS*

2014- *Journal of the American Medical Association*

2014- *Cell*

2014- *Lancet Infectious Diseases*

2017- *Science Immunology*

2017- *Lancet*

Major Editorial Roles

2004- Editorial Board *Journal of Virology*

2006-2020 Editorial Board *Journal of Infectious Diseases*

2006- Editorial Board *Clinical and Experimental Immunology*

2007- Editorial Board *Open Virology Journal*

2009- Associate Editor *BMC Immunology*

2010-2012 Associate Editor *Journal of Immunology*

2011-2020 Associate Editor *Clinical Immunology*

2015- Advisory Board *Oncotarget*

2015- Editor *mSphere*

Honors and Prizes

1991-1993 Barry M. Goldwater Scholarship Harvard University

1992 Phi Beta Kappa Harvard University

1993 Lawrence J. Henderson Prize Harvard University

1993 Thomas T. Hoopes Prize Harvard University

1993 A.B. *summa cum laude* Harvard University

1993 All-USA Academic Team USA Today

1993-1995 British Marshall Scholarship Marshall Commission

1996 Certificate of Distinction in Teaching Harvard University

1999 Soma Weiss Research Award Harvard Medical School

1999 Leon Reznick Memorial Prize Harvard Medical School

1999 M.D. *summa cum laude* Harvard Medical School

2002	Partners in Excellence Award	Massachusetts General Hospital
2004	Maxwell Finland Young Investigator Award	Massachusetts Medical Society
2009	American Society for Clinical Investigation (ASCI)	
2010	William Osler Young Investigator Award	Interurban Clinical Club
2012	Oswald Avery Award	Infectious Diseases Society of America
2013	Association of American Physicians (AAP)	
2015	Eagleson Lectureship	American Biological Safety Association
2015	World's Most Highly Cited Researchers	Thomson Reuters
2015	Distinguished Speaker	Walter Reed Army Institute of Research
2015-2022	Highly Cited Researcher	Clarivate Analytics
2016	Medical All-Star	Boston Red Sox
2016	Honorary Researcher	Université de Montréal
2016	Bostonian of the Year	Boston Globe Magazine
2017	Cannon Eley Lectureship	Boston Children's Hospital
2017	Investigator of the Year	Massachusetts Society for Medical Research
2017	Official Citation	Massachusetts House of Representatives Massachusetts Senate
2017	Drexel Prize in Immunology	Drexel University College of Medicine
2019	Best Academic Research Team	World Vaccine Congress
2020	National Academy of Medicine	
2020	Bloomberg 50 Most Influential People	Bloomberg Businessweek
2021	Susan Swerling Lectureship	Dana-Farber Cancer Institute
2021	Global Citizen Hero	American Red Cross
2021	STAT Madness Winner, Editor's Pick	STAT News

2021	Ray Stata Leadership and Innovation Award	Massachusetts High Technology Council
2021	George Ledlie Prize	Harvard University
2021	COVID-19 Vaccine Superhero	Johnson & Johnson
2021	Heroes Among Us Award	Boston Celtics
2021	Bostonian of the Year	Boston Globe Magazine
2022	Franklin Epstein Lectureship	Beth Israel Deaconess Medical Center New England Journal of Medicine
2022	Bernard Fields Lectureship	CROI
2022	Stanley Plotkin Lectureship	Fondation Merieux, Annecy, France
2022	Daniel Jick Excellence in Leadership Award	Beth Israel Deaconess Medical Center

Report of Funded and Unfunded Projects

Current Funding Information

Current Funding – Overall Principal Investigator

2009-2023	PI	Ragon Institute	\$3,490,000
	<u>Title:</u> Vaccine Program		
	<u>Description:</u> The major goals of this program are to develop novel HIV-1 vaccine approaches utilizing nanoparticle technology, systems biology, and molecular and cellular immunology.		
2016-2023	PI (Overall Program)	NIH/NIAID	\$51,439,418
		UM1 AI124377 (Joint PI: Picker, Louis)	
	<u>Title:</u> Consortium for Innovative AIDS Research in Nonhuman Primates (CIAR)		
	<u>Roles:</u> PI (Overall Program; Joint PI); PI (Focus 1: Understanding Mechanisms of Prophylactic SIV Vaccine Efficacy); PI (Operations and Management Support); Co-Investigator (Core A: Animal Core)		
	<u>Description:</u> The major goals of this program project cooperative agreement are to investigate the mechanism of prophylactic SIV vaccines in rhesus monkeys.		
2017-2023	PI	Gilead Sciences	\$4,392,112
	<u>Title:</u> RNA Delivery of bNAb Cocktails for HIV Cure		
	<u>Description:</u> The major goals of this contract are to evaluate RNA delivery of broadly neutralizing antibodies as a SHIV eradication strategy in rhesus monkeys.		
2017-2022	PI	Bill & Melinda Gates Foundation	\$3,551,891
		INV-010589	

		<u>Title:</u> Epitope-Modified Env Trimers for Induction of Heterologous Tier 2 NABs <u>Description:</u> The major goals of this consortium are to evaluate signature-based epitope-modified HIV-1 Env trimers for induction of neutralizing antibodies in guinea pigs and rhesus monkeys.	
2017-2022	PI	NIH/OD R01 OD024917 (Joint PI: Baldrige, Megan)	\$1,320,703
		<u>Title:</u> Impact of the Intestinal Microbiome on HIV/SIV Vaccines <u>Description:</u> The major goals of this grant are to explore the relationship between the microbiome and HIV-1 vaccine immunogenicity in monkeys and humans.	
2017-2023	PI	NIH/NIAID R01 AI129797	\$2,382,427
		<u>Title:</u> Optimization of Broadly Neutralizing Antibodies for HIV Eradication <u>Description:</u> The major goals of this grant are to develop improved broadly neutralizing antibodies to target the viral reservoir in SHIV-infected monkeys.	
2018-2024	PI (Overall Program)	NIH/NIAID U19 AI128751	\$11,184,950
		<u>Title:</u> Development of Ad26/Env Vaccines for HIV Integrated Preclinical/Clinical AIDS Vaccine Development (IPCAVD) Program <u>Roles:</u> PI (Overall Program), PI (Project 1: Preclinical Development of Ad26/Env Vaccines for HIV), Co-Investigator (Project 2: Manufacturing and Clinical Development of Ad26/Env), PI (Core A: Administrative Core), PI (Core C: NHP Core) <u>Description:</u> The major goals of this program project cooperative agreement are to develop improved Ad26/Env vaccine regimens in both rhesus monkeys and humans.	
2019-2023	PI	Bill & Melinda Gates Foundation INV-002377	\$11,417,251
		<u>Title:</u> Viral Reservoir Biomarkers in SIV-Infected Macaques <u>Description:</u> The major goals of this consortium are to define biomarkers for the viral reservoir in SIV-infected monkeys.	
2020-2023	PI	MassCPR	\$331,304
		<u>Title:</u> COVID-19 Specimen Biorepository <u>Description:</u> The major goals of this grant are to develop a SARS-CoV-2 human specimen repository.	
2020-2023	PI	Janssen	\$8,779,783
		<u>Title:</u> COVID-19 Vaccine Development <u>Description:</u> The major goals of this contract are to develop and to evaluate an Ad26-COVID-19 vaccine in preclinical models.	
2020-2024	PI	NIH/NIAID U01 AI145801 (Joint PI: Julg, Boris)	\$3,440,847
		<u>Title:</u> Ad26 Based Therapeutic Vaccines for HIV	

Description: The major goals of this grant are to explore therapeutic Ad26 vaccination in HIV-infected humans.

2020-2025	PI	NIH/NIAID R01 AI149670 (Joint PI: Shalek, Alex)	\$3,099,745
		<u>Title:</u> Single-Cell Analysis of the HIV/SIV Reservoir	
		<u>Description:</u> The major goals of this grant are to apply multi-omics technologies to understand the HIV/SIV reservoir.	
2020-2023	PI	Intima Biosciences	\$4,719,278
		<u>Title:</u> Universal Vaccine Cell for COVID-19	
		<u>Description:</u> The major goals of this contract are to evaluate virus-specific lymphocyte therapy and a cell-based vaccine for COVID-19.	
2020-2022	PI	Janssen	\$2,310,095
		<u>Title:</u> COV1001 Clinical Trial	
		<u>Description:</u> The major goals of this contract are to evaluate the immunogenicity of the Ad26.COV2.S vaccine in a phase 1 study.	
2020-	PI	Harvard Medical School	\$195,652/year
		<u>Title:</u> William Bosworth Castle Chair	
		<u>Description:</u> This endowed chair provides unrestricted support for the Barouch laboratory.	
2020-2025	PI	NIH/NIAID U01 CA260476	\$2,816,407
		<u>Title:</u> Immunologic Signatures of SARS-CoV-2 Vaccination and Disease	
		<u>Description:</u> The major goals of this grant are to define immunologic profiles of SARS-CoV-2 infected and vaccinated individuals.	
2020-2027	PI	NIH/NIAID AI068614 (Joint PIs: Corey, Lawrence; Gray, Glenda; Tomaras, Georgia)	\$516,095
		<u>Title:</u> HIV Vaccine Trials Network (HVTN) Leadership and Operations Center	
		<u>Description:</u> The major goals of this grant are to lead an international clinical trials network for the development of HIV vaccines.	
2020-2023	PI	Musk Foundation	\$4,673,913
		<u>Title:</u> Immunologic Profiling of Disease	
		<u>Description:</u> The major goals of this grant are to define immunologic profiles of human diseases.	
2021-2026	PI (Overall Program)	NIH/NIAID UM1 AI164556 (Joint PIs: Mellors, John; Vasan, Sandy)	\$20,262,698
		<u>Title:</u> I4C 2.0: Immunotherapy for Cure	
		Martin Delaney Collaboratory for HIV Cure Research	
		<u>Roles:</u> PI (Overall Program; Joint PI); Co-Investigator (Focus 1: Mechanistic Basis of Reservoir Targeting and Viral Persistence); Co-Investigator (Focus 2: Novel	

Strategies for Sustained Virus Remission); PI (Focus 3: Novel Strategies for Virus Eradication); PI (Management and Operations)

Description: The major goals of this program project cooperative agreement are to evaluate strategies to achieve long-term virus remission or virus eradication in SHIV-infected rhesus monkeys.

2021-2023	PI	Bill & Melinda Gates Foundation INV-027406	\$3,789,739
		<u>Title:</u> COVID-19: Animal Models (Variants)	
		<u>Description:</u> The major goals of this grant are to develop animal models with SARS-CoV-2 variants of concern.	
2021-2022	PI	Janssen	\$1,032,362
		<u>Title:</u> COV2008 Clinical Trial	
		<u>Description:</u> The major goals of this contract are to evaluate the immunogenicity of the Ad26.COV2.S vaccine as a booster in a phase 2 clinical trial.	
2021-2022	PI	Janssen	\$1,063,654
		<u>Title:</u> HPX2008 HVTN705 Correlates	
		<u>Description:</u> The major goals of this contract are to assess cellular immune responses in the HPX2008 HVTN705 clinical trial.	
2021-2022	PI	Sanofi	\$518,028
		<u>Title:</u> VYF02 Clinical Trial	
		<u>Description:</u> The major goals of this contract are to evaluate an improved yellow fever vaccine in a phase 2 clinical trial.	
2021-2022	PI	Janssen	\$5,853,324
		<u>Title:</u> COVID-19 Variant Vaccine Development	
		<u>Description:</u> The major goals of this contract are to develop and to evaluate Ad26-COVID-19 vaccines for viral variants in preclinical models.	
2021-2023	PI	MassCPR	\$190,000
		<u>Title:</u> COVID-19 Variant Initiative	
		<u>Description:</u> The major goals of this grant are to develop animal models for SARS-CoV-2 variants.	
2022-2023	PI	MassCPR	\$30,000
		<u>Title:</u> COVID-19 PASC Initiative	
		<u>Description:</u> The major goals of this grant are to define biomarkers for post-acute sequelae of COVID-19.	
2022-2025	PI	Bill & Melinda Gates Foundation INV-041469	\$4,147,992
		<u>Title:</u> Pan-Coronavirus Consensus (Epigraph) Vaccine Designs	
		<u>Description:</u> The major goals of this consortium are to develop universal coronavirus vaccines.	

2022-2025	PI	Bill & Melinda Gates Foundation INV-045716	\$1,135,604
<u>Title:</u> Omics of Short-Term bNAb Control of ART Interruption Viral Rebound			
<u>Description:</u> The major goals of this grant are to define biomarkers for viral rebound in HIV-1-infected humans after ART interruption.			
2022-2026	PI	Bill & Melinda Gates Foundation INV-050234	\$3,916,037
<u>Title:</u> Next-Generation Tuberculosis Vaccine Design			
<u>Description:</u> The major goals of this grant are to develop novel TB vaccine antigens and evaluate them in mice and macaques.			

Current Funding – Project or Subcontract Principal Investigator

2019-2026	Subcontract PI	NIH/NIAID BAA-NIAID-NIHAI201700104 (PI: Urdahl, Kevin)	\$1,484,575
<u>Title:</u> Immune Mechanisms of Protection against Mycobacterium tuberculosis Center (IMPAC-TB)			
<u>Description:</u> The major goals of this subcontract are to evaluate the immunogenicity and protective efficacy of candidate TB vaccines in mice.			
2020-2023	Subcontract PI	DARPA HR001117S0019-P3-PA-006 (PI: Crowe, James E.)	\$4,335,054
<u>Title:</u> Rational and Rapid Antibody Design and Delivery (RRAADD)			
<u>Description:</u> The major goals of this subcontract are to assess the efficacy monoclonal antibodies against COVID-19 in rhesus monkeys.			
2021-2023	Subcontract PI	DOD/Henry Jackson Foundation 2018-CHEDA-001-948100 (PI: Vasan, Sandy)	\$1,028,644
<u>Title:</u> Prime-Boost Vaccines for SARS-CoV-2			
Walter Reed Army Institute of Research (WRAIR)			
<u>Description:</u> The major goals of this subcontract are to assess the immunogenicity and protective efficacy of prime-boost vaccines for SARS-CoV-2.			
2021-2023	Subcontract PI	DARPA HR001117S0019-P3-PA-006 (PI: Crowe, James E.)	\$702,124
<u>Title:</u> Rational and Rapid Antibody Design and Delivery (RRAADD)			
<u>Description:</u> The major goals of this subcontract are to assess the immunogenicity of COVID-19 vaccines together with monoclonal antibodies.			
2021-2022	Subcontract PI	BARDA/Pharm-Olam 75A50120D00016 (PI: Sischo, Jamie)	\$2,542,807
<u>Title:</u> COVID-19 Vaccine Biorepository			
<u>Description:</u> The major goals of this subcontract are to establish a specimen biorepository and assess mucosal immune responses to COVID-19 vaccines.			
2021-2023	Subcontract PI	NIH/NIAID 75N93021C00014 (PI: Garcia-Sastre, Adolfo)	\$1,076,520

Title: Centers of Excellence for Influenza Research and Response (CEIRR) CRIPT
Description: The major goals of this subcontract are to assess the contribution of CD8+ T cells in COVID-19 vaccine protection.

2022-2023	Subcontract PI	NIH/NIAID 75N93021C00014 (PI: Garcia-Sastre, Adolfo)	\$815,562
		<u>Title:</u> Centers of Excellence for Influenza Research and Response (CEIRR) CRIPT <u>Description:</u> The major goals of this subcontract are to assess the protective efficacy of COVID-19 vaccines against Omicron in macaques.	
2022-2023	Subcontract PI	NIH/NIAID 75N93019C00074 (PI: Crowe, James E.)	\$1,061,915
		<u>Title:</u> B-Cell Epitope Discovery and Mechanisms of Antibody Protection <u>Description:</u> The major goals of this subcontract are to assess the therapeutic efficacy of mpox monoclonal antibodies in macaques.	
2022-2026	Subcontract PI	NIH/NIAID R01 AI155983	\$382,904
		<u>Title:</u> Evaluation of Antibody Responses Elicited by Zika Vaccination in Flavivirus-naïve and -experienced Individuals <u>Description:</u> The major goals of this subcontract are to evaluate the protective efficacy of Zika monoclonal antibodies in mice.	
2022-2027	Subcontract PI	NIH/NIAID P01 AI169615	\$2,349,615
		<u>Title:</u> Understanding Reservoir Dynamics Through Analysis of Viral Decay Processes <u>Description:</u> The major goals of this subcontract are to assess SIV reservoir dynamics in macaques.	

Past Funding Information

2002-2005	PI	NIH/NIAID K08 AI051223	\$320,025
		<u>Title:</u> Cytokine-Augmented DNA Vaccine-Elicited Immunity to HIV <u>Description:</u> The major goals of this project were to investigate the utility of plasmid IL-2/Ig as an adjuvant for DNA vaccines in preclinical studies in rhesus monkeys and in a phase 1 clinical trial.	
2002-2007	PI	Doris Duke Charitable Foundation 20020292	\$500,000
		<u>Title:</u> Prophylactic and Therapeutic DNA Vaccines for HIV Clinical Scientist Development Award <u>Description:</u> The major goals of this project were to conduct prophylactic and therapeutic phase 1 DNA vaccine studies in humans.	
2004-2006	PI	NIH/NIAID R21 AI060368	\$300,000

		<u>Title:</u> Chimeric Adenovirus Vaccine Vectors for HIV/SIV	
		<u>Description:</u> The major goals of this project were to construct novel chimeric Ad5/Ad35 vaccine vectors and to assess their immunogenicity in mice.	
2004-2010	PI	NIH/NIAID R01 AI058727	\$1,224,013
		<u>Title:</u> Augmentation of DNA Vaccine-Elicited Immunity to HIV/SIV	
		<u>Description:</u> The major goals of this grant were to assess the utility of plasmid cytokines and chemokines as adjuvants for DNA vaccines in mice and rhesus monkeys.	
2005-2011	PI (Overall Program)	NIH/NIAID U19 AI066305	\$15,402,602
		<u>Title:</u> Novel Adenovirus Vector-Based Vaccines for HIV-1 Integrated Preclinical/Clinical AIDS Vaccine Development (IPCAVD) Program	
		<u>Roles:</u> PI (Overall Program), PI (Project 1: Preclinical Evaluation of Novel Ad Vectors), Co-Investigator (Project 2: Clinical Evaluation of Novel Ad Vectors), PI (Core A: Administrative Core)	
		<u>Description:</u> The major goals of this program project cooperative agreement are to evaluate novel serotype rAd vector-based vaccines for HIV-1 in preclinical studies and to advance the best vectors into phase 1 clinical trials.	
2005-2012	PI	NIH/NIAID R01 AI066924	\$2,117,215
		<u>Title:</u> Novel Adenovirus Vaccine Vectors for HIV/SIV	
		<u>Description:</u> The major goals of this grant are to construct novel chimeric and group D rAd vectors and to evaluate them in preclinical studies.	
2006-2011	Project PI	Bill & Melinda Gates Foundation 38643 (PI: Haynes, Barton F.)	\$383,996
		<u>Title:</u> Nature and Origin of Broadly Reactive Neutralizing Antibodies Collaboration for AIDS Vaccine Discovery (CAVD)	
		<u>Description:</u> The major goals of this consortium are to optimize humoral immune responses elicited by novel HIV-1 vaccine candidates.	
2006-2012	Project PI	Bill & Melinda Gates Foundation 38614 (PI: Letvin, Norman L.)	\$5,000,061
		<u>Title:</u> Novel Adenovirus and Mycobacteria Vector-Based Vaccines for HIV-1 Collaboration for AIDS Vaccine Discovery (CAVD)	
		<u>Description:</u> The major goals of this consortium are to optimize cellular immune responses elicited by novel adenovirus vectors.	
2008-2010	PI	Elizabeth Glaser Foundation MV-00-9-900-01431-0-00	\$190,476
		<u>Title:</u> Immunogenicity of Pediatric HIV-1 Vaccines in Infant Rhesus Monkeys	
		<u>Description:</u> The major goals of this grant were to assess the immunogenicity of novel pediatric HIV-1 vaccine candidates in infant rhesus monkeys.	

2008-2011	Subcontract PI	NIH/NIAID U19 AI076982 (PI: Moore, John P.)	\$163,512
	<u>Title:</u> A Practical Microbicide Based on HIV-1 Entry Inhibitors		
	<u>Description:</u> The major goals of this subcontract are to investigate the protective efficacy of vaccine-microbicide combinations in rhesus monkeys.		
2008-2012	Subcontract PI	NIH/NIAID U19 AI067854 (PI: Haynes, Barton F.)	\$956,609
	<u>Title:</u> Mucosal Immunology Program		
	Center for HIV/AIDS Vaccine Immunology (CHAVI)		
	<u>Description:</u> The major goals of this subcontract are to develop technologies that can assess cellular immune responses in mucosal samples.		
2008-2012	Subcontract PI	DOD/Henry Jackson Foundation W81XWH-07-2-0067 (PI: Robb, Merlin L.)	\$1,392,182
	<u>Title:</u> Heterologous Adenovirus/Poxvirus Vaccine Strategy in Rhesus Monkeys		
	U.S. Military HIV Research Program (MHRP)		
	<u>Description:</u> The major goals of this subcontract are to evaluate novel heterologous adenovirus/poxvirus vaccine regimens in rhesus monkeys.		
2008-2015	PI (Overall Program)	NIH/NIAID U19 AI078526	\$37,112,926
	<u>Title:</u> Novel Heterologous Adenovirus Prime-Boost HIV-1 Vaccine		
	Integrated Preclinical/Clinical AIDS Vaccine Development (IPCAVD) Program		
	<u>Roles:</u> PI (Overall Program), PI (Project 1: Preclinical Evaluation of Novel Ad Prime-Boost HIV-1 Vaccine), Co-Investigator (Project 2: Clinical Evaluation of Novel Ad Prime-Boost HIV-1 Vaccine), PI (Core A: Administrative Core)		
	<u>Description:</u> The major goals of this program project cooperative agreement are to develop a novel heterologous rAd prime-boost HIV-1 vaccine and to evaluate this vaccine in rhesus monkeys and phase 1 clinical trials.		
2009-2011	Subcontract PI	NIH/NIAID R56 AI078779 (PI: Frankel, Fred R.)	\$236,842
	<u>Title:</u> Novel Heterologous Listeria-Adenovirus Mucosal Vaccine for HIV-1		
	<u>Description:</u> The major goals of this subcontract are to investigate the immunogenicity of Listeria-adenovirus vaccine regimens in preclinical studies.		
2009-2012	PI	NIH/NIAID U19 AI078526-02S1 (ARRA Supplement)	\$934,507
	<u>Title:</u> Novel Heterologous Adenovirus Prime-Boost HIV-1 Vaccine		
	<u>Description:</u> The major goals of this supplement are to assess the immunogenicity of HIV-1 mosaic antigens in rhesus monkeys.		
2009-2014	PI	Ragon Institute	\$1,212,943
	<u>Title:</u> Impact of Antigen Formulation on Protective Efficacy Against SIV		
	<u>Description:</u> The major goals of this grant are to assess the protective efficacy of different antigen formulations against SIV challenges in rhesus monkeys.		

2009-2015	PI	NIH/NIAID R01 AI084794 (Joint PI: Chen, Bing)	\$3,134,517
<u>Title:</u> Impact of HIV Envelope Conformation on Immunogenicity			
<u>Description:</u> The major goals of this grant are to assess the immunogenicity of novel structure-based HIV envelope immunogens.			
2010-2012	Subcontract PI	NIH/NIAID U19 AI067854 (PI: Haynes, Barton F.)	\$235,941
<u>Title:</u> Protective Efficacy of Non-Neutralizing Abs Against SHIV Challenge Center for HIV/AIDS Vaccine Immunology (CHAVI)			
<u>Description:</u> The major goals of this subcontract are to assess the capacity of non-neutralizing antibodies to protect against SHIV challenge in rhesus monkeys.			
2010-2015	Subcontract PI	DOD/Henry Jackson Foundation W81XWH-07-2-0067/11-2-0174 (PI: Robb, Merlin L.)	\$1,094,523
<u>Title:</u> Evaluation of Ad26-MVA Regimens Expressing HIV-1 Mosaic Antigens U.S. Military HIV Research Program (MHRP)			
<u>Description:</u> The major goals of this subcontract are to evaluate Ad26/MVA regimens expressing HIV-1 mosaic antigens in rhesus monkeys.			
2010-2016	PI	NIH/NIAID N01 AI030018	\$498,000
<u>Title:</u> High-Dose SIVsmE660 Challenge Study			
<u>Description:</u> The major goals of this contract are to evaluate the protective efficacy of candidate HIV-1 vaccines against high-dose and low-dose SIV challenges.			
2011-2012	PI	NIH/NIAID P30 AI060354 (Joint PI: Mora, J. Rodrigo)	\$35,000
<u>Title:</u> Induction of Regulatory T-Cells by HIV Vaccine Vectors			
<u>Description:</u> The major goals of this pilot grant are to assess the capacity of vaccine vectors to induce regulatory T cells in mice.			
2011-2016	PI	NIH/NIAID N01 AI030018	\$322,056
<u>Title:</u> Microarray Study			
<u>Description:</u> The major goals of this contract are to assess the expression profiles of vaccine vectors in rhesus monkeys.			
2011-2016	PI	NIH/OD R01 OD011170 (Joint PI: Virgin, Herbert W.)	\$597,179
<u>Title:</u> Metagenomics of Enteric Disease in SIV-Infected and Uninfected Macaques			
<u>Description:</u> The major goals of this grant are to assess the metagenomics of enteric flora in SIV-infected rhesus monkeys.			
2011-2016	Subcontract PI	DOD/Henry Jackson Foundation W81XWH-07-2-0067/11-2-0174 (PI: Robb, Merlin L.)	\$1,592,182
<u>Title:</u> RV144-SHIV Study			
U.S. Military HIV Research Program (MHRP)			

Description: The major goals of this subcontract are to assess the protective efficacy of ALVAC/AIDSVAX against SHIV challenges in rhesus monkeys.

2011-2016	Subcontract PI	DOD/Henry Jackson Foundation W81XWH-07-2-0067/11-2-0174 (PI: Robb, Merlin L.)	\$1,810,597
	<u>Title:</u> Ad26-Poxvirus Comparison Study U.S. Military HIV Research Program (MHRP) <u>Description:</u> The major goals of this subcontract are to compare different poxvirus vectors for their ability to boost Ad26 vectors in rhesus monkeys.		
2011-2016	PI	Bill & Melinda Gates Foundation OPP1033091	\$11,479,840
	<u>Title:</u> Replicating Adenovirus Mosaic HIV-1 Vaccine Collaboration for AIDS Vaccine Discovery (CAVD) <u>Description:</u> The major goals of this consortium are to evaluate replicating adenovirus vectors in rhesus monkeys and humans.		
2011-2017	PI	Ragon Institute	\$3,002,230
	<u>Title:</u> Vaccine Clinical Trials Initiative <u>Description:</u> The major goals of this grant are to assess the safety and immunogenicity of novel HIV-1 vaccines in clinical trials.		
2011-2017	PI (Overall Program)	NIH/NIAID P01 AI095985 (Joint PI: Johnson, R. Paul)	\$33,287,102
	<u>Title:</u> Consortium for AIDS Vaccine Research in Nonhuman Primates <u>Roles:</u> PI (Overall Program; Joint PI), PI (Project 1: Adenovirus and Poxvirus Protection Against Mucosal SIV Infection), Co-Investigator (Project 4: Antibody Interception of Virus Following SHIV Challenge), PI (Core A: Administrative Core; Joint PI), Co-Investigator (Core C: Immunology Core), Co-Investigator (Core F: Nonhuman Primate Core) <u>Description:</u> The major goals of this program project cooperative agreement are to investigate the pathology and immunology of acute SIV infection of rhesus monkeys and to determine the mechanisms of vaccine protection.		
2011-2020	Subcontract PI	Bill & Melinda Gates Foundation OPP1032817 (PI: Alter, Galit)	\$1,484,523
	<u>Title:</u> High-Throughput Technology for Assessing Antibody Effector Function Collaboration for AIDS Vaccine Discovery (CAVD) <u>Description:</u> The major goals of this consortium are to develop strategies to augment antibody responses in rhesus monkeys.		
2012-2014	PI	Ragon Institute	\$231,995
	<u>Title:</u> NK Cell Initiative <u>Description:</u> The major goals of this grant are to assess NK cell responses in vaccinated rhesus monkeys.		
2012-2016	PI	Ragon Institute	\$594,475
	<u>Title:</u> Antigen Design Initiative		

	<u>Description:</u> The major goals of this grant are to assess the immunogenicity of sector-based T cell immunogens in rhesus monkeys.		
2012-2016	PI	Crucell Holland BV	\$1,519,986
	<u>Title:</u> Human Papillomavirus (HPV) Vaccine Study <u>Description:</u> The major goals of this grant are to assess the immunogenicity of an adenovirus vector-based HPV vaccine candidate in rhesus monkeys.		
2012-2016	PI	Bill & Melinda Gates Foundation OPP1040741	\$5,321,628
	<u>Title:</u> Development of Novel Vector/Protein HIV-1 Env Vaccines Collaboration for AIDS Vaccine Discovery (CAVD) <u>Description:</u> The major goals of this consortium are to develop nonhuman primate Ad vectors and improved HIV-1 Env immunogens and to evaluate them in rhesus monkeys.		
2012-2016	Subcontract PI	DOD/Henry Jackson Foundation W81XWH-11-2-0174 (PI: Robb, Merlin L.)	\$961,939
	<u>Title:</u> Development of Acute CRF01_AE SHIV U.S. Military HIV Research Program (MHRP) <u>Description:</u> The major goals of this subcontract are to develop a clade CRF01_AE SHIV challenge stock.		
2012-2018	Subcontract PI	NIH/NIAID UM1 AI100663 (PI: Burton, Dennis R.)	\$10,945,939
	<u>Title:</u> SRSC C: Nonhuman Primate Core Center for HIV/AIDS Vaccine Immunology and Immunogen Discovery (CHAVI-ID) <u>Description:</u> The major goals of this scientific research support component (SRSC) are to conduct nonhuman primate studies of monoclonal antibodies and novel immunogens as part of this CHAVI-ID consortium.		
2012-2018	PI (Overall Program)	NIH/NIAID U19 AI096040	\$13,987,742
	<u>Title:</u> Novel Ad/MVA and Ad/Protein HIV-1 Vaccines Integrated Preclinical/Clinical AIDS Vaccine Development (IPCAVD) Program <u>Roles:</u> PI (Overall Program), PI (Project 1: Preclinical Evaluation of Novel Ad/MVA and Ad/Protein HIV-1 Vaccines), Co-Investigator (Project 2: Clinical Evaluation of Novel Ad/MVA and Ad/Protein HIV-1 Vaccines), PI (Core A) <u>Description:</u> The major goals of this program project cooperative agreement are to develop novel Ad/MVA and Ad/Protein HIV-1 vaccines and to evaluate them in rhesus monkeys and phase 1 and phase 2 clinical trials.		
2013-2014	PI	Pfizer	\$105,640
	<u>Title:</u> Cancer Vaccine Project <u>Description:</u> The major goals of this grant are to produce simian adenovirus vector-based vaccines for cancer.		

2013-2014	Subcontract PI	DOD/Henry Jackson Foundation W81XWH-11-2-0174 (PI: Robb, Merlin L.)	\$228,665
	<u>Title:</u> Therapeutic Vaccination and Reservoir Activation in SIV-Infected Rhesus Monkeys (Pilot Study) U.S. Military HIV Research Program (MHRP) <u>Description:</u> The major goals of this subcontract are to evaluate antiretroviral therapy during acute SIV infection as a prelude to therapeutic vaccine studies.		
2013-2016	PI	Crucell Holland BV	\$1,268,726
	<u>Title:</u> Evaluation of Protective Efficacy of HIV-1 Vaccines <u>Description:</u> The major goals of this grant are to evaluate the immunogenicity and protective efficacy of particular combinations of Ad26 and Env in rhesus monkeys.		
2013-2016	PI	Ragon Institute	\$814,981
	<u>Title:</u> Env Immunogen Initiative <u>Description:</u> The major goals of this grant are to assess the immunogenicity of novel HIV-1 Env immunogens in rhesus monkeys.		
2013-2016	PI	Bill & Melinda Gates Foundation OPP1083689	\$924,798
	<u>Title:</u> Development of a Clade C SHIV Stock Collaboration for AIDS Vaccine Discovery (CAVD) <u>Description:</u> The major goals of this grant are to develop and evaluate a novel clade C SHIV challenge stock in rhesus monkeys.		
2013-2016	PI	Broad Institute	\$239,130
	<u>Title:</u> Immunogenicity of a Personalized Melanoma Vaccine <u>Description:</u> The major goals of this grant are to evaluate the immunogenicity of a personalized melanoma vaccine in a phase 1 clinical trial.		
2013-2017	Subcontract PI	DOD/Henry Jackson Foundation W81XWH-11-2-0174 (PI: Robb, Merlin L.)	\$2,131,041
	<u>Title:</u> Therapeutic Vaccination and Reservoir Activation in SIV-Infected Rhesus Monkeys U.S. Military HIV Research Program (MHRP) <u>Description:</u> The major goals of this subcontract are to evaluate Ad26/MVA therapeutic vaccination in SIV-infected rhesus monkeys.		
2014-2017	Subcontract PI	DOD/Henry Jackson Foundation W81XWH-11-2-0174 (PI: Robb, Merlin L.)	\$667,349
	<u>Title:</u> Impact of Early ART on SIV Reservoir Seeding in Rhesus Monkeys U.S. Military HIV Research Program (MHRP) <u>Description:</u> The major goals of this subcontract are to evaluate the impact of early initiation of ART on the seeding of the SIV reservoir in rhesus monkeys.		
2014-2015	PI	Hookipa Biotech	\$156,505
	<u>Title:</u> LCMV SIV Vaccines		

	<u>Description:</u> The major goals of this grant are the assess the immunogenicity of LCMV vectors expressing SIV antigens in rhesus monkeys		
2014-2018	PI	Ragon Institute	\$1,020,479
	<u>Title:</u> Ragon Antibody Initiative		
	<u>Description:</u> The major goals of this grant are to produce and evaluate clinical-grade PGT121 antibody.		
2014-2020	PI	Bill & Melinda Gates Foundation OPP1107669	\$22,275,617
	<u>Title:</u> Therapeutic Efficacy of Potent Broadly Neutralizing mAbs for HIV-1 Eradication		
	<u>Description:</u> The major goals of this consortium are to develop broadly neutralizing monoclonal antibodies as part of HIV-1 eradication regimens in rhesus monkeys and phase 1 clinical trials.		
2015-2016	Subcontract PI	Ivy Foundation (PI: Reardon, David)	\$186,901
	<u>Title:</u> Optimizing Immunotherapy for Glioblastoma		
	<u>Description:</u> The major goals of this subcontract are to evaluate the immunogenicity of a personalized glioblastoma vaccine in a phase 1 clinical trial.		
2015-2017	PI	Ragon Institute	\$525,342
	<u>Title:</u> Amphiphile Vaccine Study		
	<u>Description:</u> The major goals of this grant are to assess the immunogenicity of novel HIV-1 amphiphile peptide vaccines in rhesus monkeys.		
2015-2018	Subcontract PI	Ragon Institute	\$223,775
	<u>Title:</u> Fc Initiative (PI: Alter, Galit)		
	<u>Description:</u> The major goals of this subcontract are to assess the therapeutic efficacy of Fc optimized non-neutralizing antibodies in rhesus monkeys.		
2015-2020	PI	Ragon Institute	\$663,286
	<u>Title:</u> Therapeutic Vaccine Clinical Trial		
	<u>Description:</u> The major goals of this grant are to assess the immunogenicity of Ad26/MVA vaccines in ART-suppressed, HIV-1-infected humans.		
2015-2020	PI	Gilead Sciences	\$3,586,694
	<u>Title:</u> PGT121 and GS-9620 for HIV-1 Remission and Eradication		
	<u>Description:</u> The major goals of this grant are to evaluate the impact of PGT121 and GS-9620 on viral reservoirs in SHIV-infected rhesus monkeys.		
2015-2020	PI	amfAR 109219-58-RGRL	\$1,713,298
	<u>Title:</u> Broadly Neutralizing Antibodies for HIV-1 Remission and Eradication		
	<u>Description:</u> The major goals of this grant are to develop cocktails of broadly neutralizing monoclonal antibodies as part of HIV-1 eradication regimens.		

2016-2018	Subcontract PI	Bill & Melinda Gates Foundation OPP1097381 (PI: Alter, Galit)	\$200,000
		<u>Title:</u> Glyco-Adjuvanting HIV Vaccines Collaboration for AIDS Vaccine Discovery (CAVD) <u>Description:</u> The major goals of this subcontract are to evaluate the immunogenicity of glycan-optimized HIV-1 Env immunogens in guinea pigs.	
2016-2017	PI	Gilead Sciences	\$50,000
		<u>Title:</u> GS-9620 and TLR8 Agonist Monkey Study <u>Description:</u> The major goals of this grant are to compare TLR7 and TLR8 agonists for their ability to stimulate the viral reservoir in SHIV-infected rhesus monkeys.	
2016-2017	Subcontract PI	DOD/Henry Jackson Foundation W81XWH-11-2-0174 (PI: Robb, Merlin L.)	\$856,575
		<u>Title:</u> Inactivated Zika Vaccine Study in Nonhuman Primates U.S. Military HIV Research Program (MHRP) <u>Description:</u> The major goals of this subcontract are to evaluate the WRAIR Zika purified inactivated virus vaccine in rhesus monkeys.	
2016-2017	Subcontract PI	DOD/Henry Jackson Foundation W81XWH-11-2-0174 (PI: Robb, Merlin L.)	\$366,276
		<u>Title:</u> DENV-ZIKV Study U.S. Military HIV Research Program (MHRP) <u>Description:</u> The major goals of this subcontract are to evaluate the impact of DENV immunity on ZIKV vaccine immunogenicity and protective efficacy.	
2016-2017	Subcontract PI	DOD/Henry Jackson Foundation W81XWH-11-2-0174 (PI: Robb, Merlin L.)	\$433,525
		<u>Title:</u> GMP Production of PGDM1400 Monoclonal Antibody at the 500L Scale U.S. Military HIV Research Program (MHRP) <u>Description:</u> The major goals of this subcontract are to increase the GMP manufacturing scale of PGDM1400 for clinical trials.	
2016-2018	PI	Novavax	\$1,212,487
		<u>Title:</u> ZIKV Vaccines <u>Description:</u> The major goals of this grant are the assess the immunogenicity and protective efficacy of the Novavax ZIKV vaccines in rhesus monkeys.	
2016-2019	Subcontract PI	DOD/Henry Jackson Foundation W81XWH-11-2-0174 (PI: Robb, Merlin L.)	\$697,570
		<u>Title:</u> ZPIV Clinical Trial U.S. Military HIV Research Program (MHRP) <u>Description:</u> The major goals of this subcontract are to conduct a first-in-human phase 1 clinical trial with the ZIKV purified inactivated virus (ZPIV) vaccine.	
2016-2022	PI (Overall Program)	NIH/NIAID UM1 AI126603 (Joint PIs: Mellors, John; Vasan, Sandy)	\$20,028,960
		<u>Title:</u> Combined Immunologic Approaches to Cure HIV-1 (I4C)	

Martin Delaney Collaboratory for HIV Cure Research

Roles: PI (Overall Program; Joint PI); Co-Investigator (Focus 1: Efficacy of Combined Immunologic Approaches); PI (Focus 2: Mechanisms and Next Generation Strategies); PI (SRS 2: Nonhuman Primate); Co-Investigator (SRS 4: Immunology); PI (Management and Operations)

Description: The major goals of this program project cooperative agreement are to investigate the capacity of active and passive immunization strategies to eliminate the viral reservoir in SHIV-infected rhesus monkeys and HIV-1-infected humans.

2016-2022	Subcontract PI	Gilead Sciences (PI: Alter, Galit)	\$1,486,203
	<u>Title:</u> Development of Broadly Functional Antibodies		
	<u>Description:</u> The major goals of this subcontract are to evaluate novel broadly functional antibodies as a SHIV eradication strategy in rhesus monkeys.		
2017-2018	PI	Janssen	\$750,000
	<u>Title:</u> Ad26.ZIKV.001 Vaccination to Prevent Birth Defects in ZIKV Exposed Pregnant NHPs		
	<u>Description:</u> The major goals of this grant are to evaluate whether the Ad26-ZIKV vaccine can prevent congenital Zika syndrome in pregnant female rhesus monkeys.		
2017-2020	PI	Janssen	\$1,740,257
	<u>Title:</u> Protective Efficacy of Shortened HIV-1 Vaccine Regimens		
	<u>Description:</u> The major goals of this contract are to evaluate the immunogenicity and protective efficacy of shortened Ad26/Env vaccine regimens in rhesus monkeys.		
2017-2020	PI	Ragon Institute	\$1,584,782
	<u>Title:</u> Combination Antibody Clinical Trial		
	<u>Description:</u> The major goals of this grant are to assess the utility of PGT121 and VRC07-523LS for HIV-1 prevention and therapy.		
2017-2021	Subcontract PI	DOD/Henry Jackson Foundation 2018-CHEDA-001-796529 (PI: Vasan, Sandy)	\$1,268,339
	<u>Title:</u> Therapeutic Ad26/Env vaccine study Walter Reed Army Institute of Research (WRAIR)		
	<u>Description:</u> The major goals of this subcontract are to evaluate Ad26/Env therapeutic vaccination in SIV-infected rhesus monkeys.		
2017-2022	Subcontract PI	DARPA HR001117S0019-P3-PA-006 (PI: Crowe, James E.)	\$1,804,608
	<u>Title:</u> Rational and Rapid Antibody Design and Delivery (RRAADD)		
	<u>Description:</u> The major goals of this subcontract are to develop a pandemic prevention platform with monoclonal antibodies.		
2018-2021	PI	Janssen	\$700,771
	<u>Title:</u> ZIKV Vaccine Clinical Trial		

Description: The major goals of this contract are to evaluate the immunogenicity of the Ad26-ZIKV vaccine in a phase 1 study in humans.

2018-2020	PI	Ragon Institute	\$300,552
	<u>Title:</u> Fitness Immunogen Vaccines		
	<u>Description:</u> The major goals of this grant are to assess the immunogenicity of fitness-based HIV-1 immunogens in rhesus monkeys.		
2019-2021	PI	Janssen	\$600,000
	<u>Title:</u> HIV Cure NHP Studies		
	<u>Description:</u> The major goals of this contract are to provide supplemental support to ongoing HIV-1 cure studies in SIV/SHIV-infected rhesus monkeys.		
2019-2021	PI	Gilead Sciences	\$300,000
	<u>Title:</u> HIV Cure NHP Studies		
	<u>Description:</u> The major goals of this contract are to provide supplemental support to ongoing HIV-1 cure studies in SIV/SHIV-infected rhesus monkeys.		
2019-2021	PI	Legend Biotech	\$377,061
	<u>Title:</u> CAR-T HIV NHP Studies		
	<u>Description:</u> The major goals of this contract are to evaluate CAR-T cell strategies for HIV-1 cure in SHIV-infected rhesus monkeys.		
2020-2021	PI	Gilead Sciences	\$465,859
	<u>Title:</u> Capsid Inhibitor Study		
	<u>Description:</u> The major goals of this contract are to assess the protective efficacy of the capsid inhibitor GS-6207 against SHIV infection in rhesus monkeys.		
2020-2021	PI	MassCPR	\$434,783
	<u>Title:</u> Protective Immunity to SARS-CoV-2 by Natural Infection and Vaccination		
	<u>Description:</u> The major goals of this grant are to assess protective immunity to SARS-CoV-2 in nonhuman primates.		
2020-2021	PI	Zentalis	\$148,571
	<u>Title:</u> Bcl-2 Therapy for COVID-19		
	<u>Description:</u> The major goals of this contract are to assess a bcl-2 inhibitor as therapy for COVID-19 in hamsters.		
2020-2021	PI	Alkermes	\$175,000
	<u>Title:</u> Vaccine Adjuvant for COVID-19		
	<u>Description:</u> The major goals of this contract are to assess an IL-2 based vaccine adjuvant for COVID-19 vaccines in mice.		
2020-2021	Subcontract PI	DOD/Henry Jackson Foundation 2018-CHEDA-001-948100 (PI: Vasan, Sandy)	\$1,042,761
	<u>Title:</u> Immunogenicity and Protective Efficacy of Oral SARS-CoV-2		
	Walter Reed Army Institute of Research (WRAIR)		

Description: The major goals of this subcontract are to assess the immunogenicity and protective efficacy of orally delivered SARS-CoV-2.

2020-2022	PI	Ragon Institute	\$869,565
	<u>Title:</u> COVID-19 Vaccine Development		
	<u>Description:</u> The major goals of this grant are to develop and test SARS-CoV-2 vaccine candidates.		
2020-2022	PI	Bill & Melinda Gates Foundation INV-006131	\$3,784,665
	<u>Title:</u> COVID-19: Animal Models		
	<u>Description:</u> The major goals of this grant are to develop SARS-CoV-2 preclinical models for studying vaccines, therapeutics, and pathogenesis.		
2020-2022	PI	CureVac	\$1,419,008
	<u>Title:</u> RNA Vaccine for COVID-19		
	<u>Description:</u> The major goals of this contract are to evaluate an RNA vaccine for COVID-19 in rhesus monkeys.		
2020-2022	Subcontract PI	South Africa MRC (PI: Chikwamba, Rachel)	\$253,601
	<u>Title:</u> Protective Efficacy of Plant Based CAP256 in Rhesus Monkeys		
	<u>Description:</u> The major goals of this grant are to assess the protective efficacy of plant based CAP256 antibody against SHIV infection in rhesus monkeys.		

Report of Local Teaching and Training

Teaching of Students in Courses

Harvard Summer School

1991-1992	Chemistry S-1: Introductory Chemistry Undergraduate students	Teaching Fellow 8 hours/week for 4 months/year
-----------	---	---

Harvard Extension School

1991-1992	Chemistry E-1: Introductory Chemistry Undergraduate students	Teaching Fellow 2 hours/week for 8 months/year
-----------	---	---

Harvard College

1992-1993	Chemistry 10: Introductory Chemistry Undergraduate students	Head Teaching Fellow 2 hours/week for 4 months/year
1993, 1996	MCB 61: Physical Biochemistry Undergraduate students	Head Teaching Fellow 2 hours/week for 4 months/year
2004-2010	MCB 268: Molecular Immunology	Lecturer

	Undergraduate and graduate students	4 hours/week for 1 week/year
2011-2014	SCRB 168: Molecular Immunology Undergraduate and graduate students	Lecturer 4 hours/week for 1 week/year
2020	SCRB 210: Science, Medicine, Therapeutics Undergraduate and graduate students	Lecturer 4 hours/week for 1 week/year
2021	HMX Lecturer Undergraduate and graduate students	2 hours/week for 1 week/year
2022	Gen Ed 1175 Undergraduate students	2 hours/week for 1 week/year

Harvard Medical School

2005-2006	Immunology, Microbiology, Infect Diseases First year medical students	Instructor 4 hours/week for 4 weeks/year
2007	Immunology, Microbiology, Pathology First year medical students	Instructor 4 hours/week for 4 weeks/year
2008	Immunology 202: Advanced Immunology Graduate students	Guest Lecturer 2 hours
2009-	Virology 348: Immunopathogenesis of HIV Graduate dissertation students	Instructor 1 hour/week for 50 weeks/year
2010, 2012	Clinical Investigator Training Program Clinical and research fellows	Guest Lecturer 2 hours
2011-2013	Intensive Training Translational Medicine Clinical and research fellows	Guest Lecturer 2 hours
2013-2022	HST 040: Microbial Pathogenesis Graduate students	Guest Lecturer 2-4 hours
2013	Immunology 201: Principles of Immunology Graduate students	Guest Lecturer 2 hours
2015	Immunology 202: Advanced Immunology Graduate students	Guest Lecturer 2 hours
2015	Models of Disease Clinical fellows	Guest Lecturer 2 hours
2016	M.D.-Ph.D. Program Medical and graduate students	Guest Lecturer 2 hours

2017	Virology 201: Virology Graduate students	Lecturer 4 hours
2018-2022	Virology 200: Virology Graduate students	Lecturer 4 hours
2018-2020	Advanced Integrative Science Course Medical students	Lecturer 4 hours
2020	BCMP 230 Graduate students	Guest Lecturer 2 hours
2021	HST S43 Medical and graduate students	Guest Lecturer 2 hours
2021	Investigations of Human Disease MD-PhD students	Guest Lecturer 2 hours

Harvard School of Public Health

2007	IMI 225: Design/Development of Vaccines Graduate students	Guest Lecturer 2 hours
2009, 2011, 2014	IMI 208: Immunology of Infectious Disease Graduate students	Guest Lecturer 2 hours
2019	IID 207: Immunology of Infectious Disease Graduate students	Guest Lecturer 2 hours
2019	EPI 256: Epidemiology of Infectious Disease Graduate students	Guest Lecturer 2 hours
2021-2022	ID 503 Graduate students	Guest Lecturer 2 hours

Massachusetts Institute of Technology

2020	MIT 20.380: Biological Engineering Design Undergraduate and graduate students	Guest Lecturer 2 hours
2021	MIT: Viruses, Pandemics, and Immunity Undergraduate and graduate students	Guest Lecturer 2 hours
2021	MIT 7.00 Biology of COVID-19 Undergraduate and graduate students	Guest Lecturer 2 hours
2022	MIT 6.881/20.S948	Guest Lecturer

Undergraduate and graduate students 2 hours

Clinical Supervisory and Training Responsibilities

2004-2016	Supervision of 2 clinical fellows on the Infectious Diseases consultation service Brigham and Women's Hospital	40 hours/week for 2-6 weeks/year
2011, 2018-	Supervision of 2 clinical fellows on the Infectious Diseases consultation service Beth Israel Deaconess Medical Center	40 hours/week for 2 weeks/year

Laboratory and Other Research Supervisory and Training Responsibilities

2002-2004 2015-2016	Supervision of 1-2 medical students	Daily mentorship
2004-	Supervision of 4-12 postdoctoral fellows	Daily mentorship
2007-	Supervision of 1-2 undergraduate students	Daily mentorship
2008-	Supervision of 2-8 graduate students	Daily mentorship

Formally Supervised Trainees

2002-2004	Shawn Sumida, M.D. Published 3 first-author manuscripts, 1 in <i>J. Virol.</i> , 1 in <i>J. Immunol.</i> , and 1 in <i>J. Clin. Invest.</i>	Physician, Kaiser Permanente
2004-2007	Diane Roberts, Ph.D. Published 1 first-author manuscript in <i>Nature</i> ; selected for oral presentation at the AIDS Vaccine 2006 Conference	Postdoctoral Fellow, MGH
2004-	Jinyan Liu, M.D., Ph.D. Published 10 first-author manuscripts, 3 in <i>Nature</i> , 1 in <i>Science</i> , 1 in <i>Sci. Immunol.</i> , and 5 in <i>J. Virol.</i> ; selected for oral presentations at the AIDS Vaccine 2007, AIDS Vaccine 2010, AIDS Vaccine 2012, and AIDS Vaccine 2013 Conferences	Staff Scientist, BIDMC, HMS
2004-2019	Peter Abbink, Ph.D. Published 10 first-author manuscripts, 1 in <i>Nature</i> , 1 in <i>Nat. Med.</i> , 1 in <i>Nat. Rev. Microbiol.</i> , 2 in <i>Science</i> , 1 in <i>Sci. Transl. Med.</i> , and 4 in <i>J. Virol.</i>	Scientist, Batavia Biosciences
2005-2007	Anna Thorner, M.D. Published 2 first-author manuscripts, 1 in <i>J. Virol.</i> and 1 in <i>J. Clin. Microbiol.</i> ; selected for oral presentation at the AIDS Vaccine 2006 Conference	Assistant Professor, BWH, HMS
2006-2011	David Kaufman, M.D., Ph.D. Published 5 first-author manuscripts, 2 in <i>J. Virol.</i> , 2 in <i>J. Immunol.</i> , 1 in <i>Vaccine</i> ; selected for oral presentations and received Young Investigator Awards at the AIDS Vaccine 2007 Conference and the 2008 Keystone Symposium on HIV	Principal. Third Rock Capital

Vaccines; recipient of a Harvard CFAR Scholar Award, an NIH/NIAID Early Career Investigator (ECI) Award, and an NIH K08 AI083079 award

- 2006-2011 Elizabeth Rhee, M.D. Associate Director, Merck
Published 2 first-author manuscripts in *J. Virol.*; selected for oral presentation at the 2008 Keystone Symposium on HIV Vaccines; recipient of a Ragon Institute Fellow Award
- 2007- Joseph Nkolola, Ph.D. Staff Scientist, BIDMC
Published 7 first-author manuscripts, 1 in *Nature*, 1 in *Sci. Trans. Med.*, 1 in *Immunity*, 2 in *J. Virol.*, 1 in *Vaccine*, and 1 in *Proc. Natl. Acad. Sci. USA*; recipient of a Ragon Institute Fellow Award; selected for oral presentation at the AIDS Vaccine 2013 Conference
- 2007- Lori Maxfield, Ph.D. Staff Scientist, BIDMC
Published 1 first-author manuscript in *Clin. Vaccine Immunol.*
- 2008-2014 Hualin Li, Ph.D. Assistant Director, Merck
Published 4 first-author manuscripts in *J. Virol.*; selected for oral presentations at the AIDS Vaccine 2011 and AIDS Vaccine 2012 Conferences
- 2009-2012 Eung-Jun Im, Ph.D. Assistant Professor, Boston University
Published 1 first-author manuscript in *J. Virol.*
- 2009- Kathryn Stephenson, M.D., M.P.H. Assistant Professor, BIDMC, HMS
Published 13 first-author manuscripts, 1 in *JAMA*, 1 in *Lancet*, 1 in *Lancet HIV*, 1 in *Lancet Infectious Disease*, 1 in *Nat. Med.*, 2 in *J. Virol.*, 1 in *J. Infect. Dis.*, 1 in *PLoS ONE*, 1 in *J. Immunol. Methods*, 1 in *Open Fourm Infect. Dis.*, 1 in *Curr. Op. Immunol.*, and 1 in *Annu. Rev. Immunol.*; selected for oral presentation at the AIDS Vaccine 2012 Conference; recipient of a Harvard CFAR Scholar Award and NIH K23 AI114381 and R21 AI122938 awards
- 2009-2014 Jeff Teigler, Ph.D. Scientist, Sanofi
Published 4 first-author manuscripts, 3 in *J. Virol.* and 1 in *Clin. Vaccine Immunol.*; selected for oral presentations at the 2011 Keystone Symposium on Prevention from HIV, the AIDS Vaccine 2012 Conference, the 32nd American Society for Virology Conference, and the 10th Society for Brain Mapping & Therapeutics Conference; selected as a Harvard Horizons Scholar
- 2011-2016 Pablo Penaloza, Ph.D. Assistant Professor, Northwestern
Published 7 first-author manuscripts, 1 in *Science*, 1 in *J. Immunol.*, 2 in *J. Virol.*, 1 in *Clin. Vaccine Immunol.*, and 2 in *Vaccine*; selected for oral presentations at the American Association of Immunologists (AAI) 2012 Conference, the AAI 2013 Conference, and the AAI 2014 Conference; recipient of NIH K22 AI118421 and R21 AI132848 awards
- 2011-2016 Nick Provine, Ph.D. Postdoctoral Fellow, Oxford

Published 3 first-author manuscripts, 2 in *J. Immunol.*, 1 in *J. Virol.*; selected for oral presentations at the American Association of Immunologists (AAI) 2013 Conference and the AAI 2014 Conference

- | | | |
|-----------|--|---------------------------------------|
| 2011-2016 | Christine Bricault, Ph.D.
Published 4 first-author manuscripts, 1 in <i>Cell Host & Microbe</i> and 3 in <i>J. Virol.</i> | Scientist, Sanofi |
| 2012-2014 | Emmanuel Balandya, Ph.D.
Published 1 first-author manuscript in <i>J. Virol.</i> | Lecturer, Muhimbili University |
| 2012-2019 | Rafael Larocca, Ph.D.
Published 6 first-author manuscripts, 1 in <i>Nature</i> , 1 in <i>Nat. Med.</i> , 1 in <i>Science</i> , 1 in <i>Sci. Transl. Med.</i> , 1 in <i>Sci. Immunol.</i> , and 1 in <i>Plos Pathogens</i> . | Senior Scientist, Anokion |
| 2013-2014 | Hui-Wen Chang, Ph.D.
Published 1 first-author manuscript in <i>J. Virol.</i> | Assistant Professor, Natl Taiwan Univ |
| 2013-2015 | James Whitney, Ph.D.
Published 2 first-author manuscripts, 1 in <i>Nature</i> and 1 in <i>Nat. Commun.</i> Recipient of NIH R56 AI122942, R01 AI127089, and P01 AI131365 awards. | Associate Professor, Boston College |
| 2013-2015 | R. Keith Reeves, Ph.D.
Published 1 first-author manuscript in <i>Nat. Immunol.</i> Recipient of NIH R01 AI120828, R01 DE026014, R01 DE026327, and R01 AI143457 awards. | Professor, Duke University |
| 2013-2018 | Boris Juelg, M.D., Ph.D.
Published 8 first-author manuscripts, 2 in <i>Sci. Trans. Med.</i> , 1 in <i>Nat. Med.</i> , 2 in <i>J. Virol.</i> , 1 in <i>Lancet HIV</i> , 1 in <i>Curr. Op. HIV AIDS</i> , and 1 in <i>Semin. Immunol.</i> Recipient of a Harvard CFAR Scholar Award, an NIH K08 AI106408 and R01 AI138790 awards. | Assistant Professor, MGH, HMS |
| 2013-2018 | Eryn Blass, Ph.D.
Published 1 first-author manuscript in <i>J. Virol.</i> | Postdoctoral Fellow, DFCI, HMS |
| 2013-2018 | Zi Kang, Ph.D.
Published 1 first-author manuscript in <i>J. Virol.</i> | Postdoctoral Fellow, NUS |
| 2014-2017 | Alexander Badamchi-Zadeh, Ph.D.
Published 2 first-author manuscript, 1 in <i>J. Virol.</i> and 1 in <i>J. Immunol.</i> | Consultant, LEK |
| 2014-2018 | Mark Justin Iampietro, Ph.D.
Published 1 first-author manuscript in <i>J. Virol.</i> | Scientist, Sanofi |
| 2014-2019 | Lawrence Tartaglia, Ph.D.
Published 3 first-author manuscripts, 1 in <i>Sci. Transl. Med.</i> , 1 in <i>PLoS Pathogens</i> , and 1 in <i>J. Virol.</i> | Lecturer, Lehigh University |
| 2014-2019 | Amanda Martinot, D.V.M, Ph.D. | Assistant Professor, Tufts University |

	Published 1 first-author manuscript in <i>Cell</i> . Recipient of an NIH K08 AI135098 Award.	
2015-	Malika Aid, Ph.D. Published 2 first-author manuscripts, 2 in <i>Cell</i> , and 1 in <i>PLoS Pathogens</i> .	Instructor, BIDMC, HMS
2015-2022	Xuan He, Ph.D. Published 3 first-author manuscripts, 1 in <i>Cell</i> , 1 in <i>Sci. Transl. Med</i> , and 1 in <i>J. Virol</i> .	Assistant Professor, Sichuan Univ.
2016-2020	Po-Ting Liu Published 2 first-author manuscripts, 1 in <i>Sci. Transl. Med</i> . and 1 in <i>Nat. Commun</i> .	Graduate Student, BIDMC, HMS
2017-2019	Anthony Cadena, Ph.D. Published 1 first-author manuscript in <i>Nat. Commun</i> .	Senior Scientist, Tizona Therapeutics
2017-	Ai-ris Collier, M.D. Published 6 first-author manuscripts, 2 in <i>NEJM</i> , 1 in <i>JAMA</i> , 1 in <i>Sci. Transl. Med</i> ., 1 in <i>J. Infect. Dis.</i> , and 1 in <i>Am. J. Reprod. Immunol</i> . Recipient of an NIH K12 HD000849 / Reproductive Scientist Development Program (RSDP) Award.	Instructor, BIDMC, HMS
2017-	Lisa Tostanoski, Ph.D. Published 4 first-author manuscripts, 1 in <i>Nat. Med.</i> , 1 in <i>Sci. Transl. Med.</i> , 1 in <i>J. Virol.</i> , and 1 in <i>npj Vaccines</i> . Selected for oral presentation at the BMES 2022 meeting.	Postdoctoral Fellow, BIDMC, HMS
2017-2022	Makda Gebre Published 3 first-author manuscripts, 1 in <i>Nature</i> , 1 in <i>Cell</i> , and 1 in <i>npj Vaccines</i> .	Scientist, Gritstone Bio
2018-	Shant Mahrokhian Published 1 first-author manuscript in <i>npj Vaccines</i> .	Medical Student, Tufts
2018-	Gabe Dagotto Published 3 first-author manuscripts, 1 in <i>Cell Host & Microbe</i> , 1 in <i>J. Virol.</i> , and 1 in <i>npj Vaccines</i> .	Graduate Student, BIDMC, HMS
2018-	Catherine Jacob-Dolan Published 1 first-author manuscript in <i>J. Virol</i> .	Graduate Student, BIDMC, HMS
2018-	Samuel Vidal, M.D., Ph.D. Published 3 first-author manuscripts, 1 in <i>Nature</i> , 1 in <i>Annu. Rev. Med.</i> , and 1 in <i>J. Virol</i> .	Postdoctoral Fellow, BIDMC, HMS
2019-2022	Jingyou Yu, Ph.D. Published 6 first-author manuscripts, 1 in <i>NEJM</i> , 1 in <i>Nature</i> , 1 in <i>Science</i> , 1 in <i>Sci. Adv.</i> , and 2 in <i>J. Virol</i> .	Assistant Professor, Guangzhou Univ.
2019-2022	John Ventura, Ph.D.	Senior Scientist, Moderna

Published 1 first-author manuscript in *npj Vaccines*.

2020- Victoria Walker-Sperling, Ph.D. Postdoctoral Fellow, BIDMC, HMS
Published 1 first-author manuscript in *Nat. Comm.*

Formal Teaching of Peers (e.g., CME and other continuing education courses)

2006	HIV Immunopathogenesis 10 th Annual HIV Update, Boston, MA	Single presentation Beth Israel Deaconess Medical Center
2007	HIV Immunopathogenesis 11 th Annual HIV Update, Boston, MA	Single presentation Beth Israel Deaconess Medical Center
2008	HIV Immunopathogenesis 12 th Annual HIV Update, Boston, MA	Single presentation Beth Israel Deaconess Medical Center
2009	HIV Immunopathogenesis and Vaccines 13 th Annual HIV Update, Boston, MA	Single presentation Beth Israel Deaconess Medical Center
2010	HIV Immunopathogenesis and Vaccines 14 th Annual HIV Update, Boston, MA	Single presentation Beth Israel Deaconess Medical Center
2011	HIV Immunopathogenesis and Vaccines 15 th Annual HIV Update, Boston, MA	Single presentation Beth Israel Deaconess Medical Center
2012	HIV Immunopathogenesis and Vaccines 16 th Annual HIV Update, Boston, MA	Single presentation Beth Israel Deaconess Medical Center
2013	HIV Immunopathogenesis and Vaccines 17 th Annual HIV Update, Boston, MA	Single presentation Beth Israel Deaconess Medical Center
2014	HIV Immunopathogenesis and Vaccines 18 th Annual HIV Update, Boston, MA	Single presentation Beth Israel Deaconess Medical Center
2019	HIV Cure: Fact or Fiction Management of HIV Disease, Chicago, IL	Single presentation International AIDS Society
2021	COVID-19 Vaccine Development Prevention in Primary Care, Boston, MA	Single presentation Harvard Medical School
2021	COVID-19 Vaccine Development Internal Medicine Conference, Boston, MA	Single presentation NUHS-BIDMC

Local Invited Presentations

Note: no external sponsor or source of compensation

1999 Symposium Presentation

- 59th Annual Soma Weiss Research Day, Harvard Medical School
- 2000 Symposium Presentation
1st Annual Harvard Medical School Center for AIDS Research (CFAR)
Symposium, Harvard Medical School
- 2002 Division Seminar
Partners AIDS Research Center, Massachusetts General Hospital
- 2002 Division Seminar
Division of Infectious Diseases, Massachusetts General Hospital
- 2003 Symposium Presentation
Harvard University Committee on University Resources (COUR)
- 2004 Symposium Presentation
Annual Research Day, Beth Israel Deaconess Medical Center
- 2004 Division Seminar
Division of Infectious Diseases, Massachusetts General Hospital
- 2004 Division Seminar
Division of Immunology, Harvard School of Public Health
- 2005 Division Seminar
Division of Infectious Diseases, Brigham and Women's Hospital
- 2005 Grand Rounds Discussant
Department of Ophthalmology, Massachusetts Eye and Ear Infirmary
- 2005 Grand Rounds
Department of Medicine, Massachusetts General Hospital
- 2006 Resident Report
Department of Medicine, Massachusetts General Hospital
- 2006 Division Seminar
Division of Infectious Diseases, Brigham and Women's Hospital
- 2006 Department Seminar
Committee on Virology, Harvard Medical School
- 2007 Division Seminar
Division of Immunology, Dana-Farber Cancer Institute
- 2007 Site Visit Presentation
New England Primate Research Center

2007	Symposium Presentation Annual Retreat, Virology Program, Harvard Medical School
2007	Division Seminar Division of Immunology, Dana-Farber Cancer Institute, Brigham and Women's Hospital, Joslin Diabetes Center
2008	Keynote Presentation Department of Cancer Immunology and AIDS Annual Retreat, Dana-Farber Cancer Institute
2008	Division Seminar Division of Infectious Diseases, Brigham and Women's Hospital
2009	Division Seminar Ragon Institute of MGH, MIT, and Harvard
2009	Panel Discussion 4 th Annual Student AIDS Conference, Harvard Medical School
2009	Grand Rounds Department of Medicine, Beth Israel Deaconess Medical Center
2009	Division Seminar Division of Retrovirology, Dana-Farber Cancer Institute
2009	Plenary Presentation 9 th Annual Harvard University Center for AIDS Research (CFAR) Symposium
2009	Symposium Presentation Annual Retreat, Virology Program, Harvard Medical School
2009	Division Seminar Division of Infectious Diseases, Brigham and Women's Hospital
2009	Division Seminar Division of Infectious Diseases, Beth Israel Deaconess Medical Center
2010	Symposium Presentation Harvard Medical School AIDS Action Initiative
2011	Division Seminar Whitehead Institute, Massachusetts Institute of Technology
2011	Symposium Presentation Clinical Trials Unit, Brigham and Women's Hospital
2011	Grand Rounds

Department of Medicine, Beth Israel Deaconess Medical Center

2012 Plenary Presentation
Harvard University Center for AIDS Research (CFAR) Symposium

2012 Division Seminar
Division of Infectious Diseases, Massachusetts General Hospital

2012 Division Seminar
Committee on Virology, Harvard Medical School

2012 Division Seminar
Division of Immunology, Dana-Farber Cancer Institute, Brigham and Women's Hospital

2012 Division Seminar
Center for Virology and Vaccine Research, Beth Israel Deaconess Medical Center

2013 Division Seminar
Ragon Institute of MGH, MIT, and Harvard

2013 Division Seminar
Division of Immunology, Harvard School of Public Health

2013 Division Seminar
Division of Infectious Diseases, Beth Israel Deaconess Medical Center

2013 Course Lecture
Department of Medicine, Beth Israel Deaconess Medical Center

2014 Division Seminar
Committee on Virology, Harvard Medical School

2014 Symposium Presentation
Ragon Institute of MGH, MIT, and Harvard

2014 Division Seminar
Center for Virology and Vaccine Research, Beth Israel Deaconess Medical Center

2014 Board Presentation
Annual Meeting of the Boards, Beth Israel Deaconess Medical Center

2014 Department Seminar
Department of Molecular Biology and Immunobiology, Harvard Medical School

2014 Division Seminar
Division of Infectious Diseases, Brigham and Women's Hospital

2014	Division Seminar Immunology Seminar Series, Massachusetts General Hospital
2015	Board Presentation Trustee Advisory Board, Beth Israel Deaconess Medical Center
2015	Division Seminar Joint Infectious Diseases Conference, Harvard Medical School
2015	Committee Presentation Harvard Catalyst, Harvard Medical School
2015	Symposium Presentation Massachusetts Institute of Technology
2015	Division Seminar Beth Israel Deaconess Medical Center
2015	Public Seminar Radcliffe Institute for Advanced Study, Harvard University
2016	Division Seminar Committee on Virology, Harvard Medical School
2016	Division Seminar Ragon Institute of MGH, MIT, and Harvard
2016	Division Seminar Division of Infectious Diseases, Boston Medical Center
2016	Division Seminar Department of Medicine, Brigham and Women's Hospital
2016	Symposium Presentation Virology Retreat, Harvard Medical School
2016	Symposium Presentation Immunology Retreat, Harvard Medical School
2017	Grand Rounds Department of Medicine, Beth Israel Deaconess Medical Center
2017	Cannon Eley Lecture Department of Medicine, Children's Hospital
2017	Division Seminar Division of Immunology, Harvard School of Public Health

2017	Grand Rounds MetroWest Medical Center Grand Rounds, Framingham, MA
2017	Grand Rounds Boston Medical Center, Boston, MA
2017	Institute Board Presentation Ragon Institute of MGH, MIT, and Harvard
2017	Grand Rounds Department of Obstetrics and Gynecology, Beth Israel Deaconess Medical Center
2018	Keynote Presentation Immunology and Infectious Diseases Retreat, Harvard School of Public Health
2018	Presentation and Panel Discussion Gates Medical Research Institute Meeting, Harvard School of Public Health
2018	Division Seminar Department of Medicine, Children's Hospital
2018	Symposium Presentation External Advisory Meeting, Harvard University Center for AIDS Research (CFAR)
2018	Presentation and Panel Discussion Infectious Diseases Student Interest Group (ID-SIG), Harvard Medical School
2018	Presentation and Panel Discussion Advanced Integrative Science Course (AISC), Microbiology and Infectious Diseases, Harvard Medical School
2018	Committee Presentation Flagship Pioneering, Boston, MA
2018	Committee Presentation Board of Trustees Meeting, Beth Israel Deaconess Medical Center
2018	Division Seminar Tufts Medical Center, Boston, MA
2019	Grand Rounds Newborn Medicine, Children's Hospital, Boston, MA
2019	Department Seminar Department of Mechanical Engineering, Boston University, Boston, MA
2019	20 th Reunion Seminar Harvard Medical School, Boston, MA

2019	Division Seminar Ragon Institute of MGH, MIT, and Harvard, Cambridge, MA
2019	Panel Discussion Harvard University Center for AIDS Research (CFAR) Symposium, Boston, MA
2020	Symposium Presentation Greater Boston Consortium for Pathogen Readiness (GBCPR), Harvard Medical School, Boston, MA
2020	Grand Rounds Massachusetts General Hospital, Boston, MA
2020	Inaugural BIDMC Connect Seminar Beth Israel Deaconess Medical Center, Boston, MA
2020	Webinar Seminar Harvard Medical School, Boston, MA
2020	Town Hall Meeting Beth Israel Deaconess Medical Center, Boston, MA
2020	Division Seminar Beth Israel Deaconess Medical Center, Boston, MA
2020	Webinar Seminar Harvard University, Boston, MA
2020	Symposium Presentation (5) Massachusetts Consortium for Pathogen Readiness (MassCPR), Boston, MA
2020	Medical Grand Rounds (2) Harvard Medical School, Boston, MA
2020	Institute Seminar Ragon Institute of MGH, MIT, and Harvard, Cambridge, MA
2020	Committee Presentation Beth Israel Deaconess Medical Center, Boston, MA
2020	Science in Residency Seminar Brigham and Women's Hospital, Boston, MA
2020	PfoHo Pforum Pforzheimer House, Harvard College, Cambridge, MA
2020	Keynote Presentation

Translational Research Program Retreat, Children's Hospital, Boston, MA

2020 Committee Presentation
Executive Council, Tufts Medical Center, Boston, MA

2020 Division Seminar
Committee on Virology, Harvard Medical School

2020 Pathology Grand Rounds
Brigham and Women's Hospital, Boston, MA

2020 Committee Presentation
Harvard Medical School and Harvard Business School MD/MBA Program, Boston, MA

2020 Town Hall Meeting
Harvard Medical Faculty Physicians, Boston, MA

2020 Department Seminar
Department of Immunology, Harvard Medical School

2021 Symposium Presentation, Panel Discussion (7)
Massachusetts Consortium for Pathogen Readiness (MassCPR), Boston, MA

2021 Medical Grand Rounds
Cambridge Health Alliance, Cambridge, MA

2021 Division Seminar
Cancer Immunology Seminar Series, Dana-Farber Cancer Institute

2021 Medical Grand Rounds
New England Baptist Hospital, Boston, MA

2021 Panel Discussion
Museum of Science, Boston, MA

2021 Symposium Presentation
Harvard Medical School High Impact Cancer Research Workshop, Boston, MA

2021 Panel Discussion
Harvard College, Cambridge, MA

2021 Town Hall
Massachusetts Institute of Technology (MIT), Cambridge, MA

2021 Hearing
Joint Committee on COVID-19 and Emergency Preparedness and Management,
Joint Committee on Public Health, Commonwealth of Massachusetts, Boston, MA

- 2021 Susan Swerling Lecture
Cancer Immunology Seminar Series, Dana-Farber Cancer Institute
- 2021 Keynote Presentation
Master's Programs Graduation Ceremony, Harvard Medical School, Boston, MA
- 2021 Rehabilitation Medicine Grand Rounds
Beth Israel Deaconess Medical Center, Boston, MA
- 2021 Symposium Presentation
Ragon Institute of MGH, MIT, and Harvard, Cambridge, MA
- 2021 Symposium Presentation
Science in Residency Bootcamp, Brigham & Women's Hospital, Boston, MA
- 2021 Symposium Presentation
Harvard-MIT Center for Regulatory Science Monthly Forum, Boston, MA
- 2021 Panel Discussion
Boston Globe Summit, Boston, MA
- 2021 Keynote Presentation
11th Annual Harvard Medical School Chinese Scholars and Scientists Association
(HMS CSSA) Conference, Boston, MA
- 2021 Department Seminar
Committee on Immunology, Harvard Medical School, Boston, MA
- 2021 Medical Grand Rounds
Harvard Medical School, Boston, MA
- 2021 Hearing
Joint Committee on COVID-19 and Emergency Preparedness and Management,
Commonwealth of Massachusetts, Boston, MA
- 2021 Panel Discussion
Beth Israel Lahey Health, Boston, MA
- 2022 Symposium Presentation (5)
Massachusetts Consortium for Pathogen Readiness (MassCPR), Boston, MA
- 2022 Medical Grand Rounds
Newton-Wellesley Hospital Medical, Boston, MA
- 2022 Franklin Epstein Lecture
Beth Israel Deaconess Medical Center Medical Grand Rounds, Boston, MA

2022	Symposium Presentation (2) Beth Israel Deaconess Medical Center, Boston, MA
2022	Keynote Address 17th Annual Research Retreat, University of Massachusetts Chan Medical School, Worcester, MA
2022	Medical Grand Rounds Harvard Medical School, Boston, MA
2022	Keynote Address 7th Annual RNA Symposium, Harvard Initiative for RNA Medicine, Boston, MA
2022	Symposium Presentation Ragon Institute of MGH, MIT, and Harvard, Cambridge, MA
2022	Symposium Presentation Harvard Medical School Alumni Day Symposium, Boston, MA
2022	Symposium Presentation Beth Israel Deaconess Medical Center Research Retreat, Boston, MA
2022	Opening Address Research Retreat, Harvard Initiative for RNA Medicine, Boston, MA
2022	Symposium Presentation Winsor School, Boston, MA

Report of Regional, National and International Invited Teaching and Presentations

Regional, National and International Invited Presentations and Courses

Note: No external sponsor or source of compensation

Regional

2003	Symposium Presentation Massachusetts Association of Blood Banks Annual Meeting, Westford, MA
2004	Symposium Presentation Massachusetts Infectious Diseases Society, Boston, MA
2010	Symposium Presentation 4 th Annual New England TB Symposium, Boston, MA
2010	Interurban Clinical Club

- 202th Meeting, Boston, MA
- 2016 Fundraising Presentation
American Foundation for AIDS Research (amfAR), New York, NY
- 2018 Keynote Presentation
Massachusetts Society for Medical Research Annual Meeting, Boston, MA
- 2020 Panel Discussion
Health Coverage Fellowship, Boston, MA
- 2020 Panel Discussion
Boston Globe, Boston, MA
- 2020 Symposium Presentation
Massachusetts Health & Hospital Association (MHA), Burlington, MA
- 2020 Symposium Presentation
Harvard Life Sciences Outreach Faculty Speakers Series, Cambridge, MA
- 2020 Keynote Presentation
Asthma and Allergy Foundation of America (AAFA), New England Chapter
- 2020 Symposium Presentation
Harvard Congressional Briefing, Boston, MA
- 2021 Keynote Presentation
Sino-American Pharmaceutical Professionals Association - New England (SAPA-NE), Boston, MA
- 2021 Keynote Presentation
Tower Hill School, Wilmington, DE
- 2021 Panel Discussion (2)
Massachusetts High Technology Council, Burlington, MA
- 2021 Symposium Presentation
New England Ophthalmological Society (NEOS), Boston, MA
- 2021 Board Meeting Presentation
Intima Biosciences, Cambridge, MA
- 2021 Keynote Presentation
Massachusetts Society for Medical Research Annual Meeting, Boston, MA
- 2021 Acceptance Speech
Ray Stata Leadership and Innovation Award, Massachusetts High Technology Council (MHTC), Burlington, MA

2021 Symposium Presentation
Massachusetts Infectious Diseases Society, Boston, MA

2021 Symposium Presentation
Governor Charlie Baker, Cambridge, MA

2022 Interurban Clinical Club
Boston, MA

2022 Symposium Presentation
MIT Museum, Cambridge, MA

National

2000 Department Seminar
Naval Medical Research Center, Silver Spring, MD

2001 Department Seminar
Merck Research Laboratories, West Point, PA

2001 Department Seminar
Aaron Diamond AIDS Research Center, Rockefeller University, New York, NY

2002 Department Seminar
University of Texas Medical Branch, Galveston, TX

2002 Department Seminar
Genencor International, Palo Alto, CA

2002 Plenary Presentation
NIH Vaccine Research Center (VRC) Annual Scientific Retreat, Annapolis, MD

2002 Plenary Presentation
Doris Duke Charitable Foundation Annual Meeting, Newport, RI

2003 Department Seminar
Weill Medical College of Cornell, New York, NY

2003 Plenary Presentation
NIH Vaccine Research Center (VRC) Annual Scientific Retreat, Annapolis, MD

2004 Plenary Presentation
NIH Vaccine Research Center (VRC) Annual Scientific Retreat, Richmond, VA

2005 Department Seminar
Emory University, Atlanta, GA

2005	Department Seminar Merck Research Laboratories, West Point, PA
2005	Plenary Presentation Institute of Human Virology, University of Maryland, Baltimore, MD
2005	Department Seminar International AIDS Vaccine Initiative (IAVI), New York, NY
2005	Plenary Presentation and Session Chair NIH Vaccine Research Center (VRC) Annual Scientific Retreat, Philadelphia, PA
2006	Department Seminar Aaron Diamond AIDS Research Center, Rockefeller University, New York, NY
2006	Plenary Presentation NIH Vaccine Research Center (VRC) Scientific Retreat, Philadelphia, PA
2007	Committee Presentation AIDS Vaccine Research Working Group (AVRWG), NIAID, NIH, Bethesda, MD
2007	Department Seminar NIH Vaccine Research Center (VRC), Bethesda, MD
2007	Department Seminar University of North Carolina Virology Colloquium, Chapel Hill, NC
2007	Plenary Presentation NIH Vaccine Research Center (VRC) Scientific Retreat, Philadelphia, PA
2007	Committee Presentation AIDS Vaccine Research Subcommittee (AVRS), NIAID, NIH, Potomac, MD
2008	Department Seminar Weill Medical College, Cornell University, New York, NY
2008	Department Seminar Malaria Vaccine Initiative (MVI), Bethesda, MD
2008	Department Seminar Northwestern University, Chicago, IL
2008	Department Seminar International AIDS Vaccine Initiative (IAVI), New York, NY
2008	Plenary Presentation NIH Vaccine Research Center (VRC) Scientific Retreat, Philadelphia, PA

2008	Committee Presentation DAIDS Workshop, NIAID, NIH, Bethesda, MD
2009	Department Seminar US Military HIV Research Program (MHRP), Rockville, MD
2009	Committee Presentation AIDS Vaccine Research Subcommittee (AVRS), NIAID, NIH, Bethesda, MD
2009	Committee Presentation International AIDS Vaccine Initiative (IAVI) Scientific Advisory Board Meeting, New York, NY
2010	Symposium Presentation HIV Vaccine Trials Network (HVTN), Seattle, WA
2010	Grand Rounds Department of Medicine, Stanford University School of Medicine
2010	Department Seminar University of Pennsylvania, Philadelphia, PA
2010	Committee Presentation DAIDS Workshop, NIAID, NIH, Bethesda, MD
2010	Congressional Briefing U.S. House of Representatives, Washington, DC
2010	Plenary Presentation New York Academy of Sciences (NYAS), New York, NY
2010	Committee Presentation AIDS Vaccine Research Subcommittee (AVRS), NIAID, NIH, Bethesda, MD
2010	Committee Presentation International AIDS Vaccine Initiative (IAVI) Scientific Advisory Board Meeting, New York, NY
2010	Symposium Presentation DAIDS, NIAID, NIH, Bethesda, MD
2010	Department Seminar Fred Hutchinson Cancer Research Center, University of Washington, Seattle, WA
2011	Department Seminar Fred Hutchinson Cancer Research Center, University of Washington, Seattle, WA
2011	Department Seminar

Center for AIDS Research, University of Massachusetts Medical Center,
Worcester, MA

- 2011 Committee Presentation
AIDS Vaccine Research Subcommittee (AVRS), NIAID, NIH, Bethesda, MD
- 2011 Department Seminar
Rockefeller University, New York, NY
- 2012 Department Seminar
Gilead Sciences, Foster City, CA
- 2012 Committee Presentation
Office of AIDS Research Advisory Committee (OARAC), NIH, Rockville, MD
- 2012 Committee Presentation
WHO-NIAID Consultation Meeting, NIH, Rockville, MD
- 2012 Symposium Presentation
U.S. Military Infectious Disease Research Program (MIDRP), Rockville, MD
- 2012 Plenary Presentation
New York Academy of Sciences (NYAS), New York, NY
- 2012 Committee Presentation
AIDS Vaccine Research Subcommittee (AVRS), NIAID, NIH, Rockville, MD
- 2012 Discussion Chair
NIAID Consultation Meeting, NIAID, NIH, Rockville, MD
- 2012 Committee Presentation
Johnson & Johnson, New Brunswick, NJ
- 2013 Committee Presentation
NIAID, NIH, Bethesda, MD
- 2013 Department Seminar
NIAID-Twinbrook, NIH, Rockville, MD
- 2013 Department Seminar
Emory University, Atlanta, GA
- 2013 Mini-Summit Presentation
NIAID, NIH, Bethesda, MD
- 2013 Committee Presentation
AIDS Clinical Trials Group (ACTG) Cure Committee, Boston, MA

2013	Department Seminar Theraclone Sciences, Seattle, WA
2013	Committee Presentation IMPAACT Cure Scientific Committee, Boston, MA
2014	Department Seminar MassBiologics, University of Massachusetts Medical Center, Boston, MA
2014	Committee Presentation NIAID, NIH, Bethesda, MD
2014	Committee Presentation AIDS Vaccine Research Subcommittee (AVRS), NIAID, NIH, Washington, DC
2014	Committee Presentation IMPAACT Cure Scientific Committee, Boston, MA
2014	Committee Presentation Johnson & Johnson, New Brunswick, NJ
2015	Symposium Presentation University of California San Francisco, San Francisco, CA
2015	Michael Piatak Memorial Symposium Presentation National Cancer Institute, Frederick, MD
2015	Committee Presentation NIAID, NIH, Bethesda, MD
2015	Committee Presentation Bill & Melinda Gates Foundation, Seattle, WA
2015	Committee Presentation AIDS Vaccine Research Subcommittee (AVRS), NIAID, NIH, Rockville, MD
2015	Plenary Presentation Immune Monitoring Scientific Input Engagement (SIE), Merck Research Laboratories, Jersey City, NJ
2015	Keynote Presentation University of Rochester, Rochester, NY
2015	Distinguished Lecture Walter Reed Army Institute of Research (WRAIR), Silver Spring, MD
2016	Committee Presentation AIDS Clinical Trials Group (ACTG) Cure Committee, Boston, MA

- 2016 Committee Presentation
IMPAACT Cure Scientific Committee, Boston, MA
- 2016 Symposium Presentation
Merck Research Laboratories, West Point, PA
- 2016 Symposium Presentation
Washington University School of Medicine, St. Louis, MO
- 2016 Symposium Presentation
University of Massachusetts, Worcester, MA
- 2016 Symposium Presentation
Military HIV Research Program (MHRP), Walter Reed Army Institute of Research (WRAIR), Silver Spring, MD
- 2016 Committee Presentation
AIDS Clinical Trials Group (ACTG) Therapeutic Vaccine Sub-Committee, Boston, MA
- 2016 Plenary Presentation
Case Western Reserve University Center for AIDS Research (CFAR) Annual Symposium, Cleveland, OH
- 2016 Department Seminar
Emory University, Atlanta, GA
- 2016 Plenary Presentation
Northwestern University Third Coast Center for AIDS Research (CFAR) Annual Symposium, Chicago, IL
- 2016 Panel Discussion
National Center for AIDS Research (CFAR) Symposium, Harvard Medical School, Boston, MA
- 2016 Committee Presentation
Office of AIDS Research Advisory Council, National Institutes of Health, Rockville, MD
- 2017 Department Seminars
Immunology Forum Lecture and Center for AIDS Research (CFAR) Symposium, Johns Hopkins University, Baltimore, MD
- 2017 Department Seminar
Gilead Sciences, Foster City, CA
- 2017 Department Seminar

- Gladstone Institute of Virology and Immunology, San Francisco, CA
- 2017 Division Seminar
Neon Biotherapeutics, Cambridge, MA
 - 2017 Plenary Lecture
American Society for Clinical Investigation (ASCI) / Association of American Physicians (AAP) Joint Meeting, Chicago, IL
 - 2017 Plenary Presentation
UCSF-Gladstone Center for AIDS Research (CFAR) Annual Symposium, San Francisco, CA
 - 2017 Plenary Presentation
New York Academy of Sciences (NYAS), New York, NY
 - 2017 Drexel Prize in Immunology Seminar
2017 Symposium on Molecular Medicine and Infectious Disease, Drexel University College of Medicine, Philadelphia, PA
 - 2018 Committee Presentation
IMPAACT Cure Scientific Committee, Boston, MA
 - 2018 Plenary Presentation
AIDS Clinical Trials Group (ACTG) Annual Scientific Retreat, Boston, MA
 - 2018 Plenary Presentation
University of Miami Annual CFAR Symposium, Miami, FL
 - 2018 Grand Rounds
Georgetown University Hospital Grand Rounds, Washington, DC
 - 2018 Committee Presentation
Gilead, Foster City, CA
 - 2018 Committee Presentation
Merck, Philadelphia, PA
 - 2018 Symposium Presentation
University of Pennsylvania CFAR Symposium, Philadelphia, PA
 - 2018 Symposium Presentation
Smithsonian Museum of Natural History, Washington, DC
 - 2019 Grand Rounds
University of California Los Angeles (UCLA) AIDS Institute, Los Angeles, CA
 - 2019 Committee Presentation

- Takeda, Cambridge, MA
- 2019 Committee Presentation
AIDS Vaccine Research Subcommittee (AVRS), NIAID, NIH, Bethesda, MD
- 2019 Symposium Presentation
Washington University School of Medicine, St. Louis, MO
- 2020 Keynote Presentation
Global Epidemiology of Vaccines and Vaccination, Harvard School of Public Health, Boston, MA
- 2020 Symposium Presentation
Emory University School of Medicine, Atlanta, GA
- 2020 Symposium Presentation
Bill & Melinda Gates Foundation, Seattle, WA
- 2020 Grand Rounds
Cornell Weill Medical College, New York, NY
- 2020 Department VI4 Seminar
Vanderbilt University, Nashville, TN
- 2020 Hollywood, Health, and Society
University of Southern California, Los Angeles, CA
- 2020 Committee Presentation
Executive Management Team, COVID-19 Prevention Network
- 2020 Symposium Presentation
Johns Hopkins Medical Institute, Baltimore, MD
- 2020 Panel Discussion
Neutralizing Antibody Summit, Operation Warp Speed, Washington, DC
- 2020 Committee Presentation
AIDS Clinical Trials Group (ACTG) Laboratory Directors Call, Boston, MA
- 2020 Marshall Scholar Reception
British Embassy, Washington, DC
- 2020 Committee Presentation
NCI Serological Sciences Network (SeroNet) Kick-Off Meeting, Bethesda, MD
- 2020 Symposium Presentation
HIV Frontiers, Bill & Melinda Gates Foundation

2020	Keynote Address University of Kentucky Infectious Diseases Research Day, Lexington, KY
2021	Symposium Presentation University of California Riverside, Riverside, CA
2021	Symposium Presentation 4th Vaccine Summit, Network for Excellence in Health Innovation (NEHI), Boston, MA
2021	Symposium Presentation NIH COVID-19 Scientific Interest Group, Bethesda, MD
2021	Virtual Pathology Grand Rounds American Society for Clinical Pathology, Chicago IL
2021	Town Hall Presentation Iron Mountain, Boston, MA
2021	Symposium Presentation Emerging Pathogens Research Seminar Series, Baylor College of Medicine, Houston, TX
2021	Committee Presentation (2) NCI Serological Sciences Network (SeroNet), Bethesda, MD
2021	Symposium Presentation Imran Khan Khanference, New York, NY
2021	Town Hall Presentation Delta Airlines, Atlanta, GA
2021	Symposium Presentation University of Pittsburgh Center for Systems Immunology, Pittsburgh, PA
2021	Medical Grand Rounds Johns Hopkins Medical Institute, Baltimore, MD
2021	Symposium Presentation Conference of Consulting Actuaries (CCA) Healthcare Meeting, Long Grove, IL
2021	Committee Presentation Countermeasures Acceleration Group (CAG) Vaccine Development Team (VDT), NIAID, NIH, Bethesda, MD
2021	Hewitt Healthcare Lecture Pioneer Institute, Boston, MA

- 2021 Committee Presentation
HIV/AIDS Clinical Trials Networks Strategic Working Group, NIAID, NIH, Bethesda, MD
- 2021 Committee Presentation
Board of Scientific Advisors (BSA) and National Cancer Advisory Board (NCAB), NCI, NIH, Bethesda, MD
- 2021 Symposium Presentation
Columbia University, New York, NY
- 2021 Symposium Presentation
Institute for Immunity, Transplantation, and Infection, Stanford School of Medicine, Palo Alto, CA
- 2021 Panel Discussion
Oliver Wyman Health Innovation Summit, New York, NY
- 2021 Committee Presentation
SARS-CoV-2 Variant Teleconference, NIAID, NIH, Bethesda, MD
- 2021 Symposium Presentation
Google Covid Sync
- 2021 Committee Presentation
Vaccines and Related Biological Products Advisory Committee (VRBPAC), Food and Drug Administration (FDA), Washington, DC
- 2021 Symposium Presentation
Walter Reed Army Institute of Research (WRAIR) Emerging Infectious Diseases Branch (EIDB) Seminar Series, Silver Spring, MD
- 2021 Symposium Presentation
Arizona State University, Tempe, AZ
- 2021 Keynote Presentation
New Frontiers Lecture, American Society of Cytopathology, 69th Annual Scientific Meeting, Las Vegas, NV
- 2021 Committee Presentation
NIH SARS-CoV-2 Assessment of Viral Evolution (SAVE) Program, Bethesda, MD
- 2021 Symposium Presentation
HIV Frontiers, Bill & Melinda Gates Foundation
- 2021 Symposium Presentation
NIH Rapid Acceleration of Diagnostics (RADx) Program, Bethesda, MD

2021	Symposium Presentation Martin Delaney Collaboratory for HIV Cure Research Meeting, Bethesda, MD
2022	Symposium Presentation Centers for Disease Control and Prevention, Atlanta, GA
2022	Committee Presentation (2) NCI Serological Sciences Network (SeroNet), Bethesda, MD
2022	Committee Presentation (5) NIH SARS-CoV-2 Assessment of Viral Evolution (SAVE) Program, Bethesda, MD
2022	Symposium Presentation NIH COVID-19 Workshop, Bethesda, MD
2022	Symposium Presentation CRIPT Scientific Advisory Board Meeting, Mount Sinai School of Medicine, New York, NY
2022	Session Chair NCI Serological Sciences Network (SeroNet) Annual Meeting, Bethesda, MD
2022	Symposium Presentation National Foundation for Infectious Diseases (NFID) Annual Conference on Vaccinology Research (ACVR)
2022	Symposium Presentation Fred Hutchinson Cancer Research Center (FHCRC), Seattle, WA
2022	Symposium Presentation AIDS Vaccine Advocacy Coalition (AVAC), New York, NY
2022	Symposium Presentation University of California Davis School of Medicine, Davis, CA
2022	Symposium Presentation Columbia University, New York, NY
2022	Panel Discussion National Academies of Science, Engineering, and Medicine Meeting on Nonhuman Primate Model Systems, Washington, DC
2022	Symposium Presentation DARPA Retreat, Arlington, VA
2022	Symposium Presentation

Sanofi Pasteur, Boston, MA

2022 Symposium Presentation
The Scientist Magazine

2022 Organizing Committee, Session Chair
National Academies of Science, Engineering, and Medicine Forum on Microbial
Threats, Washington, DC

International

1999 Plenary Presentation
WHO Conference on the Development and Progress of DNA Vaccines, Langen,
Germany

1999 Department Seminar
Hopital Pitie-Salpetriere, Paris, France

2000 Plenary Presentation
3rd International Summit on Correlates of Immunity to HIV, Sestri Levante, Italy

2001 Plenary Presentation
Keystone Symposium on AIDS Vaccines in the New Millennium, Keystone, CO

2001 Oral Abstract Presentation
AIDS Vaccine 2001, Philadelphia, PA

2002 Plenary Presentation
Keystone Symposium on Gene-Based Vaccines, Breckenridge, CO

2002 Plenary Presentation
Therapeutic Vaccines against HIV and Cancer, Annecy, France

2002 Department Seminar
Institute of Molecular Medicine, Oxford University, Oxford, UK

2002 Plenary Presentation
DNA Vaccines 2002, Edinburgh, UK

2002 Plenary Presentation
Cent Gardes Symposium on HIV and AIDS Vaccines, Annecy, France

2003 Department Seminar
Crucell, Leiden, The Netherlands

2003 Oral Abstract Presentation
10th Conference on Retroviruses and Opportunistic Infections (CROI), Boston, MA

- 2003 Symposium Presentation
Keystone Symposium on HIV Vaccine Development: Immunological and Biological Challenges, Banff, Canada
- 2003 Plenary Presentation
10th International Workshop on HIV Dynamics & Evolution, Lake Arrowhead, CA
- 2003 Department Seminar
St. George's Hospital Medical School, London, UK
- 2003 Plenary Presentation
Korber Symposium 2003: HIV Vaccine Future Challenges, Hamburg, Germany
- 2003 Symposium Presentation
3rd Annual Meeting of the Federation of Clinical Immunology Societies (FOCIS), Paris, France
- 2003 Oral Abstract Presentation
AIDS Vaccine 2003, New York, NY
- 2004 Plenary Presentation
Keystone Symposium on HIV Vaccine Development: Progress and Prospects, Whistler, Canada
- 2004 Oral Abstract Presentation
AIDS Vaccine 2004, Lausanne, Switzerland
- 2005 Department Seminar
Department of Pediatrics, King Edward Hospital, Durban, South Africa
- 2005 Symposium Presentation
Doris Duke Medical Research Institute, University of KwaZulu-Natal, Durban, South Africa
- 2005 Oral Abstract Presentation
12th Conference on Retroviruses and Opportunistic Infections (CROI), Boston, MA
- 2005 Plenary Presentation
2nd Annual DNA Vaccines Forum, London, UK
- 2005 Plenary Presentation
Keystone Symposium on HIV Vaccines: Current Challenges and Future Prospects, Banff, Canada
- 2005 Plenary Presentation
Center for HIV/AIDS Vaccine Immunology (CHAVI) Scientific Advisory Board Meeting, Duke University, Durham, NC

- 2006 Oral Abstract Presentation and Session Chair
13th Conference on Retroviruses and Opportunistic Infections (CROI), Denver, CO
- 2006 Oral Abstract Presentation
Keystone Symposium on HIV Vaccines, Keystone, CO
- 2006 Plenary Presentation
HIV Vaccine Trials Network (HVTN) Full Group Meeting, Washington, DC
- 2006 Symposium Presentation
9th Annual Meeting of the American Society of Gene Therapy, Baltimore, MD
- 2006 Department Seminar
Crucell, Leiden, The Netherlands
- 2006 Symposium Presentation
AIDS Vaccine 2006, Amsterdam, The Netherlands
- 2006 Symposium Presentation
HIV Vaccine Institute of Catalonia (HIVACAT), Barcelona, Spain
- 2006 Plenary Presentation and Session Chair
Center for HIV/AIDS Vaccine Immunology (CHAVI) Scientific Advisory Board Meeting, Duke University, Durham, NC
- 2006 Plenary Presentation
CONRAD and Alliance for Microbicide Development Biomarkers Meeting, Reston, VA
- 2007 Symposium Presentation
14th Conference on Retroviruses and Opportunistic Infections (CROI), Los Angeles, CA
- 2007 Workshop Presentation and Session Chair
Keystone Symposium on Immunologic Memory, Santa Fe, NM
- 2007 Plenary Presentation
14th Palm Springs Symposium on HIV/AIDS, Palm Springs, CA
- 2007 Plenary Presentation
Center for HIV/AIDS Vaccine Immunology (CHAVI) Scientific Advisory Board Meeting, Duke University, Durham, NC
- 2007 Plenary Presentation
HIV Vaccine Trials Network (HVTN) Full Group Meeting, Washington, DC
- 2007 Symposium Presentation

- Objectif Recherche Vaccin SIDA (ORVACS) Scientific Board Meeting, Paris, France
- 2007 Symposium Presentation
AIDS Vaccine 2007, Seattle, WA (lecture given by Dr. Raphael Dolin)
- 2007 Symposium Presentation
47th Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC), Chicago, IL
- 2007 Plenary Presentation
Center for HIV/AIDS Vaccine Immunology (CHAVI) Annual Retreat, Duke University, Durham, NC
- 2007 Symposium Presentation
Nonhuman Primate Models Research Symposium, University of Pennsylvania Center for AIDS Research, Philadelphia, PA
- 2007 Symposium Presentation
Collaboration for AIDS Vaccine Discovery (CAVD) Annual Meeting, Bill & Melinda Gates Foundation, Lausanne, Switzerland
- 2007 Department Seminar
Crucell, Leiden, The Netherlands
- 2008 Symposium Presentation
Center for HIV/AIDS Vaccine Immunology (CHAVI) Discovery Team Planning Meeting, Duke University, Durham, NC
- 2008 Symposium Presentation
Fellows and New Investigators Workshop on Grantsmanship and Career Research Opportunities in HIV/AIDS Research, Banff, Canada
- 2008 Plenary Presentation and Conference Chair
Keystone Symposium on HIV Vaccines: Progress and Prospects, Banff, Canada
- 2008 Symposium Presentation
Global HIV/AIDS Vaccine Enterprise Scientific Advisory Meeting, New York, NY
- 2008 Symposium Presentation
HIV Vaccine Trials Network (HVTN) Full Group Meeting, Washington, DC
- 2008 Symposium Presentation
XVII International AIDS Conference, Mexico City, Mexico
- 2008 Symposium Presentation and Session Chair
AIDS Vaccine 2008, Cape Town, South Africa

- 2008 Plenary Presentation
HIV Vaccine Trials Network (HVTN) Full Group Meeting, Seattle, WA
- 2008 Symposium Presentation
Collaboration for AIDS Vaccine Discovery (CAVD) Annual Meeting, Bill & Melinda Gates Foundation, Seattle, WA
- 2008 Plenary Presentation
2nd Global Vaccine Congress, Boston, MA
- 2009 Plenary Presentation
Keystone Symposium on Prevention of HIV/AIDS, Keystone, CO
- 2009 Workshop Presentation
NIH and Bill & Melinda Gates Foundation, Seattle, WA
- 2009 Symposium Presentation
BIO International Convention, Atlanta, GA
- 2009 Plenary Presentation
ImVacs Immunotherapeutics & Vaccine Summit, Providence, RI
- 2009 Plenary Presentation
Elizabeth Glaser Pediatric AIDS Foundation Annual Retreat, Jacksonville, FL
- 2009 Plenary Presentation
Center for HIV/AIDS Vaccine Immunology (CHAVI) Annual Retreat, Duke University, Durham, NC
- 2009 Department Seminar
Crucell, Leiden, The Netherlands
- 2009 Department Seminar
Jenner Institute, Oxford University, Oxford, UK
- 2009 Symposium Presentation
AIDS Vaccine 2009, Paris, France
- 2009 Oral Abstract Presentation
AIDS Vaccine 2009, Paris, France
- 2009 Plenary Presentation and Session Chair
27th Annual Symposium on Nonhuman Primate Models for AIDS, Boston, MA
- 2009 Plenary Presentation
U.S. Military HIV Research Program (MHRP) Site Investigator Meeting, Chiang Mai, Thailand

- 2009 Plenary Presentation
HIV Vaccine Trials Network (HVTN) Full Group Meeting, Seattle, WA
- 2009 Plenary Presentation
Collaboration for AIDS Vaccine Discovery (CAVD) Annual Meeting, Bill & Melinda Gates Foundation, Miami, FL
- 2010 Plenary Presentation
Keystone Symposium on HIV Vaccines, Banff, Canada
- 2010 Plenary Presentation
7th British Society for Gene Therapy Annual Conference, London, UK
- 2010 Symposium Presentation
Society for General Microbiology Spring 2010 Meeting, Edinburgh, UK
- 2010 Plenary Presentation
Center for HIV/AIDS Vaccine Immunology (CHAVI) Scientific Advisory Board Meeting, Duke University, Durham, NC
- 2010 Plenary Presentation
U.S. Military HIV Research Program (MHRP) Annual Scientific Retreat, Williamsburg, VA
- 2010 Symposium Presentation
AIDS Vaccine 2010, Atlanta, GA
- 2010 Plenary Presentation
12th Annual Meeting of the Institute of Human Virology, Tropea, Italy
- 2010 Symposium Presentation
Collaboration for AIDS Vaccine Discovery (CAVD) Annual Meeting, Bill & Melinda Gates Foundation, Seattle, WA
- 2011 Symposium Presentation
Sanofi-Aventis, Boston, MA
- 2011 Plenary Presentation
U.S. Military HIV Research Program (MHRP) Annual Scientific Retreat, Philadelphia, PA
- 2011 Plenary Presentation
14th Annual Conference on Vaccine Research, National Foundation for Infectious Diseases, Baltimore, MD
- 2011 Department Seminar
GlaxoSmithKline (GSK) Biologicals, Rixensart, Belgium

- 2011 Symposium Presentation
International AIDS Society (IAS) 2011, Rome, Italy
- 2011 Symposium Presentation and Session Chair
AIDS Vaccine 2011, Bangkok, Thailand
- 2011 Department Seminar
National University of Singapore, Singapore
- 2011 Plenary Presentation and Session Chair
Center for HIV/AIDS Vaccine Immunology (CHAVI) Annual Retreat, Duke University, Durham, NC
- 2011 Plenary Presentation
13th Annual Meeting of the Institute of Human Virology, Baltimore, MD
- 2011 Plenary Presentation
CAPRISA-Ragon Symposium on Mucosal Immunology, Durban, South Africa
- 2011 Plenary Presentation and Moderator
Collaboration for AIDS Vaccine Discovery (CAVD) Annual Meeting, Bill & Melinda Gates Foundation, Seattle, WA
- 2012 Session Chair
19th Conference on Retroviruses and Opportunistic Infections (CROI), Boston, MA
- 2012 Session Chair
99th Annual Meeting of the American Association of Immunologists (AAI), Boston, MA
- 2012 Plenary Presentation
14th Symposium of the Giovanni Armenise-Harvard Foundation, Siena, Italy
- 2012 Plenary Presentation
Advanced Course in Immunology, American Association of Immunologists, Boston, MA
- 2012 Conference Chair, Session Chair, Satellite Presentation
AIDS Vaccine 2012, Boston, MA
- 2012 Department Seminar
Crucell Holland BV, Janssen Pharmaceuticals, Leiden, Netherlands
- 2012 Department Seminar
Human Immunology Unit, University of Oxford, Oxford, UK
- 2012 Department Seminar
Novartis Vaccines and Diagnostics, Boston, MA

- 2012 Symposium Presentation
University of Pennsylvania Center for AIDS Research, Philadelphia, PA
- 2012 Session Chair and Plenary Presentation
30th Annual Symposium for Nonhuman Primate Models for AIDS, San Antonio, TX
- 2012 Plenary Presentation
Cent Gardes HIV Vaccine Conference, Annecy, France
- 2012 Plenary Presentation
CAPRISA-Ragon Symposium on Mucosal Immunology, Richards Bay, South Africa
- 2012 Plenary Presentation and Panel Discussion
Collaboration for AIDS Vaccine Discovery (CAVD) Annual Meeting, Bill & Melinda Gates Foundation, Seattle, WA
- 2012 Conference Co-Organizer, Plenary Presentation, Session Chair
Keystone Immunological Mechanisms of Vaccination, Ottawa, Canada
- 2013 Plenary Presentation
Center for HIV/AIDS Vaccine Immunology and Immunogen Discovery (CHAVI-ID) Scientific Advisory Board Meeting, Bethesda, MD
- 2013 Session Chair
International AIDS Society (IAS) HIV Cure Think-Tank, Institute Pasteur, Paris, France
- 2013 Plenary Presentation and Session Chair
30 Years of HIV Science, Institute Pasteur, Paris, France
- 2013 Plenary Presentation
Center for HIV/AIDS Vaccine Immunology and Immunogen Discovery (CHAVI-ID) Scientific Advisory Board Meeting, Bethesda, MD
- 2013 Plenary Presentation
International Society for Immunology of Reproduction 2013 Congress, Boston, MA
- 2013 Plenary Presentation
11th Vaccines Research & Development: All Things Considered, Boston, MA
- 2013 Plenary Presentation
8th Annual Immunotherapeutics and Vaccine Summit (ImVacs), Boston, MA

- 2013 Plenary Presentation
15th Annual Meeting of the Institute of Human Virology and Moscow International Virology Week, Moscow, Russia
- 2013 Department Seminar
University of Toronto, Toronto, Canada
- 2013 Committee Presentation
World Health Organization, Geneva, Switzerland
- 2013 Oral Abstract Presentation
AIDS Vaccine 2013, Barcelona, Spain
- 2013 Plenary Presentation
CAPRISA-Ragon Symposium on Mucosal Immunology, Drakensburg, South Africa
- 2013 Plenary Presentation and Panel Discussion
Collaboration for AIDS Vaccine Discovery (CAVD) Annual Meeting, Bill & Melinda Gates Foundation, Seattle, WA
- 2014 Plenary Presentation
Center for HIV/AIDS Vaccine Immunology and Immunogen Discovery (CHAVI-ID) Scientific Advisory Board Meeting, Bethesda, MD
- 2014 Committee Presentation
Bill & Melinda Gates Foundation, Washington, DC
- 2014 Plenary Presentation
Keystone Symposium on HIV Vaccines, Banff, Canada
- 2014 Committee Presentation
External Advisory Panel, Bill & Melinda Gates Foundation, New York, NY
- 2014 Symposium Presentation
Immunology 2014, American Association of Immunologists (AAI) Annual Meeting, Pittsburgh, PA
- 2014 Symposium Presentation
Sanofi Pasteur, Cambridge, MA
- 2014 Committee Presentation
Bill & Melinda Gates Foundation, Seattle, WA
- 2014 Plenary Presentation
HIV Vaccine Trials Network (HVTN) Full Group Meeting, Washington, DC

- 2014 Plenary Presentation
12th Vaccines Research & Development: All Things Considered, Boston, MA
- 2014 Plenary Presentation
ACH2 Symposium, Peter Doherty Institute, Melbourne, Australia
- 2014 Plenary Presentation
IAS-Cure Symposium, AIDS2014, Melbourne, Australia
- 2014 Plenary Presentation
Global HIV Vaccine Enterprise, New York, NY
- 2014 Committee Presentation
Bill & Melinda Gates Foundation, Seattle, WA
- 2014 Plenary Presentation
16th Annual Meeting of the Institute of Human Virology, Baltimore, MD
- 2014 Department Seminar
China Center for Disease Control, Beijing, China
- 2014 Plenary Presentation
3rd International Conference on Biomedical Engineering and Biotechnology,
Beijing, China
- 2014 Session Chair and Roundtable Presentation
Cent Gardes HIV Vaccine Conference, Annecy, France
- 2014 Department Seminar
GlaxoSmithKline (GSK) Biologicals, Rixensart, Belgium
- 2014 Plenary Presentation
NIAID HIV Cure Symposium, Bethesda, MD
- 2014 Plenary Presentation
Institut Pasteur, Paris, France
- 2014 Plenary Presentation
CAPRISA-Ragon Symposium on Mucosal Immunology, Hermanus, South Africa
- 2014 Plenary Presentations and Panel Discussions
Collaboration for AIDS Vaccine Discovery (CAVD) Annual Meeting, Bill &
Melinda Gates Foundation, Seattle, WA
- 2015 Plenary Presentation
Center for HIV/AIDS Vaccine Immunology and Immunogen Discovery (CHAVI-
ID) Retreat, La Jolla, CA

- 2015 Plenary Presentation
17th International Conference on Emerging Infectious Diseases, Taipei, Taiwan
- 2015 Plenary Presentation
U.S.-Japan AIDS Panel, Taipei, Taiwan
- 2015 Symposium Presentation
Conference on Retroviruses and Opportunistic Infections (CROI), Seattle, WA
- 2015 Plenary Presentation
25th Annual Meeting of the Society for Virology, Bochum, Germany
- 2015 Symposium Presentation
CAPRISA Scientific Advisory Board Meeting, Durban, South Africa
- 2015 Plenary Presentation
Center for HIV/AIDS Vaccine Immunology and Immunogen Discovery (CHAVI-ID) Scientific Advisory Board Meeting, Bethesda, MD
- 2015 Plenary Presentation
International AIDS Vaccine Initiative (IAVI) Scientific Advisory Board Meeting, New York, NY
- 2015 Plenary Presentation
NIAID-Gates Foundation Meeting, Rockville, MD
- 2015 Symposium Presentation
International AIDS Society (IAS) 2015, Melbourne, Australia
- 2015 Plenary Presentation
Conference on Cell and Gene Therapy for HIV Cure, Seattle, WA
- 2015 Plenary Presentation
Proimmune, Boston, MA
- 2015 Session Chair and Symposium Presentation
Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC), San Diego, CA
- 2015 Keynote Presentation
16th International AIDS Seminar, Kumamoto, Japan
- 2015 Symposium Presentation
IDWeek, San Diego, CA
- 2015 Keynote Eagleson Award Lecture
American Biological Safety Association (ABSA) Conference, Providence, RI

- 2015 Plenary Presentation
HIV Dynamics and Replication Conference, National Cancer Institute (NCI),
Frederick, MD
- 2015 Plenary Presentation
HIV Vaccine Trials Network (HVTN) Full Group Meeting, Cape Town, South
Africa
- 2015 Roundtable Presentation
Cent Gardes HIV Vaccine Conference, Annecy, France
- 2015 Plenary Presentation
Global HIV Vaccine Enterprise, New York, NY
- 2015 Plenary Presentation
CAPRISA-Ragon Symposium on Mucosal Immunology, Zululand, South Africa
- 2015 Plenary Presentations and Panel Discussions
Collaboration for AIDS Vaccine Discovery (CAVD) Annual Meeting, Bill &
Melinda Gates Foundation, Seattle, WA
- 2016 Plenary Presentation
Center for HIV/AIDS Vaccine Immunology and Immunogen Discovery (CHAVI-
ID) Retreat, La Jolla, CA
- 2016 Plenary Presentation
6th Leibniz Center Infection (LCI) Symposium, Hamburg, Germany
- 2016 Plenary Presentation
Global HIV Vaccine Enterprise, New York, NY
- 2016 Plenary Presentation
Center for HIV/AIDS Vaccine Immunology and Immunogen Discovery (CHAVI-
ID) Scientific Advisory Board Meeting, Bethesda, MD
- 2016 Symposium Presentation
Sanofi Pasteur, Cambridge, MA
- 2016 Plenary Presentation
Forum Janssen, Lisbon, Portugal
- 2016 Plenary Presentation
International Symposium HIV and Emerging Infectious Diseases (ISHEID),
Marseille, France
- 2016 Symposium Presentation
14th GTC Vaccines Research & Development Conference, San Diego, CA

- 2016 Symposium Presentation
American Transplant Congress 2016, Boston, MA
- 2016 Symposium Presentation
ASM Microbe 2016, Boston, MA
- 2016 Symposium Presentation
Walter Reed Army Institute of Research (WRAIR), Bethesda, MD
- 2016 Session Chair, Panel Discussion
HIV/AIDS Research: Its History and Future, Cold Spring Harbor, NY
- 2016 Symposium Presentation, Satellite Symposium Presentation
Research for Prevention Conference: AIDS Vaccine, Microbicide, and ARV-Based Prevention Science 2016 (HIV R4P), Chicago, IL
- 2016 Keynote Presentation
7th Journee Scientifique du Centre Hospitalier de l'Université de Montréal, Montreal, Canada
- 2016 Plenary Presentations
Strategies for an HIV Cure, National Institutes of Health, Bethesda, MD
- 2016 Plenary Presentation
CAPRISA-Ragon HIV Prevention Workshop, Magaliesburg, South Africa
- 2016 Plenary Presentations and Panel Discussions
Collaboration for AIDS Vaccine Discovery (CAVD) Annual Meeting, Bill & Melinda Gates Foundation, Seattle, WA
- 2017 Plenary Presentation and Session Chair
NIH-WHO Scientific Consultation on Zika Vaccine Development, Rockville, MD
- 2017 Department Seminar
Janssen Pharmaceuticals, Leiden, Netherlands
- 2017 Plenary Presentation
26th Annual Canadian Conference on HIV/AIDS Research, Montreal, Canada
- 2017 Keynote Presentation
Batavia Biosciences Medical Delta Conference, Leiden, Netherlands
- 2017 Keynote Presentation
Three I's & Biosecurity Conference, Providence, RI
- 2017 Plenary Presentation
Vaccine Innovation Forum 2017, Shanghai, China

- 2017 Plenary Presentation
Center for HIV/AIDS Vaccine Immunology and Immunogen Discovery (CHAVI-ID) Scientific Advisory Board Meeting, Washington, DC
- 2017 Plenary Presentation and Session Chair
NIAID HIV Imaging Workshop, Rockville, MD
- 2017 Symposium Presentation
American Society of Gene and Cell Therapy, Washington, DC
- 2017 Plenary Presentation
HIV Vaccine Trials Network (HVTN) Full Group Meeting, Washington, DC
- 2017 Plenary Presentation
ASM Microbe, New Orleans, LA
- 2017 Keynote Presentation
Harvard Marshall Forum, Cambridge, MA
- 2017 Keynote Presentation
ACH2 12th Annual Scientific Workshop, Barossa Valley, Australia
- 2017 Plenary Presentation
Vaccines Bioprocess Workshop 2017, Massachusetts Institute of Technology, Cambridge, MA
- 2017 Plenary Presentation
Synthetic Immunity Symposium, Los Alamos National Laboratories, Santa Fe, NM
- 2017 Symposium Presentation and Satellite Presentation
9th International AIDS Society (IAS) Conference, Paris, France
- 2017 Keynote Presentation
British Embassy, Washington, DC
- 2017 Plenary Presentation
24th International Symposium on HCV, Hyannis, MA
- 2017 Plenary Presentation
Cell Symposium on Emerging and Re-emerging Viruses, Arlington, VA
- 2017 Plenary Presentation
2nd International Symposium, The Science of Immorbidity, Janssen Prevention Center, Amsterdam, Netherlands
- 2017 Plenary Presentation
HIV Vaccine Trials Network (HVTN) Full Group Meeting, Seattle, WA

- 2017 Plenary Presentation
Cell Symposium in Human Immunity, Banff, Canada
- 2017 Plenary Presentation
12th Annual Center for Research in Infectious Diseases and National Institute of Respiratory Diseases (CIENI-INER) Meeting, Oaxaca, Mexico
- 2017 Plenary Presentation
CAPRISA-Ragon HIV Prevention Workshop, Midlands, South Africa
- 2017 Plenary Presentation
International Vaccine Conference, International Centre for Genetic Engineering and Biotechnology (ICGEB), New Delhi, India
- 2017 Plenary Presentation and Panel Discussion
Collaboration for AIDS Vaccine Discovery (CAVD) Annual Meeting, Bill & Melinda Gates Foundation, Seattle, WA
- 2017 Satellite Presentation
8th HIV Persistence During Therapy Workshop, Miami, FL
- 2018 Panel Discussion
Ragon Institute of MGH, MIT, and Harvard, Cambridge, MA
- 2018 Keynote Presentation
Janssen Business Development Meeting, J.P. Morgan Conference, San Francisco, CA
- 2018 Keynote Presentation
4th Highlights in Basic & Clinical Research in HIV/AIDS (HIBIC), Madrid, Spain
- 2018 Symposium Presentation
American Society for Microbiology Biothreats Meeting, Baltimore, MD
- 2018 Symposium Presentation
World Health Organization (WHO) Consultation, Geneva, Switzerland
- 2018 Oral Abstract Presentation
25th Conference on Retroviruses and Opportunistic Infections (CROI), Boston, MA
- 2018 Symposium Presentation
Brigham and Women's Hospital Post-CROI Symposium, Boston, MA
- 2018 Symposium Presentation
World Health Organization (WHO) / National Institutes of Health (NIH) Immune Correlates and Surrogates for Zika Vaccine Development, Rockville, MD

- 2018 Symposium Presentation
15th International Symposium on NeuroVirology, Chicago, IL
- 2018 Plenary Presentation
Xiangshan Science Conference, Beijing, China
- 2018 Plenary Presentation
NIAID Workshop on Broadly Neutralizing Antibodies, Rockville, MD
- 2018 Symposium Presentation
Ragon Institute of MGH, MIT, and Harvard, Cambridge, MA
- 2018 Symposium Presentation
NIAID/NIBIB HIV Vaccine Meeting, Rockville, MD
- 2018 Symposium Presentation
Cellular Immunology Workshop, Santa Fe, NM
- 2018 Plenary Presentation
Nonhuman Primate AIDS Meeting, Seattle, WA
- 2018 Symposium Presentations
NIH Strategies for an HIV Cure, Bethesda, MD
- 2018 Satellite Presentation
HIV Research for Prevention Conference (R4P), Madrid, Spain
- 2018 Plenary Presentation
HIV Vaccine Trials Network (HVTN) Full Group Meeting, Seattle, WA
- 2018 Plenary Presentation
CAPRISA-Ragon HIV Prevention Workshop, Drakensburg, South Africa
- 2019 Plenary Presentation
Palm Springs Symposium on HIV/AIDS, Palm Springs, CA
- 2019 Symposium Presentation
29th European Congress for Clinical Microbiology and Infectious Diseases (ECCMID), Amsterdam, Netherlands
- 2019 Symposium Presentation
World Vaccine Congress 2019, Washington, DC
- 2019 Plenary Presentation
HIV Vaccine Trials Network (HVTN) Full Group Meeting, Washington, DC
- 2019 Plenary Presentation

Massachusetts Institute of Technology / University College London Vaccines
Bioprocess Development & Commercialization Workshop, Cambridge, MA

- 2019 Symposium Presentation
International AIDS Society 2019 Conference, Mexico City, Mexico

- 2019 Plenary Presentation
National Institute of Allergy and Infectious Diseases, Bill & Melinda Gates
Foundation, Rockville, MD

- 2019 Plenary Presentation
Cent Gardes HIV Vaccine Conference, Annecy, France

- 2019 Keynote Presentation
International Precision Vaccine Conference 2019, Boston, MA

- 2019 Plenary Presentation
CAPRISA-AHRI-Ragon HIV Prevention Workshop, KwaZulu-Natal, South Africa

- 2019 Plenary Presentation
Vaccines R&D 2019, Boston, MA

- 2019 Symposium Presentation
Collaboration for AIDS Vaccine Discovery (CAVD) Annual Meeting, Bill &
Melinda Gates Foundation, Seattle, WA

- 2019 Keynote Presentation
48th Annual Australasia Society for Immunology (ASI) Meeting, Adelaide,
Australia

- 2019 Satellite Presentation
9th HIV Persistence During Therapy Workshop, Miami, FL

- 2020 Session Chair
HIV Vaccine Trials Network (HVTN) Regional Meeting, Cape Town, South Africa

- 2020 Plenary Presentation
Acute HIV Science Meeting, U.S. Military HIV Research Program (MHRP),
Bethesda, MD

- 2020 Oral Abstract Presentation
Conference on Retroviruses and Opportunistic Infections (CROI) 2020, Boston,
MA

- 2020 Symposium Presentation (3)
World Health Organization, COVID-19 Animal Models Working Group, Geneva,
Switzerland

2020	Seminar Presentation Children's Hospital COVID-19 Pediatric ICU Collaboration, Boston, MA
2020	Seminar Presentation HIV Vaccine Trials Network (HVTN), Seattle, WA
2020	Seminar Presentation Oxford SARS-CoV-2 Lecture Series, Oxford, UK
2020	Global COVID-19 Lab Meeting Human Vaccines Project, New York, NY
2020	Panel Discussion (2) World Health Organization, Geneva, Switzerland
2020	Plenary Presentation BSL4ZNet COVID-19 International Symposium, Government of Canada
2020	Symposium Presentation American Society of Gene & Cell Therapy (ASGCT), Milwaukee, WI
2020	Symposium Presentation ESCMID Conference on Coronavirus Disease, Basel, Switzerland
2020	Symposium Presentation 14 th Vaccine Congress, Elsevier
2020	Symposium Presentation American Society of Gene & Cell Therapy (ASGCT), Milwaukee, WI
2020	Committee Presentation COVID-19 Prevention Network (CoVPN)
2020	Symposium Presentation 16 th Grand Challenges Annual Meeting, Bill & Melinda Gates Foundation
2020	Plenary Presentation 8 th Annual Meeting of the International Cytokine & Interferon Society, Seattle, WA
2020	Plenary Presentation American College of Rheumatology Convergence 2020
2020	Plenary Presentation 11 th KAIMRC Annual Medical Forum, Riyadh, Saudi Arabia
2020	Symposium Presentation International Society for Stem Cell Research (ISSCR) COVID-19 Networking Meeting, Madison, WI

2020	Plenary Presentation Strategies for an HIV Cure, National Institutes of Health, Bethesda, MD
2020	Symposium Presentation COVAX/BMGF/CEPI/GAVI/WHO Workshop on Correlates of Protection
2020	Symposium Presentation NIAID IMPAc-TB Annual Meeting
2020	Symposium Presentation Collaboration for AIDS Vaccine Discovery (CAVD) Annual Meeting, Bill & Melinda Gates Foundation, Seattle, WA
2020	Symposium Presentation and Panel Discussion World Health Organization, Geneva, Switzerland
2021	Symposium Presentation, Panel Discussion, Co-Chair (7) World Health Organization, Geneva, Switzerland
2021	Symposium Presentation (3) World Health Organization, COVID-19 Animal Models Working Group, Geneva, Switzerland
2021	Keynote Presentation Translational Medicine Conference, University College of Cork, Cork, Ireland
2021	Symposium Presentation Well Characterized Biological Products (WCBP) 2021, Washington, DC
2021	Symposium Presentation ACR Convergence, Emirates Rheumatology Academy, Dubai, UAE
2021	Symposium Presentation 28th International Molecular Med Tri-Con Virtual Conference & Expo, Cambridge Healthtech Institute, Needham, MA
2021	Panel Discussion British Embassy, Washington, DC
2021	Plenary Presentation Italian National Research Council, University of Pisa, Italy
2021	Panel Discussion MIT Jameel World Education Panel (J-WEL), Boston, MA
2021	Committee Presentation COVID-19 Prevention Network (CoVPN)

- 2021 Plenary Presentation
HIV Vaccine Trials Network (HVTN) Full Group Meeting, Seattle, WA
- 2021 Symposium Presentation
Genetic Vaccine Development Summit for Infectious Diseases, London, UK
- 2021 Joint Plenary Presentation
Keystone Symposia on HIV Vaccines and HIV Pathogenesis and Cure
- 2021 Symposium Presentation
World Health Organization, COVID-19 Assays Working Group, Geneva, Switzerland
- 2021 Plenary Presentation
Association of Women in Rheumatology (AWIR) 2021 Annual Conference, Hilton Head, SC
- 2021 Keynote Presentation
Vaccines Summit 2021, Washington, DC
- 2021 Plenary Presentation
International Precision Vaccines Conference, Boston, MA
- 2021 Plenary Presentation
38th Annual Symposium on Nonhuman Primate Models for AIDS, Oregon Health & Science University, Portland, OR
- 2021 Plenary Presentation
Janssen R&D Global Scientific Symposium, New Brunswick, NJ
- 2021 Session Chair
HIV Vaccine Trials Network (HVTN) / COVID-19 Prevention Network (CoVPN)
Full Group Meeting, Seattle, WA
- 2021 Plenary Presentation
6th International Conference on Vaccines Research & Development, Baltimore, MD
- 2021 Committee Presentation
Ministerial Advisory Committee for COVID-19 Vaccines, South Africa
- 2021 Keynote Presentation
53rd Annual Meeting of the French Society for Immunology, Paris, France
- 2021 Plenary Presentation
MIT Vaccines Workshop, Cambridge, MA
- 2022 Symposium Presentation (3)

- World Health Organization, COVID-19 Animal Models Working Group, Geneva, Switzerland
- 2022 Symposium Presentation
Weill Cornell Medicine – Qatar (WCM-Q) Webinar, Doha, Qatar
- 2022 Committee Presentation (2)
COVID-19 Prevention Network (CoVPN)
- 2022 Bernard Fields Lecture
Conference on Retroviruses and Opportunistic Infections (CROI) 2022, Denver, CO
- 2022 Symposium Presentation, Panel Discussion (2)
World Health Organization, Geneva, Switzerland
- 2022 Session Chair
NIAID Workshop on Broadly Neutralizing Antibodies
- 2022 Session Chair
HIV Vaccine Trials Network (HVTN) Full Group Meeting, Washington, DC
- 2022 14th Annual Stanley Plotkin Lecture
Advanced Vaccinology Course, Fondation Merieux, Annecy, France
- 2022 Plenary Presentation
Keystone Symposia on Progress in Vaccine Development for Infectious Diseases, Breckenridge, CO
- 2022 Symposium Presentation
NIAID/NHLBI Workshop on Sex/Gender-Specific COVID-19 Outcomes and Management
- 2022 Symposium Presentation
NIAID Workshop on COVID-19 Vaccine Durability
- 2022 Satellite Presentation (2)
AIDS2022, Montreal, Canada
- 2022 Plenary Presentation
International Conference on Emerging Infectious Diseases (ICEID 2022), Atlanta, GA
- 2022 Keynote Presentation
Vaccines Summit 2022, Reston, VA
- 2022 Session Chair
HIV Vaccine Trials Network (HVTN) Full Group Meeting, Seattle, WA

2022	Symposium Presentation IDWeek 2022, Washington, DC
2022	Plenary Presentation 7 th International Conference on Vaccines Research & Development, Newton, MA
2022	Symposium Presentation World Health Organization, COVID-19 Assays Working Group, Geneva, Switzerland
2022	Symposium Presentation HIV Reservoir Consortium Annual Convening, Bill & Melinda Gates Foundation, Seattle, WA
2022	Satellite Presentation 10th HIV Persistence During Therapy Workshop, Miami, FL

Report of Clinical Activities and Innovations

Licensure and Certification

2001-2024	Massachusetts Medical License #210237
2002-2022	American Board of Internal Medicine (Internal Medicine) #216657
2004-2024	American Board of Internal Medicine (Infectious Diseases) #216657

Practice Activities

2001-2005	Infectious Diseases Brigham and Women's Hospital	Outpatient Clinic 1 half day/week
2004-2016	Infectious Diseases Brigham and Women's Hospital	Inpatient Consultation Service 2-4 weeks/year
2011-2012 2018-	Infectious Diseases Beth Israel Deaconess Medical Center	Inpatient Consultation Service 2-4 weeks/year

Report of Technological and Other Scientific Innovations

Patents Awarded or Pending

1. **Barouch DH**, Vessey SJR, Jakobsen BK. Screening for inhibitors of TCR-MHC interactions. WO/1996/036881; PCT/GB1996/001165; published 11/21/1996.

2. Letvin NL, **Barouch DH**, Strom TB, Zheng XX. Vaccine compositions and methods of enhancing vaccine efficacy. WO/1999/016466; PCT/US1998/020321; published 4/8/1999.
3. McKay P, **Barouch D**, Letvin N. MIP-1 α and GM-CSF as adjuvants of immune response. WO/2004/044155; PCT/US2003/035693; published 5/27/2004.
4. **Barouch DH**, Sumida SM, Letvin NL. Adjuvants of immune response. WO/2005/052119; PCT/US2004/038865; published 6/9/2005.
5. Havenga MJE, Jans E, **Barouch DH**. Improved adenoviral vectors and uses thereof. WO/2006/040330; PCT/EP2005/055183; published 4/20/2006.
6. **Barouch DH**, Havenga MJE. Recombinant adenoviruses based on serotype 26 and 48, and use thereof. WO/2007/104792; PCT/EP2007/052463; published 9/20/2007.
7. Nabel GJ, Yang ZY, Shi W, **Barouch DH**. Use of chimeric HIV/SIV Gag proteins to optimize vaccine-induced T cell responses against HIV Gag. WO/2009/026183; PCT/US2008/073395; published 2/26/2009.
8. **Barouch DH**, Liu J, Kaufman DK. Recombinant human adenoviruses for eliciting mucosal immune responses. WO/2009/065800; PCT/EP2008/065659; published 5/28/2009.
9. Harrison SC, Chen B, **Barouch DH**, Nkolola JN, Seaman MS. Biochemically stabilized HIV-1 Env trimer vaccine. WO/2010/042942; PCT/US2009/060494; published 4/15/2010.
10. **Barouch DH**, Korber BT, Fischer W. Antiviral vaccines with improved cellular immunogenicity. WO/2010/059732; PCT/US2009/064999; published 5/27/2010.
11. Nabel GJ, Yang ZY, Shi W, **Barouch DH**. Synthetic HIV/SIV Gag proteins and uses thereof. WO/2010/096561; PCT/US2010/024591; published 8/26/2010.
12. **Barouch DH**, Bradley RR. Modified adenoviral vectors and methods of treatment using same. WO/2013/036791; PCT/US2012/054201; published 3/14/2013.
13. **Barouch DH**, Virgin HW, Wang D, Zhao G, Thackray L, Handley S, Presti R. Viruses associated with immunodeficiency and enteropathy and methods using same. WO/2014/047261; PCT/US2013/060579; published 3/27/2014.
14. **Barouch DH**, Abbink P, Virgin HW. Recombinant adenoviruses and use thereof. WO/2014/078688; PCT/US2013/070353; published 5/22/2014.
15. **Barouch DH**, Nkolola JN. Stabilized human immunodeficiency virus (HIV) envelope (Env) trimer vaccines and methods of using the same. WO/2014/107744; PCT/US2014/010543; published 7/10/2014.
16. **Barouch DH**. Antibody therapies for human immunodeficiency virus (HIV). WO/2015/048770; PCT/US2014/058383; published 4/2/2015.

17. **Barouch DH**, Bricault C. Stabilized human immunodeficiency virus (HIV) clade C envelope (Env) trimer vaccines and methods of using same. WO/2015/051270; PCT/US2014/059093; published 4/9/2015.
18. **Barouch DH**, Abbink PA. Replicating recombinant adenovirus vectors, compositions, and methods of use thereof. WO/2015/128421; PCT/EP2015/054031; published 9/3/2015.
19. **Barouch DH**, Schuitemaker J, Pau MG, Van Manen D, Tomaka F, Hendriks JA. Methods for inducing protective immunity against human immunodeficiency virus infection. WO/2016/049287; PCT/US2015/051891; published 3/31/2016.
20. **Barouch DH**, Larocca RA, Abbink PA. Compositions and methods for preventing and treating Zika virus infection. WO/2017/214596; PCT/US2017/036900; published 12/14/2017.
21. Tomaka F, Pau MG, Schuitemaker J, **Barouch DH**, Ananworanich J, Robb M, Michael NL, Kim J. Methods for inducing an immune response against human immunodeficiency virus infection in subjects undergoing antiretroviral treatment. WO/2018/045267; PCT/US2017/049817; published 3/8/2018.
22. **Barouch DH**, Bricault C, Korber BT, Yusim K. Signature-based human immunodeficiency virus (HIV) envelope (Env) trimer vaccines and methods of using the same. WO/2018/075559; PCT/US2017/057045; published 4/26/2018.
23. **Barouch DH**, Schuitemaker J, Pau MG, Van Manen D, Tomaka F, Hendriks JA. Methods for safe induction of cross-clade immunity against human immunodeficiency virus infection in humans. WO/2019/018724; PCT/US2018/043016; published 1/24/2019.
24. Pau MG, Tomaka F, Stieh DJ, Sarnecki M, **Barouch DH**, Juelg B. Methods for inducing an immune response against human immunodeficiency virus infection in subjects undergoing antiretroviral treatment. WO/2019/055888; PCT/US2018/051274; published 3/21/2019.
25. **Barouch DH**, Kerwin BA, Ketchum RR, Gillespie AJ, Siska CC, Clark RH, Floyd JA, Shaver JM, Rogers RS. Antibody therapies for human immunodeficiency virus (HIV). WO/2019/226829; PCT/US2019/033613; published 5/22/2019.
26. **Barouch DH**, Douguilh MJ, Picchio GR. Method of providing safe administration of adenoviral vectors encoding a Zika virus antigen. WO/2019/099970; PCT/US2018/061743; published 5/23/2019.
27. **Barouch DH**, Abbink P, Iampietro MJ, Havenga MJE. Recombinant adenoviruses and uses thereof. WO/2019/118480; PCT/US2018/064978; published 6/20/2019.
28. Krebs S, Donofrio G, Dussupt V, Modjarrad K, **Barouch D**, Jarman RG, Michael NL, Joyce G. Potent Zika virus-specific and cross-neutralizing monoclonal antibodies to Zika and dengue viruses following ZIKV infection or vaccination. WO/2019/209974; PCT/US2019/028952; published 10/31/2019.

29. **Barouch DH**, Kerwin BA, Ketchum RR, Gillespie AJ, Siska CC, Clark RH, Floyd JA, Shaver JM. Antibody therapies for human immunodeficiency virus (HIV). WO/2020/106713; PCT/US2019/062203; published 11/19/2019.
30. Irvine DJ, **Barouch DH**, Chakraborty AK., Murakowski D, Walker BD, Barton J, Ferguson A. HIV-1 specific immunogen compositions and methods of use. WO/2020/243485; PCT/US2020/035206; published 3/12/2020.
31. **Barouch DH**, Martinot AJ. Mycobacterial compositions and biomarkers for use in treatment and monitoring of therapeutic responsiveness. WO/2021/092206; PCT/US2020/059152; published 5/14/2021.
32. **Barouch DH**, Langedijk JP, Rutten L, Bakkers MJ, Bos R, Wegmann F, Zuijdgeest DAT, Vandeboosch A, Le Gars MC, Sadoff J. Compositions and methods for preventing and treating coronavirus infection SARS-CoV-2 vaccines. WO/2021/155323; PCT/US2021/015946; published 8/5/2021.
33. **Barouch DH**, Korber BT, Theiler J. Compositions and methods for treating coronavirus infection. WO/2021/197720; PCT/US2022/020407; published 9/22/2022.

Report of Scholarship

Peer-Reviewed Original Research Publications

1. **Barouch DH**, Harrison SC. Interactions among the major and minor coat proteins of polyomavirus. *J. Virol.* 1994; 68:3982-3989.
2. **Barouch D**, Friede T, Stevanovic S, Tussey L, Smith K, Rowland-Jones S, Braud V, McMichael A, Rammensee HG. HLA-A2 subtypes are functionally distinct in peptide binding and presentation. *J. Exp. Med.* 1995; 182:1847-1856.
3. **Barouch D**, Davenport M, McMichael A, Reay P. A monoclonal antibody against HLA-A2 can be influenced both positively and negatively by the associated peptide. *Int. Immunol.* 1995; 7:1599-1605.
4. Krausa P, **Barouch D**, Bodmer JG, Hill AVS, Mason C, McMichael AJ, Browning MJ. Characterization of a novel HLA-A2 variant, A*0214, by ARMS-PCR and DNA sequencing. *Immunogenet.* 1995; 41:50.
5. **Barouch D**, Krausa P, Bodmer J, Browning MJ, McMichael AJ. Identification of a novel HLA-A2 subtype, HLA-A*0216. *Immunogenet.* 1995; 41:388.
6. Krausa P, Brywka M, Savage D, Hui KM, Bunce M, Ngai JLF, Teo DLT, Ong YW, **Barouch D**, Allsop CEM, Hill AVS, McMichael AJ, Bodmer JG, Browning MJ. Genetic polymorphism within HLA-A*02: significance of allelic variants within different populations. *Tissue Antigens* 1995; 45:223-231.

7. Krausa P, **Barouch D**, Bodmer JG, Browning MJ. Rapid characterisation of alleles of highly polymorphic genes by gene mapping using ARMS PCR. *Eur. J. Immunogenet.* 1995; 22:283-287.
8. Altman JD, Moss PAH, Goulder PJR, **Barouch DH**, McHeyzer-Williams M, Bell JI, McMichael AJ, Davis MM. Phenotypic analysis of antigen-specific T lymphocytes. *Science* 1996; 274:94-96.
9. Davenport MP, Smith KJ, **Barouch D**, Reid SW, Bodnar WM, Willis AC, Hunt DF, Hill AVS. HLA class I binding motifs derived from random peptide libraries differ at the COOH terminus from those of eluted peptides. *J. Exp. Med.* 1997; 185:367-371.
10. Vessey SJR, **Barouch DH**, McAdam SN, Tussey LG, Davenport MA, O'Callaghan CA, Bell JI, McMichael AJ, Jakobsen BK. Engagement of a T cell receptor by major histocompatibility complex irrespective of peptide. *Eur. J. Immunol.* 1997; 27:879-885.
11. Kuroda MJ, Schmitz JE, **Barouch DH**, Craiu A, Allen TM, Sette A, Watkins DI, Forman MA, Letvin NL. Analysis of Gag-specific cytotoxic T lymphocytes in simian immunodeficiency virus-infected rhesus monkeys by cell staining with a tetrameric major histocompatibility complex class I-peptide complex. *J. Exp. Med.* 1998; 187:1373-1381.
12. **Barouch DH**, Santra S, Steenbeke T, Zheng XX, Perry HC, Davies ME, Freed DC, Craiu A, Strom T, Shiver JW, Letvin NL. Augmentation and suppression of immune responses to an HIV-1 specific DNA vaccine by plasmid cytokine/Ig administration. *J. Immunol.* 1998; 161:1875-1882.
13. **Barouch DH**, Craiu A, Kuroda MJ, Schmitz JE, Zheng XX, Santra S, Frost JD, Krivulka GR, Lifton MA, Crabbs CL, Heidecker G, Perry HC, Davies ME, Xie H, Nickerson CE, Steenbeke TD, Lord CI, Montefiori DC, Strom TB, Shiver JW, Lewis MG, Letvin NL. Augmentation of immune responses to HIV-1 and simian immunodeficiency virus DNA vaccines by IL-2/Ig plasmid administration in rhesus monkeys. *Proc. Natl. Acad. Sci. USA* 2000; 97:4192-4197.
14. Santra S, **Barouch DH**, Sharpe AH, Letvin NL. B7 co-stimulatory requirements differ for induction of immune responses by DNA, protein, and recombinant pox virus vaccination. *Eur. J. Immunol.* 2000; 30:2650-2659.
15. Santra S, **Barouch DH**, Jackson SS, Kuroda MJ, Schmitz JE, Lifton MA, Sharpe AH, Letvin NL. Functional equivalency of B7-1 and B7-2 for costimulating plasmid DNA vaccine-elicited CTL responses. *J. Immunol.* 2000; 165:6791-6795.
16. **Barouch DH**, Santra S, Schmitz JE, Kuroda MJ, Fu TM, Wagner W, Bilska M, Craiu A, Zheng XX, Krivulka GR, Beaudry K, Lifton MA, Nickerson CE, Trigona WL, Punt K, CE, Freed DC, Guan L, Dubey S, Casimiro D, Simon A, Davies ME, Chastain M, Strom TB, Gelman RS, Montefiori DC, Lewis MG, Emini EA, Shiver JW, Letvin NL. Control of viremia and prevention of clinical AIDS in rhesus monkeys by cytokine-augmented DNA vaccination. *Science* 2000; 290:486-492.

17. **Barouch DH**, Craiu A, Santra S, Egan MA, Schmitz JE, Kuroda MJ, Fu TM, Nam JH, Wyatt LS, Lifton MA, Krivulka GR, Nickerson CE, Lord CI, Moss B, Lewis MG, Hirsch VM, Shiver JW, Letvin NL. Elicitation of high-frequency cytotoxic T-lymphocyte responses against both dominant and subdominant simian-human immunodeficiency virus epitopes by DNA vaccination of rhesus monkeys. *J. Virol.* 2001; 75:2462-2467.
18. Craiu A, **Barouch DH**, Zheng XX, Kuroda MJ, Schmitz JE, Lifton MA, Steenbeke TD, Nickerson CE, Beaudry K, Frost JD, Reimann KA, Strom TB, Letvin NL. An IL-2/Ig fusion protein influences CD4⁺ T lymphocytes in naïve and simian immunodeficiency virus-infected rhesus monkeys. *AIDS Res. Hum. Retroviruses* 2001; 17:873-886.
19. **Barouch DH**, Santra S, Kuroda MJ, Schmitz JE, Plishka R, Buckler-White A, Gaitan AE, Zin R, Nam JH, Wyatt LS, Lifton MA, Nickerson CE, Moss B, Montefiori DC, Hirsch VM, Letvin NL. Reduction of simian-human immunodeficiency virus 89.6P viremia in rhesus monkeys by recombinant modified vaccinia virus Ankara vaccination. *J. Virol.* 2001; 75:5151-5158.
20. McKay PF, Schmitz JE, **Barouch DH**, Kuroda MJ, Lifton MA, Nickerson CE, Gorgone DA, Letvin NL. Vaccine protection against functional cytotoxic T lymphocyte abnormalities in simian human immunodeficiency virus-infected rhesus monkeys. *J. Immunol.* 2002; 168:332-337.
21. **Barouch DH**, Santra S, Tenner-Racz K, Racz P, Kuroda MJ, Schmitz JE, Jackson SS, Lifton MA, Freed DC, Perry HC, Davies ME, Shiver JW, Letvin NL. Potent CD4⁺ T cell responses elicited by a bicistronic HIV-1 DNA vaccine expressing gp120 and GM-CSF. *J. Immunol.* 2002; 168:562-568.
22. **Barouch DH**, Kunstman J, Kuroda MJ, Schmitz JE, Santra S, Peyerl FW, Krivulka GR, Beaudry K, Lifton MA, Gorgone DA, Montefiori DC, Lewis MG, Wolinsky SM, Letvin NL. Eventual AIDS vaccine failure in a rhesus monkey by viral escape from cytotoxic T lymphocytes. *Nature* 2002; 415:335-339.
23. Santra S, **Barouch DH**, Kuroda MJ, Schmitz JE, Krivulka GR, Beaudry K, Lord CI, Lifton MA, Wyatt LS, Moss B, Hirsch VM, Letvin NL. Prior vaccination increases the epitopic breadth of the cytotoxic T-lymphocyte response that evolves in rhesus monkeys following a simian-human immunodeficiency virus infection. *J. Virol.* 2002; 76:6376-6381.
24. Premenko-Lanier M, Rota PA, Rhodes G, Verhoeven D, **Barouch DH**, Lerche NW, Letvin NL, Bellini WJ, McChesney MB. DNA vaccination of infants in the presence of maternal antibody: a measles model in the primate. *Virology* 2003; 307:67-75.
25. McKay PF, **Barouch DH**, Schmitz JE, Veazey RS, Gorgone DA, Lifton MA, Williams KC, Letvin NL. Global dysfunction of CD4 T-lymphocyte cytokine expression in simian-human immunodeficiency virus/SIV-infected monkeys is prevented by vaccination. *J. Virol.* 2003; 77:4695-4702.
26. **Barouch DH**, Kunstman J, Glowczwskie J, Kunstman KJ, Egan MA, Peyerl FW, Santra S, Kuroda MJ, Schmitz JE, Beaudry K, Krivulka GR, Lifton MA, Gorgone DA, Wolinsky SM,

- Letvin NL. Viral escape from dominant simian immunodeficiency virus epitope-specific cytotoxic T lymphocytes in DNA-vaccinated rhesus monkeys. *J. Virol.* 2003; 77:7367-7375.
27. **Barouch DH**, McKay PF, Sumida SM, Santra S, Jackson SS, Gorgone DA, Lifton MA, Chakrabarti BK, Xu L, Nabel GJ, Letvin NL. Plasmid chemokines and colony-stimulating factors enhance the immunogenicity of DNA priming-viral vector boosting human immunodeficiency virus type 1 vaccines. *J. Virol.* 2003; 77:8729-8735.
 28. Subbramanian RA, Kuroda MJ, Charini WA, **Barouch DH**, Costantino C, Santra S, Schmitz JE, Martin KL, Lifton MA, Gorgone DA, Shiver JW, Letvin NL. Magnitude and diversity of cytotoxic T-lymphocyte responses elicited by multiepitope DNA vaccination in rhesus monkeys. *J. Virol.* 2003; 77:10113-10118.
 29. Mascola JR, Lewis MG, VanCott TC, Stiegler G, Katinger H, Seaman M, Beaudry K, **Barouch DH**, Koriath-Schmitz B, Krivulka G, Sambor A, Welcher B, Douek DC, Montefiori DC, Shiver JW, Poignard P, Burton DR, Letvin NL. Cellular immunity elicited by human immunodeficiency virus type 1/simian immunodeficiency virus DNA vaccination does not augment the sterile protection afforded by passive infusion of neutralizing antibodies. *J. Virol.* 2003; 77:10348-10356.
 30. Peyerl FW, **Barouch DH**, Yeh W, Kunstman J, Kunstman KJ, Wolinsky SM, Letvin NL. Simian human immunodeficiency virus escape from CTL recognition at a structurally constrained epitope. *J. Virol.* 2003; 77:12572-12578.
 31. McKay PF, **Barouch DH**, Santra S, Sumida SM, Jackson SS, Gorgone DA, Lifton MA, Letvin NL. Recruitment of different subsets of antigen-presenting cells selectively modulates DNA vaccine-elicited CD4⁺ and CD8⁺ T lymphocyte responses. *Eur. J. Immunol.* 2004; 34:1011-1020.
 32. Sumida SM, Truitt DM, Kishko MG, Arthur JA, Jackson SS, Gorgone DA, Lifton MA, Koudstaal W, Pau MG, Kostense S, Havenga MJE, Goudsmit J, Letvin NL, **Barouch DH**. Neutralizing antibodies and CD8⁺ T lymphocytes both contribute to immunity to adenovirus serotype 5 vaccine vectors. *J. Virol.* 2004; 78:2666-2673.
 33. **Barouch DH**, Pau MG, Custers JHHV, Koudstaal W, Kostense S, Havenga MJE, Truitt DM, Sumida SM, Kishko MG, Arthur JC, Koriath-Schmitz B, Newberg MH, Gorgone DA, Lifton MA, Panicali DL, Nabel GJ, Letvin NL, Goudsmit J. Immunogenicity of recombinant adenovirus serotype 35 vaccine in the presence of pre-existing anti-Ad5 immunity. *J. Immunol.* 2004; 172:6290-6297.
 34. **Barouch DH**, Truitt DM, Letvin NL. Expression kinetics of the interleukin-2/immunoglobulin (IL-2/Ig) plasmid cytokine adjuvant. *Vaccine* 2004; 22:3092-3097.
 35. Santra S, **Barouch DH**, Koriath-Schmitz B, Lord CI, Krivulka GR, Yu F, Beddall MH, Gorgone DA, Lifton MA, Miura A, Philippon V, Manson K, Markham PD, Parrish J, Kuroda MJ, Schmitz JE, Gelman RS, Shiver JW, Montefiori DC, Panicali D, Letvin NL. Recombinant poxvirus boosting of DNA-primed rhesus monkeys augments peak but not memory T lymphocyte responses. *Proc. Natl. Acad. Sci. USA* 2004; 101:11088-11093.

36. Peyerl FW, Bazick HS, Newberg MH, **Barouch DH**, Sodroski J, Letvin NL. Fitness costs limit viral escape from cytotoxic T-lymphocytes at a structurally constrained epitope. *J. Virol.* 2004; 78:13901-13910.
37. Sumida SM, McKay PF, Truitt DM, Kishko MG, Arthur JA, Seaman MS, Jackson SS, Gorgone DA, Lifton MA, Letvin NL, **Barouch DH**. Recruitment and expansion of dendritic cells in vivo potentiate the immunogenicity of plasmid DNA vaccines. *J. Clin. Invest.* 2004; 114:1334-1342.
38. **Barouch DH**, Powers J, Truitt DM, Kishko MG, Arthur JC, Peyerl FW, Kuroda MJ, Gorgone DA, Lifton MA, Lord CI, Hirsch VM, Montefiori DC, Carville A, Mansfield KG, Kunstman KJ, Wolinsky SM, Letvin NL. Dynamic immune responses maintain cytotoxic T lymphocyte epitope mutations in transmitted simian immunodeficiency virus variants. *Nat. Immunol.* 2005; 6:247-252.
39. Sun Y, Schmitz JE, Acierno PM, Santra S, Subbramanian RA, **Barouch DH**, Gorgone DA, Lifton MA, Beaudry KR, Manson K, Philippon V, Xu L, Maecker HT, Mascola JR, Panicali D, Nabel GJ, Letvin NL. Dysfunction of simian immunodeficiency virus/simian human immunodeficiency virus-induced IL-2 expression by central memory CD4⁺ T lymphocytes. *J. Immunol.* 2005; 174:4753-4760.
40. Bielefeldt-Ohmann H, **Barouch DH**, Bakke AM, Bruce AG, Durning M, Grant R, Letvin NL, Ryan JT, Schmidt A, Thouless ME, Rose TM. Intestinal stromal tumors in an SIV-infected rhesus macaque: etiologic and phenotypic relationships to retroperitoneal fibromatosis. *Vet. Path.* 2005; 42:391-396.
41. Santra S, Seaman MS, Xu L, **Barouch DH**, Lord CI, Lifton MA, Gorgone DA, Beaudry KR, Svehla K, Welcher B, Chakrabarti BK, Huang Y, Yang ZY, Mascola JR, Nabel GJ, Letvin NL. Replication-defective adenovirus serotype 5 vectors elicit durable cellular and humoral immune responses in nonhuman primates. *J. Virol.* 2005; 79:6516-6522.
42. Peyerl FW, **Barouch DH**, Bazick HS, Manuel E, Letvin NL. Use of molecular beacons for rapid, real-time, quantitative monitoring of cytotoxic T-lymphocyte epitope mutations in simian immunodeficiency virus. *J. Clin. Microbiol.* 2005; 43:4773-4779.
43. **Barouch DH**, Yang ZY, Kong WP, Koriath-Schmitz B, Sumida SM, Truitt DM, Kishko MG, Arthur JC, Miura A, Mascola JR, Letvin NL, Nabel GJ. A human T-cell leukemia virus type 1 regulatory element enhances the immunogenicity of human immunodeficiency virus type 1 DNA vaccines in mice and nonhuman primates. *J. Virol.* 2005; 79:8828-8834.
44. Sumida SM, Truitt DM, Lemckert AAC, Vogels R, Custers JHHV, Addo MM, Lockman S, Peter T, Peyerl FW, Kishko MG, Jackson SS, Gorgone DA, Lifton MA, Essex M, Walker BD, Goudsmit J, Havenga MJE, **Barouch DH**. Neutralizing antibodies to adenovirus serotype 5 vaccine vectors are directed primarily against the adenovirus hexon protein. *J. Immunol.* 2005; 174:7179-7185.

45. Lemckert AAC, Sumida SM, Holterman L, Vogels R, Truitt DM, Lynch DM, Nanda A, Ewald BA, Gorgone DA, Lifton MA, Goudsmit J, Havenga MJE, **Barouch DH**. Immunogenicity of heterologous prime-boost regimens involving recombinant adenovirus serotype 11 (Ad11) and Ad35 vaccine vectors in the presence of anti-Ad5 immunity. *J. Virol.* 2005; 79:9694-9701.
46. Nanda A, Lynch DM, Goudsmit J, Lemckert AAC, Ewald BA, Sumida SM, Truitt DM, Abbink P, Kishko MG, Gorgone DA, Lifton MA, Shen L, Carville A, Mansfield KG, Havenga MJE, **Barouch DH**. Immunogenicity of recombinant fiber-chimeric adenovirus serotype 35 vector-based vaccines in mice and rhesus monkeys. *J. Virol.* 2005; 79:14161-14168.
47. Havenga M, Vogels R, Zuijdgeest D, Radosevic K, Mueller S, Sieuwerts M, Weichold F, Damen I, Kaspers J, Lemckert A, Van Meerendonk M, Van der Vlugt R, Holterman L, Hone D, Skeiky Y, Mintardjo R, Gillissen G, **Barouch D**, Sadoff J, Goudsmit J. Novel replication-incompetent adenoviral B-group vectors: high vector stability and yield in PER.C6 cells. *J. Gen. Virol.* 2006; 87:2135-2143.
48. Lemckert AAC, Grimbergen J, Smits S, Hartkoorn E, Holterman L, Berkhout B, **Barouch DH**, Vogels R, Quax P, Goudsmit J, Havenga MJE. Generation of a novel replication-incompetent adenoviral vector derived from human adenovirus type 49: manufacture on PER.C6 cells, tropism, and immunogenicity. *J. Gen. Virol.* 2006; 87:2891-2899.
49. Thorner AR, Vogels R, Kaspers J, Weverling GJ, Holterman L, Lemckert AAC, Dilraj A, McNally LM, Jeena PM, Jepsen S, Abbink P, Nanda A, Swanson PE, Bates AT, O'Brien KL, Havenga MJE, Goudsmit J, **Barouch DH**. Age dependence of adenovirus-specific neutralizing antibody titers in individuals from sub-Saharan Africa. *J. Clin. Microbiol.* 2006; 44:3781-3783.
50. Liu J, Ewald BA, Lynch DM, Nanda A, Sumida SM, **Barouch DH**. Modulation of DNA vaccine-elicited CD8⁺ T-lymphocyte epitope immunodominance hierarchies. *J. Virol.* 2006; 80:11991-11997.
51. Thorner AR, Lemckert AAC, Goudsmit J, Lynch DM, Ewald BA, Denholtz M, Havenga MJE, **Barouch DH**. Immunogenicity of heterologous recombinant adenovirus prime-boost vaccine regimens is enhanced by circumventing vector cross-reactivity. *J. Virol.* 2006; 80:12009-12016.
52. Roberts DR, Nanda A, Havenga MJE, Abbink P, Lynch DM, Ewald BA, Liu J, Thorner AR, Swanson PE, Gorgone DA, Lifton MA, Lemckert AAC, Holterman L, Chen B, Dilraj A, Carville A, Mansfield KG, Goudsmit J, **Barouch DH**. Hexon-chimaeric adenovirus serotype 5 vectors circumvent pre-existing anti-vector immunity. *Nature* 2006; 441:239-243.
53. Abbink P, Lemckert AAC, Ewald BA, Lynch DM, Denholtz M, Smits S, Holterman L, Damen I, Vogels R, Thorner AR, O'Brien KL, Carville A, Mansfield KG, Goudsmit J, Havenga MJE, **Barouch DH**. Comparative seroprevalence and immunogenicity of six rare serotype recombinant adenovirus vaccine vectors from subgroups B and D. *J. Virol.* 2007; 81:4654-4663.

54. Santra S, Korber BT, Muldoon M, **Barouch DH**, Nabel GJ, Gao F, Hahn BH, Haynes BF, Letvin NL. A centralized gene-based HIV-1 vaccine elicits broad cross-clade cellular immune responses in rhesus monkeys. *Proc. Natl. Acad. Sci. USA* 2008; 105:10489-10494.
55. Waddington SN, McVey JH, Bhella D, Parker AL, Barker K, Atoda H, Pink R, Buckley SM, Greig JA, Denby L, Custers J, Morita T, Francischetti IM, Monteiro RQ, **Barouch DH**, van Rooijen N, Napoli C, Havenga MJ, Nicklin SA, Baker AH. Adenovirus serotype 5 hexon mediates liver gene transfer. *Cell* 2008; 132:397-409.
56. Liu J, Ewald BA, Lynch DM, Denholtz M, Abbink P, Lemckert AAC, Carville A, Mansfield KG, Havenga MJ, Goudsmit J, **Barouch DH**. Magnitude and phenotype of cellular immune responses elicited by recombinant adenovirus vectors and heterologous prime-boost regimens in rhesus monkeys. *J. Virol.* 2008; 82:4844-4852.
57. Liu J, Kjekken R, Mathiesen I, **Barouch DH**. Recruitment of antigen-presenting cells to the site of inoculation and augmentation of HIV-1 DNA vaccine immunogenicity by in vivo electroporation. *J. Virol.* 2008; 82:5643-5649.
58. Kaufman DR, Goudsmit J, Holterman L, Ewald BA, Denholtz M, Devoy C, Giri A, Grandpre LE, Heraud JM, Franchini G, Seaman MS, Havenga MJ, **Barouch DH**. Differential antigen requirements for protection against systemic and intranasal vaccinia virus challenges in mice. *J. Virol.* 2008; 82:6829-6837.
59. Kaufman DR, Liu J, Carville A, Mansfield KG, Havenga MJE, Goudsmit J, **Barouch DH**. Trafficking of antigen-specific CD8⁺ T-lymphocytes to mucosal surfaces following intramuscular vaccination. *J. Immunol.* 2008; 181:4188-4198.
60. Barefoot B, Thornburg NJ, **Barouch DH**, Yu JS, Sample C, Johnston RE, Liao HX, Kepler TB, Haynes BF, Ramsburg E. Comparison of multiple vaccine vectors in a single heterologous prime-boost trial. *Vaccine* 2008; 26:6108-6118.
61. Liu J, O'Brien KL, Lynch DM, Simmons NL, La Porte A, Riggs AM, Abbink P, Coffey RT, Grandpre LE, Seaman MS, Landucci G, Forthal DN, Montefiori DC, Carville A, Mansfield KG, Havenga MJ, Pau MG, Goudsmit J, **Barouch DH**. Immune control of an SIV challenge by a T-cell-based vaccine in rhesus monkeys. *Nature* 2009; 457:87-91.
62. Grandpre LE, Duke-Cohan JS, Ewald BA, Devoy C, **Barouch DH**, Letvin NL, Reinherz EL, Baden LR, Dolin R, Seaman MS. Immunogenicity of recombinant Modified Vaccinia Ankara following a single or multi-dose vaccine regimen in rhesus monkeys. *Vaccine* 2009; 27:1549-1556.
63. Hudgens MG, Gilbert PB, Mascola JR, Wu CD, **Barouch DH**, Self SG. Power to detect the effects of HIV vaccine in repeated low-dose challenge experiments. *J. Infect. Dis.* 2009; 198:609-613.
64. Alba R, Bradshaw AC, Parker AL, Bhella D, Waddington SN, Nicklin SA, van Rooijen N, Custers J, Goudsmit J, **Barouch DH**, McVey JH, Baker AH. Identification of coagulation

factor (F)X binding sites on the adenovirus serotype 5 hexon: effect of mutagenesis on FX interactions and gene transfer. *Blood* 2009; 114:965-971.

65. O'Brien KL, Liu J, King SL, Sun YH, Schmitz JE, Lifton MA, Hutnick NA, Betts MR, Dubey SA, Goudsmit J, Shiver JW, Robertson MN, Casimiro DR, **Barouch DH**. Adenovirus-specific immunity after immunization with an Ad5 HIV-1 vaccine candidate in humans. *Nat. Med.* 2009; 15:873-875.
66. **Barouch DH**, Liu J, Lynch DM, O'Brien KL, La Porte A, Simmons NL, Riggs AM, Clark S, Abbink P, Montefiori DC, Landucci G, Forthal DN, Self SG, Carville A, Mansfield K, Goudsmit J. Protective efficacy of a single immunization of a chimeric adenovirus vector-based vaccine against simian immunodeficiency virus challenge in rhesus monkeys. *J. Virol.* 2009; 83:9584-9590.
67. Nkolola JP, Peng H, Settembre EC, Freeman M, Grandpre LE, Devoy C, Lynch DM, La Porte A, Simmons NL, Bradley R, Montefiori DC, Seaman MS, Chen B, **Barouch DH**. Breadth of neutralizing antibodies elicited by stable, homogeneous clade A and clade C HIV-1 gp140 envelope trimers in guinea pigs. *J. Virol.* 2010; 84:3270-3279.
68. **Barouch DH**, O'Brien KL, Simmons NL, King SL, Abbink P, Maxfield LF, Sun YH, La Porte A, Riggs AM, Lynch DM, Clark SL, Backus K, Perry JR, Seaman MS, Carville A, Mansfield KG, Szinger JJ, Fischer W, Muldoon M, Korber B. Mosaic HIV-1 vaccines expand the breadth and depth of cellular immune responses in rhesus monkeys. *Nat. Med.* 2010; 16:319-323.
69. Kaufman DR, Bivas-Benita M, Simmons NL, Miller D, **Barouch DH**. Route of adenovirus-based HIV-1 vaccine delivery impacts the phenotype and trafficking of vaccine-elicited CD8⁺ T lymphocytes. *J. Virol.* 2010; 84:5986-5996.
70. Lim SY, Chan T, Gelman RS, Whitney JB, O'Brien KL, **Barouch DH**, Goldstein DB, Haynes BF, Letvin NL. Contributions of Mamu-A*01 status and TRIM5 allele expression, but not CCL3L copy number variation, to the control of SIVmac251 replication in Indian-origin rhesus monkeys. *PLoS Genet.* 2010; 6:e1000997.
71. Rosenberg ES, Graham BS, Chan ES, Bosch RJ, Stocker V, Maenza J, Markowitz M, Little S, Sax PE, Collier AC, Nabel G, Saindon S, Flynn T, Kuritzkes D, **Barouch DH**. Safety and immunogenicity of therapeutic DNA vaccination in individuals treated with antiretroviral therapy during acute/early HIV-1 infection. *PLoS One* 2010; 5:e10555.
72. Rhee EG, Kelley RP, Agarwal I, Lynch DM, La Porte A, Simmons NL, Clark SL, **Barouch DH**. TLR4 ligands augment antigen-specific CD8⁺ T lymphocyte responses elicited by a viral vaccine vector. *J. Virol.* 2010; 84:10413-10419.
73. Liu J, Keele BF, Li H, Keating S, Norris PJ, Carville A, Mansfield KG, Tomaras GD, Haynes BF, Kolodkin-Gal D, Letvin NL, Hahn BH, Shaw GM, **Barouch DH**. Low-dose mucosal simian immunodeficiency virus infection restricts early replication kinetics and transmitted virus variants in rhesus monkeys. *J. Virol.* 2010; 84:10406-10412.

74. Masek-Hammerman K, Li H, Liu J, Abbink P, La Porte A, O'Brien KL, Whitney JB, Carville A, Mansfield KG, **Barouch DH**. Mucosal trafficking of vector-specific CD4+ T lymphocytes following vaccination of rhesus monkeys with adenovirus serotype 5. *J. Virol.* 2010; 84:9810-9816.
75. Wilks AB, Christian EC, Seaman MS, Sircar P, Carville A, Gomez CE, Esteban M, Pantaleo G, **Barouch DH**, Letvin NL, Permar SR. Robust vaccine-elicited cellular immune responses in breast milk following systemic simian immunodeficiency virus DNA prime and live virus vector boost vaccination of lactating rhesus monkeys. *J. Immunol.* 2010; 185:7097-7106.
76. Rhee EG, Blattman JN, Kasturi SP, Kelley RP, Kaufman DR, Lynch DM, La Porte A, Simmons NL, Clark SL, Pulendran B, Greenberg PD, **Barouch DH**. Multiple innate immune pathways contribute to the immunogenicity of recombinant adenoviral vaccine vectors. *J. Virol.* 2011; 85:315-323.
77. Ndhlovu ZM, Piechocka-Trocha A, Vine S, McMullen A, Koofhethile KC, Goulder PJ, Ndung'u T, **Barouch DH**, Walker DB. Mosaic HIV-1 Gag antigens can be processed and presented to human HIV-specific CD8+ T cells. *J. Immunol.* 2011; 186:6914-6924.
78. **Barouch DH**, Kik SV, Weverling GJ, Dilan R, King SL, Maxfield LF, Clark S, Ng'ang'a D, Brandariz KL, Abbink P, Sinangil F, de Bruyn G, Gray GE, Roux S, Bekker LG, Dilraj A, Kibuuka H, Robb ML, Michael NL, Anzala O, Amornkul PN, Gilmour J, Hural J, Buchbinder SP, Seaman MS, Dolin R, Baden LR, Carville A, Mansfield KG, Pau MG, Goudsmit J. International seroepidemiology of adenovirus serotypes 5, 26, 35, and 48 in pediatric and adult populations. *Vaccine* 2011; 29:5203-5209.
79. Kaufman DR, De Calisto J, Simmons NL, Cruz AN, Villablanca EJ, Mora JR, **Barouch DH**. Vitamin A deficiency impairs vaccine-elicited gastrointestinal immunity. *J. Immunol.* 2011; 187:1877-1883.
80. Baden LR, Blattner WA, Morgan C, Huang Y, Defawe OD, Sobieszczyk M, Kochar N, Tomaras GD, McElrath MJ, Russell N, Brandariz K, Cardinali M, Graham BS, **Barouch DH**, Dolin R. Timing of plasmid cytokine (IL-2/Ig) administration impacts HIV-1 vaccine immunogenicity in HIV seronegative subjects. *J. Infect. Dis.* 2011; 204:1541-1549.
81. Li H, Liu J, Carville A, Mansfield KG, Lynch D, **Barouch DH**. Durable, mucosal SIV-specific effector memory T lymphocyte responses elicited by recombinant adenovirus vectors in rhesus monkeys. *J. Virol.* 2011; 85:11007-11015.
82. Bradley RR, Lynch DM, Iampietro MJ, Borducchi EN, **Barouch DH**. Adenovirus serotype 5 neutralizing antibodies target both hexon and fiber following vaccination and natural infection. *J. Virol.* 2012; 86:625-629.
83. Bradley RR, Maxfield LF, Lynch DM, Iampietro MJ, Borducchi EN, **Barouch DH**. Ad5-specific neutralizing antibodies target multiple hexon hypervariable regions. *J. Virol.* 2012; 86:1267-1272.

84. Kaufman DR, Li F, Cruz AN, Self SG, **Barouch DH**. Focus and breadth of cellular immune responses elicited by a heterologous insert prime-boost vaccine regimen in rhesus monkeys. *Vaccine* 2012; 30:506-509.
85. **Barouch DH**, Liu J, Li H, Maxfield LF, Abbink P, Lynch DM, Iampietro MJ, SanMiguel A, Seaman MS, Ferrari G, Forthal DN, Ourmanov I, Hirsch VM, Carville A, Mansfield KG, Stablein D, Pau MG, Schuitemaker H, Sadoff JC, Billings EM, Rao M, Robb ML, Kim JH, Marovich MA, Goudsmit J, Michael NL. Vaccine protection against acquisition of neutralization-resistant SIV challenges in rhesus monkeys. *Nature* 2012; 482:89-93.
86. Perreau M, Welles HC, Pellaton C, Gjoksi B, Potin L, Martin R, Harari A, Bett A, Casimiro D, Gall J, **Barouch DH**, Kremer EJ, Pantaleo G. The number of TLR9-agonist motifs in the adenovirus genome correlates with induction of DC maturation by adenovirus immune complexes. *J. Virol.* 2012; 86:6279-6285.
87. Stephenson KE, Hural J, Buchbinder SP, Sinangil F, **Barouch DH**. Preexisting adenovirus seropositivity is not associated with increased HIV-1 acquisition in three HIV-1 vaccine efficacy trials. *J. Infect. Dis.* 2012; 205:1806-1810.
88. **Barouch DH**, Klasse PJ, Dufour J, Veazey RS, Moore JP. Macaque studies of vaccine and microbicide combinations for preventing HIV-1 sexual transmission. *Proc. Natl. Acad. Sci. USA* 2012; 109:8694-8698.
89. Liu J, Li H, Iampietro MJ, **Barouch DH**. Accelerated heterologous adenovirus prime-boost SIV vaccine in neonatal rhesus monkeys. *J. Virol.* 2012; 86:7829-7835.
90. Stephenson KE, Li H, Walker BD, Michael NL, **Barouch DH**. Gag-specific cellular immunity determines in vitro viral inhibition and in vivo virologic control following SIV challenges of vaccinated rhesus monkeys. *J. Virol.* 2012; 86:9583-9589.
91. Kovacs JM, Nkolola JP, Peng H, Cheung A, Perry J, Miller CA, Seaman MS, **Barouch DH**, Chen B. HIV-1 envelope trimer elicits more potent neutralizing antibody responses than monomeric gp120. *Proc. Natl. Acad. Sci. USA* 2012; 109:12111-12116.
92. Teigler JE, Iampietro MJ, **Barouch DH**. Vaccination with adenovirus serotypes 35, 26, and 48 elicits greater innate cytokine responses than adenovirus serotype 5 in rhesus monkeys. *J. Virol.* 2012; 86:9590-9598.
93. Li H, Rhee EG, Masek-Hammerman K, Teigler JE, Abbink P, **Barouch DH**. Adenovirus serotype 26 utilizes CD46 as a primary cellular receptor and only transiently activates T lymphocytes following vaccination of rhesus monkeys. *J. Virol.* 2012; 86:10862-10865.
94. Stephenson KE, SanMiguel A, Simmons NL, Smith K, Lewis MG, Szinger JJ, Korber B, **Barouch DH**. Full-length HIV-1 immunogens induce greater magnitude and comparable breadth of T lymphocyte responses to conserved HIV-1 regions compared with conserved-region-only HIV-1 immunogens in rhesus monkeys. *J. Virol.* 2012; 86:11434-11440.

95. Coughlan L, Bradshaw AC, Parker AL, Robinson H, White K, Custers J, Goudsmit J, Van Roijen N, **Barouch DH**, Nicklin SA, Baker AH. Ad5:Ad48 hexon hypervariable region substitutions lead to toxicity and increased inflammatory responses following intravenous delivery. *Mol. Ther.* 2012; 20:2268-2281.
96. Handley S, Thackray LB, Zhao G, Presti R, Miller A, Droit L, Abbink P, Maxfield LF, Kambal A, Duan E, Stanley K, Kramer J, Macri SC, Permar SR, Schmitz JE, Mansfield K, Brenchley J, Veazey RS, Stappenbeck TS, Wang D, **Barouch DH***, Virgin HW*. Pathogenic simian immunodeficiency virus infection is associated with expansion of the enteric virome. *Cell* 2012; 151:253-266.
97. Baden LR, Walsh SR, Seaman MS, Tucker RP, Krause KH, Patel A, Johnson JA, Kleinjan J, Yanosick KE, Perry J, Abbink P, Peter L, Iampietro MJ, Cheung A, Pau MG, Weijtens M, Goudsmit J, Swann E, Wolff M, Loblein H, Dolin R, **Barouch DH**. First-in-human evaluation of the safety and immunogenicity of a recombinant adenovirus serotype 26 HIV-1 Env vaccine (IPCAVD 001). *J. Infect. Dis.* 2013; 207:240-247.
98. **Barouch DH**, Liu J, Peter L, Abbink P, Iampietro MJ, Cheung A, Alter G, Chung A, Dugast AS, Frahm N, McElrath MJ, Wenschuh H, Reimer U, Seaman MS, Pau MG, Weijtens M, Goudsmit J, Walsh SR, Dolin R, Baden LR. Characterization of humoral and cellular immune responses elicited by a recombinant adenovirus serotype 26 HIV-1 Env vaccine in healthy adults (IPCAVD 001). *J. Infect. Dis.* 2013; 207:248-256.
99. Penaloza-Macmaster P, Provine NM, Ra J, Borducchi EN, McNally A, Simmons NL, Iampietro MJ, **Barouch DH**. Alternative serotype adenovirus vaccine vectors elicit memory T cells with enhanced anamnestic capacity compared to Ad5 vectors. *J. Virol.* 2013; 87:1373-1384.
100. Tan WG, Jin HT, West EE, Penaloza-Macmaster P, Wieland A, Zilliox MJ, McElrath MJ, **Barouch DH**, Ahmed R. Comparative analysis of SIV Gag specific effector and memory CD8 T cells induced by different adenovirus vectors. *J. Virol.* 2013; 87:1359-1372.
101. Yusim K, Dilan R, Borducchi E, Stanley K, Giorgi E, Fischer W, Theiler J, Marcotrigiano J, Korber B, **Barouch DH**. Hepatitis C genotype 1 mosaic vaccines are immunogenic in mice and induce higher T cell responses than natural strains. *Clin Vaccine Immunol.* 2013; 20:302-305.
102. DeMuth PC, Min Y, Huang B, Kramer JA, Miller AD, **Barouch DH**, Hammond PT, Irvine DJ. Polymer multilayer tattooing for enhanced DNA vaccination. *Nat. Mater.* 2013; 12:367-376.
103. Im EJ, Borducchi EN, Provine NM, McNally AG, Li S, Frankel FR, **Barouch DH**. An attenuated *Listeria monocytogenes* vector primes more potent simian immunodeficiency virus-specific mucosal immunity than DNA vaccines in mice. *J. Virol.* 2013; 87:4751-4755.
104. Del Prete GQ, Scarlotta M, Newman L, Reid C, Parodi LM, Roser JD, Oswald K, Marx PA, Miller CJ, Desrosiers RC, **Barouch DH**, Pal R, Piatak M Jr, Chertova E, Giavedoni LD, O'Connor DH, Lifson JD, Keele BF. Comparative characterization of transfection- and

- infection-derived simian immunodeficiency virus challenge stocks for in vivo nonhuman primate studies. *J. Virol.* 2013; 87:4584-4595.
105. Li AV, Moon JJ, Abraham W, Suh H, Elkhader J, Seidman MA, Yen M, Im EJ, Foley MH, **Barouch DH**, Irvine DJ. Generation of effector memory T-cell-based mucosal and systemic immunity with pulmonary nanoparticle vaccination. *Sci. Trans. Med.* 2013; 5:204ra130.
 106. Nabi G, Genannt Bonsmann MS, Tenbusch M, Gardt O, **Barouch DH**, Temchura V, Uberla K. GagPol-specific CD4+ T-cells increase the antibody response to Env by intrastructural help. *Retrovirology* 2013; 10:117.
 107. **Barouch DH**, Stephenson KE, Borducchi EN, Smith K, Stanley K, McNally AG, Liu J, Abbink P, Maxfield LF, Seaman MS, Dugast AS, Alter G, Ferguson M, Li W, Earl PL, Moss B, Giorgi EE, Szinger JJ, Eller LA, Billings EA, Rao M, Tovanabutra S, Sanders-Buell E, Weijtens M, Pau MG, Schuitemaker H, Robb ML, Kim JH, Korber BT, Michael NL. Protective efficacy of a global HIV-1 mosaic vaccine against acquisition of heterologous SHIV challenges in rhesus monkeys. *Cell* 2013; 155:531-539.
 108. **Barouch DH**, Whitney JB, Moldt B, Klein F, Oliveira TY, Liu J, Stephenson KE, Chang HW, Shekhar K, Gupta S, Nkolola JP, Seaman MS, Smith KM, Borducchi EN, Cabral C, Smith JY, Blackmore S, Sanisetty S, Perry JR, Beck M, Lewis MG, Rinaldi W, Chakraborty AK, Poignard P, Nussenzweig MC, Burton DR. Therapeutic efficacy of potent neutralizing HIV-1-specific monoclonal antibodies in SHIV-infected rhesus monkeys. *Nature* 2013; 503:224-228.
 109. DeMuth PC, Li AV, Abbink P, Liu J, Li J, Stanley KA, Smith KM, Lavine CL, Seaman MS, Kramer JA, Miller AD, Abraham W, Suh H, Elkhader J, Hammond PT, **Barouch DH**, Irvine DJ. Vaccine delivery with microneedle skin patches in nonhuman primates. *Nat. Biotech.* 2013; 31:1082-1085.
 110. Teigler JE, Phogat S, Franchini G, Hirsch VM, Michael NL, **Barouch DH**. The canarypox vector ALVAC induces distinct cytokine responses compared to the vaccinia-based vectors MVA and NYVAC in rhesus monkeys. *J. Virol.* 2014; 88:1809-1814.
 111. Balandya E, Miller AD, Beck M, Liu J, Li H, Borducchi E, Smith K, Cabral C, Stanley K, Maxfield LF, **Barouch DH**. Adenovirus serotype 26 and 35 vectors induce simian immunodeficiency virus-specific T lymphocyte responses in foreskin in rhesus monkeys. *J. Virol.* 2014; 88:3756-3765.
 112. Nkolola JP, Cheung A, Perry JR, Carter D, Reed S, Schuitemaker H, Pau MG, Seaman MS, Chen B, **Barouch DH**. Comparison of multiple adjuvants on the stability and immunogenicity of a clade C HIV-1 gp140 trimer. *Vaccine* 2014; 32:2109-2116.
 113. Penaloza-MacMaster P, Teigler JE, Obeng RC, Kang ZH, Provine NM, Parenteau L, Blackmore S, Ra J, Borducchi EN, **Barouch DH**. Augmented replicative capacity of the boosting antigen improves the protective efficacy of heterologous prime-boost vaccine regimens. *J. Virol.* 2014; 88:6243-6254.

114. Provine NM, Larocca RA, Penaloza-MacMaster P, Borducchi EN, McNally A, Parenteau LR, Kaufman DR, **Barouch DH**. Longitudinal requirement for CD4+ T cell help for adenovirus vector-elicited CD8+ T cell responses. *J. Immunol.* 2014; 192:5214-5225.
115. Dugast AS, Chan Y, Hoffner M, Licht A, Nkolola J, Li H, Streeck H, Suscovich TJ, Ghebremichael M, Ackerman ME, **Barouch DH**, Alter G. Lack of protection following passive transfer of polyclonal highly functional low-dose non-neutralizing antibodies. *PLoS One* 2014; 9:e97229.
116. Baden LR, Walsh SR, Seaman MS, Johnson JA, Tucker RP, Kleinjan JA, Gothing JA, Engelson BA, Carey BR, Oza A, Bajimaya S, Peter L, Bleckwehl C, Abbink P, Pau MG, Weijtens M, Kunchai M, Swann EM, Wolff M, Dolin R, **Barouch DH**. First-in-human evaluation of a hexon chimeric adenovirus vector expressing HIV-1 Env (IPCAVD 002). *J Infect. Dis.* 2014; 210:1052-1061.
117. Hokey DA, Wachholder R, Darrah PA, Bolton DL, **Barouch DH**, Hill K, Dheenadhayalan V, Schwander S, Godin CS, Douoguih M, Pau MG, Seder RA, Roederer M, Sadoff JC, Sizemore D. A nonhuman primate toxicology and immunogenicity study evaluating aerosol delivery of AERAS-402/Ad35 Vaccine: Evidence for transient T cell responses in peripheral blood and robust sustained responses in the lungs. *Hum. Vaccin. Immunother.* 2014; 10:2199-2210.
118. Manrique A, Adams E, **Barouch DH**, Fast P, Graham BS, Kim JH, Kublin JG, McCluskey M, Pantaleo G, Robinson HL, Russell N, Snow W, Johnston MI. The immune space: a concept and template for rationalizing vaccine development. *AIDS Res. Hum. Retroviruses* 2014; 30:1017-1022.
119. Teigler JE, Penaloza-MacMaster P, Obeng R, Provine NM, Larocca RA, Borducchi EN, **Barouch DH**. Hexon hypervariable region-modified adenovirus 5 vectors display reduced hepatotoxicity but induce T lymphocyte phenotypes similar to Ad5 vectors. *Clin. Vaccine Immunol.* 2014; 21:1137-1144.
120. Nkolola JP, Bricault CA, Cheung A, Shields J, Perry J, Kovacs JM, Giorgi E, van Winsen M, Apetri A, Brinkman-van der Linden EC, Chen B, Korber B, Seaman MS, **Barouch DH**. Characterization and immunogenicity of a novel mosaic M HIV-1 gp140 trimer. *J. Virol.* 2014; 88:9538-9532.
121. Teigler JE, Kagan JC, **Barouch DH**. Late endosomal trafficking of alternative serotype adenovirus vaccine vectors augments antiviral innate immunity. *J. Virol.* 2014; 88:10354-10363.
122. Whitney JB, Hill AL, Sanisetty S, Penaloza-MacMaster P, Liu J, Shetty M, Parenteau L, Cabral C, Shields J, Blackmore S, Smith JY, Brinkman AL, Peter LE, Mathew SI, Smith KM, Borducchi EN, Rosenbloom DIS, Lewis MG, Hattersley J, Li B, Hesselgesser J, Geleziunas R, Robb ML, Kim JH, Michael NL, **Barouch DH**. Rapid seeding of the viral reservoir prior to SIV viraemia in rhesus monkeys. *Nature* 2014; 512:74-77.

123. Pejawar-Gaddy S, Kovacs JM, **Barouch DH**, Chen B, Irvine DJ. 2014. Design of lipid nanocapsule delivery vehicles for multivalent display of recombinant Env trimers in HIV vaccination. *Bioconj. Chem.* 2014; 25:1470-1478.
124. Li H, Stephenson KE, Kang ZH, Lavine CL, Seaman MS, **Barouch DH**. Common features of mucosal and peripheral antibody responses elicited by candidate HIV-1 vaccines in rhesus monkeys. *J. Virol.* 2014; 88:13510-13515.
125. Baden LR, Liu J, Li H, Johnson JA, Walsh SR, Kleinjan JA, Engelson BA, Peter L, Abbink P, Milner DA, Golden KL, Viani KL, Stachler MD, Chen BJ, Pau MG, Weijtens M, Carey BR, Miller CA, Swann EM, Wolff M, Loblein H, Seaman MS, Dolin R, **Barouch DH**. Induction of HIV-1-specific mucosal immune responses following intramuscular recombinant adenovirus serotype 26 HIV-1 vaccination of humans. *J. Infect. Dis.* 2015; 211:518-528.
126. Abbink P, Maxfield LF, Ng'ang'a D, Borducchi EN, Iampietro MJ, Bricault CA, Teigler JE, Blackmore S, Parenteau L, Wagh K, Handley SA, Zhao G, Virgin HW, Korber B, **Barouch DH**. Construction and evaluation of novel rhesus monkey adenovirus vaccine vectors. *J. Virol.* 2015; 89:1512-1522.
127. Stephenson KE, Neubauer GH, Reimer U, Pawlowski N, Knaute T, Zerweck J, Korber BT, **Barouch DH**. Quantification of the epitope diversity of HIV-1-specific binding antibodies by peptide microarrays for global HIV-1 vaccine development. *J. Immunol. Methods* 2015; 416:105-123.
128. Chang HW, Tartaglia LJ, Whitney JB, Lim SY, Sanisetty S, Lavine CL, Seaman MS, Rademeyer C, Williamson C, Ellingson-Strauss K, Stamatatos L, Kublin J, **Barouch DH**. Generation and evaluation of clade C simian-human immunodeficiency virus challenge stocks. *J. Virol.* 2015; 89:1965-1974.
129. Penaloza-MacMaster P, Barber DL, Wherry EJ, Provine NM, Teigler JE, Parenteau L, Blackmore S, Borducchi EN, Larocca RA, Yates KB, Shen H, Haining WN, Sommerstein R, Pinschewer DD, Ahmed R, **Barouch DH**. Vaccine-elicited CD4 T cells induce immunopathology following chronic LCMV infection. *Science* 2015; 347:278-282.
130. Mahan AE, Tedesco J, Dionne K, Baruah K, Cheng HD, De Jager PL, **Barouch DH**, Suscovich T, Ackerman M, Crispin M, Alter G. A method for high-throughput, sensitive analysis of IgG Fc and Fab glycosylation by capillary electrophoresis. *J. Immunol. Methods* 2015; 417:34-44.
131. Bricault CA, Kovacs JM, Nkolola JP, Yusim K, Giorgi EE, Shields JL, Perry J, Lavine CL, Cheung A, Ellingson-Strauss K, Rademeyer C, Gray GE, Williamson C, Stamatatos L, Seaman MS, Korber BT, Chen B, **Barouch DH**. A multivalent clade C HIV-1 Env trimer cocktail elicits a higher magnitude of neutralizing antibodies than any individual component. *J. Virol.* 2015; 89:2507-2519.
132. Rodríguez-Rodríguez N, Apostolidis SA, Penaloza-MacMaster P, Martín Villa JM, **Barouch DH**, Tsokos GC, Crispin JC. Programmed cell death 1 and Helios distinguish TCR-

- $\alpha\beta$ + double-negative (CD4-CD8-) T cells that derive from self-reactive CD8 T cells. *J. Immunol.* 2015; 194:4207-4214.
133. Penaloza-MacMaster P, Provine NM, Blass E, **Barouch DH**. CD4 T cell depletion substantially augments the rescue potential of PD-L1 blockade for deeply exhausted CD8 T cells. *J. Immunol.* 2015; 195:1054-1063.
 134. Reeves RK, Li H, Jost S, Blass E, Li H, Schafer JL, Varner V, Manickam C, Eslamizar L, Altfeld M, Von Andrian UH, **Barouch DH**. Antigen-specific NK cell memory in rhesus macaques. *Nat. Immunol.* 2015; 16:927-932.
 135. **Barouch DH**, Alter G, Broge T, Linde C, Ackerman ME, Brown EP, Borducchi EN, Smith KM, Nkolola JP, Liu J, Shields J, Parenteau L, Whitney JB, Abbink P, Ng'ang'a DM, Seaman MS, Lavine CL, Perry JR, Li W, Colantonio AD, Lewis MG, Chen B, Wenschuh H, Reimer U, Piatak M, Lifson JD, Handley SA, Virgin HW, Koutsoukos M, Lorin C, Voss G, Weijtens M, Pau MG, Schuitemaker H. Protective efficacy of adenovirus/protein vaccines against SIV challenges in rhesus monkeys. *Science* 2015; 349:320-324.
 136. Maxfield LF, Abbink P, Stephenson KE, Borducchi EN, Ng'ang'a D, Kirilova MM, Paulino N, Boyd M, Shabram P, Ruan Q, Patel M, **Barouch DH**. Attenuation of replication-competent adenovirus serotype 26 vaccines by vectorization. *Clin. Vaccine Immunol.* 2015; 22:1166-1175.
 137. Chung AW, Kumar MP, Arnold KB, Yu WH, Schoen MK, Dunphy LJ, Suscovich TJ, Frahm N, Linde C, Mahan AE, Hoffner M, Streeck H, Ackerman ME, McElrath MJ, Schuitemaker H, Pau MG, Baden LR, Kim JH, Michael NL, **Barouch DH**, Lauffenburger DA, Alter G. Dissecting polyclonal vaccine-induced humoral immunity against HIV using systems serology. *Cell* 2015; 163:988-998.
 138. Gandhi RT, Kwon DS, Macklin EA, Shopis JR, McLean AP, McBrine N, Flynn T, Peter L, Sbrolla A, Kaufmann DE, Porichis F, Walker BD, Bhardwaj N, **Barouch DH**, Kavanagh DG. Immunization of HIV-1-infected persons with autologous dendritic cells transfected with mRNA encoding HIV-1 Gag and Nef: results of a randomized, placebo-controlled clinical trial. *J. Acquir. Immune Defic. Syndr.* 2016; 71:246-253.
 139. Baden LR, Karita E, Mutua G, Bekker LG, Gray G, Page-Shipp L, Walsh SR, Nyombayire J, Anzala O, Roux S, Laher F, Innes C, Seaman MS, Cohen YZ, Peter L, Frahm N, McElrath MJ, Hayes P, Swann E, Grunenberg N, Grazia-Pau M, Weijtens M, Sadoff J, Dally L, Lombardo A, Gilmour J, Cox J, Dolin R, Fast P, **Barouch DH**, Laufer DS; B003-IPCAVD004-HVTN091 Study Group. Assessment of the safety and immunogenicity of 2 novel vaccine platforms for HIV-1 prevention: a randomized trial. *Ann. Intern. Med.* 2016; 164:313-322.
 140. Tartaglia LJ, Chang HW, Lee BC, Abbink P, Ng'ang'a D, Boyd M, Lavine CL, Lim SY, Sanisetty S, Whitney JB, Seaman MS, Rolland M, Tovanabuttra S, Ananworanich J, Robb ML, Kim JH, Michael NL, **Barouch DH**. Production of mucosally transmissible SHIV challenge stocks from HIV-1 circulating recombinant form 01_AE env sequences. *PLoS Pathog.* 2016; 12:e1005431.

141. Handley SA, Desai C, Zhao G, Droit L, Monaco CL, Schroeder AC, Nkolola JP, Norman ME, Miller AD, Wang D, **Barouch DH**, Virgin HW. SIV infection-mediated changes in gastrointestinal bacterial microbiome and virome are associated with immunodeficiency and prevented by vaccination. *Cell Host Microbe* 2016; 19:323-335.
142. Mahan AE, Jennewein MF, Suscovich T, Dionne K, Tedesco J, Chung AW, Streeck H, Pau M, Schuitemaker H, Francis D, Fast P, Laufer D, Walker BD, Baden L, **Barouch DH**, Alter G. Antigen-specific antibody glycosylation is regulated via vaccination. *PLoS Pathog.* 2016; 12:e1005456.
143. Krishnamurthy SR, Janowski AB, Zhao G, **Barouch D**, Wang D. Hyperexpansion of RNA bacteriophage diversity. *PLoS Biol.* 2016; 14:e1002409.
144. **Barouch DH**, Ghneim K, Bosche WJ, Li Y, Berkemeier B, Hull M, Bhattacharyya S, Cameron M, Liu J, Smith K, Borducchi E, Cabral C, Peter L, Brinkman A, Shetty M, Li H, Gittens C, Baker C, Wagner W, Lewis MG, Colantonio A, Kang HJ, Li W, Lifson JD, Piatak M, Sekaly RP. Rapid inflammasome activation following mucosal SIV infection of rhesus monkeys. *Cell* 2016; 165:656-667.
145. Wagh K, Bhattacharya T, Williamson C, Robles A, Bayne M, Garrity J, Rist M, Rademeyer C, Yoon H, Lapedes A, Gao H, Greene K, Louder MK, Kong R, Karim SA, Burton DR, **Barouch DH**, Nussenzweig MC, Mascola JR, Morris L, Montefiori DC, Korber B, Seaman MS. Optimal combinations of broadly neutralizing antibodies for prevention and treatment of HIV-1 clade C infection. *PLoS Pathog.* 2016; 12:e1005520.
146. Provine NM, Badamchi-Zadeh A, Bricault CA, Penaloza-MacMaster P, Larocca RA, Borducchi EN, Seaman MS, **Barouch DH**. Transient CD4⁺ T cell depletion results in the delayed development of functional vaccine-elicited antibody responses. *J. Virol.* 2016; 90:4278-4288.
147. Moldt B, Le K, Carnathan DG, Whitney JB, Schultz N, Lewis MG, Borducchi E, Smith K, Mackel JJ, Sweat SL, Hodges AP, Godzik A, Parren PW, Silvestri G, **Barouch DH**, Burton DR. Neutralizing antibody affords comparable protection against vaginal and rectal SHIV challenge in macaques. *AIDS* 2016; 30:1543-1551.
148. Larocca RA, Abbink P, Peron JP, Zanutto PM, Iampietro MJ, Badamchi-Zadeh A, Boyd M, Ng'ang'a D, Kirilova M, Nityanandam R, Mercado NB, Li Z, Moseley ET, Bricault CA, Borducchi EN, Giglio PB, Jetton D, Neubauer G, Nkolola JP, Maxfield LF, De La Barrera RA, Jarman RG, Eckels KH, Michael NL, Thomas SJ, **Barouch DH**. Vaccine protection against Zika virus from Brazil. *Nature* 2016; 536:474-478.
149. Stephenson KE, Neubauer GH, Bricault CA, Shields J, Bayne M, Reimer U, Pawlowski N, Knaute T, Zerweck J, Seaman MS, Rosenberg ES, **Barouch DH**. Antibody responses after analytic treatment interruption in human immunodeficiency virus-1-infected individuals on early initiated antiretroviral therapy. *Open Forum Infect Dis.* 2016; 3:ofw100.

150. Provine NM, Larocca RA, Aid M, Penaloza-MacMaster P, Badamchi-Zadeh A, Borducchi EN, Yates KB, Abbink P, Kirilova M, Ng'ang'a D, Bramson J, Haining WN, **Barouch DH**. Immediate dysfunction of vaccine-elicited CD8⁺ T cells primed in the absence of CD4⁺ T cells. *J. Immunol.* 2016; 197:1809-1822.
151. Abbink P, Larocca RA, De La Barrera RA, Bricault CA, Moseley ET, Boyd M, Kirilova M, Li Z, Ng'ang'a D, Nanayakkara O, Nityanandam R, Mercado NB, Borducchi EN, Agarwal A, Brinkman AL, Cabral C, Chandrashekar A, Giglio PB, Jetton D, Jimenez J, Lee BC, Mojta S, Molloy K, Shetty M, Neubauer GH, Stephenson KE, Peron JP, Zanolto PM, Misamore J, Finneyfrock B, Lewis MG, Alter G, Modjarrad K, Jarman RG, Eckels KH, Michael NL, Thomas SJ, **Barouch DH**. Protective efficacy of multiple vaccine platforms against Zika virus challenge in rhesus monkeys. *Science* 2016; 353:1129-1132.
152. Liu J, Ghneim K, Sok D, Bosche WJ, Li Y, Chipriano E, Berkemeier B, Oswald K, Borducchi E, Cabral C, Peter L, Brinkman A, Shetty M, Jimenez J, Mondesir J, Lee B, Giglio P, Chandrashekar A, Abbink P, Colantonio A, Gittens C, Baker C, Wagner W, Lewis MG, Li W, Sekaly RP, Lifson JD, Burton DR, **Barouch DH**. Antibody-mediated protection against SHIV challenge includes systemic clearance of distal virus. *Science* 2016; 353:1045-1049.
153. Penaloza-MacMaster P, Alayo QA, Ra J, Provine NM, Larocca R, Lee B, **Barouch DH**. Inhibitory receptor expression on memory CD8 T cells following Ad vector immunization. *Vaccine* 2016; 34:4955-4963.
154. Larocca RA, Provine NM, Aid M, Iampietro MJ, Borducchi EN, Badamchi-Zadeh A, Abbink P, Ng'ang'a D, Bricault CA, Blass E, Penaloza-MacMaster P, Stephenson KE, **Barouch DH**. Adenovirus serotype 5 vaccine vectors trigger IL-27-dependent inhibitory CD4⁺ T cell responses that impair CD8⁺ T cell function. *Sci. Immunol.* 2016; 1:eaaf7643.
155. Dowd KA, Ko SY, Morabito KM, Yang ES, Pelc RS, DeMaso CR, Castilho LR, Abbink P, Boyd M, Nityanandam R, Gordon DN, Gallagher JR, Chen X, Todd JP, Tsybovsky Y, Harris A, Huang YS, Higgs S, Vanlandingham DL, Andersen H, Lewis MG, De La Barrera R, Eckels KH, Jarman RG, Nason MC, **Barouch DH**, Roederer M, Kong WP, Mascola JR, Pierson TC, Graham BS. Rapid development of a DNA vaccine for Zika virus. *Science* 2016; 354:237-240.
156. Borducchi EN, Cabral C, Stephenson KE, Liu J, Abbink P, Ng'ang'a D, Nkolola JP, Brinkman AL, Peter L, Lee BC, Jimenez J, Jetton D, Mondesir J, Mojta S, Chandrashekar A, Molloy K, Alter G, Gerold JM, Hill AL, Lewis MG, Pau MG, Schuitemaker H, Hesselgesser J, Geleziunas R, Kim JH, Robb ML, Michael NL, **Barouch DH**. Ad26/MVA therapeutic vaccination with TLR7 stimulation in SIV-infected rhesus monkeys. *Nature* 2016; 540:284-287.
157. Penaloza MacMaster P, Shields JL, Alayo QA, Cabral C, Jimenez J, Mondesir J, Chandrashekar A, Cabral JM, Lim M, Iampietro MJ, Provine NM, Bricault CA, Seaman M, Orlinger K, Aspoeck A, Fuhrmann G, Lilja AE, Monath T, Mangeat B, Pinschewer DD, **Barouch DH**. Development of novel replication-defective lymphocytic choriomeningitis virus vectors expressing SIV antigens. *Vaccine* 2017; 35:1-9.

158. Zhao G, Wu G, Lim ES, Droit L, Krishnamurthy S, **Barouch DH**, Virgin HW, Wang D. VirusSeeker, a computational pipeline for virus discovery and virome composition analysis. *Virology* 2017; 503:21-30.
159. Janowski AB, Krishnamurthy SR, Lim ES, Zhao G, Brenchley JM, **Barouch DH**, Thakwalakwa C, Manary MJ, Holtz LR, Wang D. Statoviruses, a novel taxon of RNA viruses present in the gastrointestinal tracts of diverse mammals. *Virology* 2017; 504:36-44.
160. Brown EP, Dowell KG, Boesch AW, Normandin E, Mahan AE, Chu T, **Barouch DH**, Bailey-Kellogg C, Alter G, Ackerman ME. Multiplexed Fc array for evaluation of antigen-specific antibody effector profiles. *J. Immunol. Methods* 2017; 443:33-44.
161. Saunders KO, Nicely NI, Wiehe K, Bonsignori M, Meyerhoff RR, Parks R, Walkowicz WE, Aussedat B, Wu NR, Cai F, Vohra Y, Park PK, Eaton A, Go EP, Sutherland LL, Searce RM, **Barouch DH**, Zhang R, Von Holle T, Overman RG, Anasti K, Sanders RW, Moody MA, Kepler TB, Korber B, Desaire H, Santra S, Letvin NL, Nabel GJ, Montefiori DC, Tomaras GD, Liao HX, Alam SM, Danishefsky SJ, Haynes BF. Vaccine elicitation of high mannose-dependent neutralizing antibodies against the V3-glycan broadly neutralizing epitope in nonhuman primates. *Cell Rep.* 2017; 18:2175-2188.
162. Aid M, Abbink P, Larocca RA, Boyd M, Nityanandam R, Nanayakkara O, Martinot AJ, Moseley ET, Blass E, Borducchi EN, Chandrashekar A, Brinkman AL, Molloy K, Jetton D, Tartaglia LJ, Liu J, Best K, Perelson AS, De La Barrera RA, Lewis MG, **Barouch DH**. Zika virus persistence in the central nervous system and lymph nodes of rhesus monkeys. *Cell* 2017; 169:610-620.
163. Keele BF, Li W, Borducchi EN, Nkolola JP, Abbink P, Chen B, Seaman MS, **Barouch DH**. Adenovirus prime, Env protein boost vaccine protects against neutralization-resistant SIVsmE660 variants in rhesus monkeys. *Nat. Commun.* 2017; 8:15740.
164. Bhattacharyya M, Madden P, Henning N, Gregory S, Aid M, Martinot AJ, **Barouch DH**, Penaloza-MacMaster P. Regulation of CD4 T cells and their effects on immunopathological inflammation following viral infection. *Immunology* 2017; 152:328-343.
165. Pauthner M, Havenar-Daughton C, Sok D, Nkolola JP, Bastidas R, Boopathy AV, Carnathan DG, Chandrashekar A, Cirelli KM, Cottrell CA, Eroshkin AM, Guenaga J, Kaushik K, Kulp DW, Liu J, McCoy LE, Oom AL, Ozorowski G, Post KW, Sharma SK, Steichen JM, de Taeye SW, Tokatljan T, Torrents de la Peña A, Butera ST, LaBranche CC, Montefiori DC, Silvestri G, Wilson IA, Irvine DJ, Sanders RW, Schief WR, Ward AB, Wyatt RT, **Barouch DH**, Crotty S, Burton DR. Elicitation of robust tier 2 neutralizing antibody responses in nonhuman primates by HIV envelope trimer immunization using optimized approaches. *Immunity* 2017; 46:1073-1088.
166. Ott PA, Hu Z, Keskin DB, Shukla SA, Sun J, Bozym DJ, Zhang W, Luoma A, Giobbie-Hurder A, Peter L, Chen C, Olive O, Carter TA, Li S, Lieb DJ, Eisenhaure T, Gjini E, Stevens J, Lane WJ, Javeri I, Nellaiappan K, Salazar AM, Daley H, Seaman M, Buchbinder EI, Yoon CH, Harden M, Lennon N, Gabriel S, Rodig SJ, **Barouch DH**, Aster JC, Getz G, Wucherpfennig K, Neuberg D, Ritz J, Lander ES, Fritsch EF, Hacohen N, Wu CJ. An

- immunogenic personal neoantigen vaccine for patients with melanoma. *Nature* 2017; 547:217-221.
167. McCracken MK, Gromowski GD, Friberg HL, Lin X, Abbink P, De La Barrera R, Eckles KH, Garver LS, Boyd M, Jetton D, **Barouch DH**, Wise MC, Lewis BS, Currier JR, Modjarrad K, Milazzo M, Liu M, Mullins AB, Putnak JR, Michael NL, Jarman RG, Thomas SJ. Impact of prior flavivirus immunity on Zika virus infection in rhesus macaques. *PLoS Pathog.* 2017; 13:e1006487.
 168. Julg B, Tartaglia LJ, Keele BF, Wagh K, Pegu A, Sok D, Abbink P, Schmidt SD, Wang K, Chen X, Joyce MG, Georgiev IS, Choe M, Kwong PD, Doria-Rose NA, Le K, Louder MK, Bailer RT, Moore PL, Korber B, Seaman MS, Abdool Karim SS, Morris L, Koup RA, Mascola JR, Burton DR, **Barouch DH**. Broadly neutralizing antibodies targeting the HIV-1 envelope V2 apex confer protection against a clade C SHIV challenge. *Sci. Transl. Med.* 2017; 9:eaal1321.
 169. Julg B, Liu PT, Wagh K, Fischer WM, Abbink P, Mercado NB, Whitney JB, Nkolola JP, McMahan K, Tartaglia LJ, Borducchi EN, Khatiwada S, Kamath M, LeSuer JA, Seaman MS, Schmidt SD, Mascola JR, Burton DR, Korber BT, **Barouch DH**. Protection against a mixed SHIV challenge by a broadly neutralizing antibody cocktail. *Sci. Transl. Med.* 2017; 9:eaao4235.
 170. Xu L, Pegu A, Rao E, Doria-Rose N, Beninga J, McKee K, Lord DM, Wei RR, Deng G, Louder M, Schmidt SD, Mankoff Z, Wu L, Asokan M, Beil C, Lange C, Leuschner WD, Kruip J, Sendak R, Do Kwon Y, Zhou T, Chen X, Bailer RT, Wang K, Choe M, Tartaglia LJ, **Barouch DH**, O'Dell S, Todd JP, Burton DR, Roederer M, Connors M, Koup RA, Kwong PD, Yang ZY, Mascola JR, Nabel GJ. Trispecific broadly neutralizing HIV antibodies mediate potent SHIV protection in macaques. *Science* 2017; 358:85-90.
 171. Julg B, Pegu A, Abbink P, Liu J, Brinkman A, Molloy K, Mojta S, Chandrashekar A, Callow K, Wang K, Chen X, Schmidt SD, Huang J, Koup RA, Seaman MS, Keele BF, Mascola JR, Connors M, **Barouch DH**. Virological control by the CD4-binding site antibody N6 in simian-human immunodeficiency virus-infected rhesus monkeys. *J. Virol.* 2017; 91:e00498-17.
 172. Julg B, Sok D, Schmidt SD, Abbink P, Newman RM, Broge T, Linde C, Nkolola J, Le K, Su D, Torabi J, Pack M, Pegu A, Allen TM, Mascola JR, Burton DR, **Barouch DH**. Protective efficacy of broadly neutralizing antibodies with incomplete neutralization activity against SHIV in rhesus monkeys. *J. Virol.* 2017; 91:e01187-17.
 173. Abbink P, Larocca RA, Visitsunthorn K, Boyd M, De La Barrera RA, Gromowski GD, Kirilova M, Peterson R, Li Z, Nanayakkara O, Nityanandam R, Mercado NB, Borducchi EN, Chandrashekar A, Jetton D, Mojta S, Gandhi P, LeSuer J, Khatiwada S, Lewis MG, Modjarrad K, Jarman RG, Eckles KH, Thomas SJ, Michael NL, **Barouch DH**. Durability and correlates of vaccine protection against Zika virus in rhesus monkeys. *Sci. Transl. Med.* 2017; 9:eaao4163.

174. Modjarrad K, Lin L, George SL, Stephenson KE, Eckels KH, De La Barrera RA, Jarman RG, Sondergaard E, Tennant J, Ansel JL, Mills K, Koren M, Robb ML, Barrett J, Thompson J, Kosel AE, Dawson P, Hale A, Tan CS, Walsh SR, Meyer KE, Brien J, Crowell TA, Blazevic A, Mosby K, Larocca RA, Abbink P, Boyd M, Bricault CA, Seaman MS, Basil A, Walsh M, Tonwe V, Hoft DF, Thomas SJ, **Barouch DH***, Michael NL*. Preliminary aggregate safety and immunogenicity results from three trials of a purified inactivated Zika virus vaccine candidate: phase 1, randomised, double-blind, placebo-controlled clinical trials. *Lancet* 2018; 391:563-571.
175. Gaya M, Barral P, Burbage M, Aggarwal S, Montaner B, Warren Navia A, Aid M, Tsui C, Maldonado P, Nair U, Ghneim K, Fallon PG, Sekaly RP, **Barouch DH**, Shalek AK, Bruckbauer A, Strid J, Batista FD. Initiation of antiviral B cell immunity relies on innate signals from spatially positioned NKT cells. *Cell* 2018; 172:1-17.
176. Abbink P, Kirilova M, Boyd M, Mercado N, Li Z, Nityanandam R, Nanayakkara O, Peterson R, Larocca RA, Aid M, Tartaglia L, Mutetwa T, Blass E, Jetton D, Maxfield LF, Borducchi EN, Badamchi-Zadeh A, Handley S, Zhao G, Virgin HW, Havenga MJ, **Barouch DH**. Rapid cloning of novel rhesus adenoviral vaccine vectors. *J. Virol.* 2018; 92:e01924-17.
177. Badamchi-Zadeh A, Tartaglia LJ, Abbink P, Bricault CA, Liu PT, Boyd M, Kirilova M, Mercado NB, Nanayakkara OS, Vrbancic VD, Tager AM, Larocca RA, Seaman MS, **Barouch DH**. Therapeutic efficacy of vectored PGT121 gene delivery in HIV-1-infected humanized mice. *J. Virol.* 2018; 92:e01925-17.
178. Brown EP, Weiner JA, Lin S, Natarajan H, Normandin E, **Barouch DH**, Alter G, Sarzotti-Kelsoe M, Ackerman ME. Optimization and qualification of an Fc Array assay for assessments of antibodies against HIV-1/SIV. *J. Immunol. Methods* 2018; 455:24-33.
179. Klasse PJ, Ketas TJ, Cottrell CA, Ozorowski G, Debnath G, Camara D, Francomano E, Pugach P, Ringe RP, LaBranche CC, van Gils MJ, Bricault CA, **Barouch DH**, Crotty S, Silvestri G, Kasturi S, Pulendran B, Wilson IA, Montefiori DC, Sanders RW, Ward AB, Moore JP. Epitopes for neutralizing antibodies induced by HIV-1 envelope glycoprotein BG505 SOSIP trimers in rabbits and macaques. *PLoS Pathog.* 2018; 14:e1006913.
180. Wagh K, Seaman MS, Zingg M, Fitzsimons T, **Barouch DH**, Burton DR, Connors M, Ho DD, Mascola JR, Nussenzweig MC, Ravetch J, Gautam R, Martin MA, Montefiori DC, Korber B. Potential of conventional & bispecific broadly neutralizing antibodies for prevention of HIV-1 subtype A, C & D infections. *PLoS Pathog.* 2018; 14:e1006860.
181. Blass E, Aid M, Martinot AJ, Larocca RA, Kang ZH, Badamchi-Zadeh A, Penaloza-MacMaster P, Reeves RK, **Barouch DH**. Adenovirus vector vaccination impacts NK cell rheostat function following lymphocytic choriomeningitis virus infection. *J. Virol.* 2018; 92:e02103-17.
182. Iampietro MJ, Larocca RA, Provine NM, Abbink P, Kang ZH, Bricault CA, **Barouch DH**. Immunogenicity and cross-reactivity of rhesus adenoviral vectors. *J. Virol.* 2018; 92:e00159-18.

183. Martinot AJ, Abbink P, Afacan O, Prohl AK, Bronson R, Hecht JL, Borducchi EN, Larocca RA, Peterson RL, Rinaldi W, Ferguson M, Didier PJ, Weiss D, Lewis MG, De La Barrera RA, Yang E, Warfield SK, **Barouch DH**. Fetal neuropathology in Zika virus-infected pregnant female rhesus monkeys. *Cell* 2018; 173:1111-1122.
184. Bricault CA, Kovacs JM, Badamchi-Zadeh A, McKee K, Shields JL, Gunn BM, Neubauer GH, Ghantous F, Jennings J, Gillis L, Perry J, Nkolola JP, Alter G, Chen B, Stephenson KE, Doria-Rose N, Mascola JR, Seaman MS, **Barouch DH**. Neutralizing antibody responses following long-term vaccination with HIV-1 Env gp140 in guinea pigs. *J. Virol.* 2018; 92:e00369-18.
185. Baden LR, Walsh SR, Seaman MS, Cohen YZ, Johnson JA, Licona JH, Filter RD, Kleinjan JA, Gothing JA, Jennings J, Peter L, Nkolola J, Abbink P, Borducchi EN, Kirilova M, Stephenson KE, Pegu P, Eller MA, Trinh HV, Rao M, Ake JA, Sarnecki M, Nijs S, Callewaert K, Schuitemaker H, Hendriks J, Pau MG, Tomaka F, Korber BT, Alter G, Dolin R, Earl PL, Moss B, Michael NL, Robb ML, **Barouch DH**; IPCAVD006/RV380/HIV-V-A002 Study Group. First-in-human randomized, controlled trial of mosaic HIV-1 immunogens delivered via a modified vaccinia Ankara vector. *J. Infect. Dis.* 2018; 218:633-644.
186. Kang ZH, Bricault CA, Borducchi EN, Stephenson KE, Seaman MS, Pau M, Schuitemaker H, van Manen D, Wegmann F, **Barouch DH**. Similar epitope specificities of IgG and IgA antibodies elicited by Ad26 vector prime, Env protein boost immunizations in rhesus monkeys. *J. Virol.* 2018; 92:e00537-18.
187. Abbink P, Larocca RA, Dejnirattisai W, Peterson R, Nkolola JP, Borducchi EN, Supasa P, Mongkolsapaya J, Screaton GR, **Barouch DH**. Therapeutic and protective efficacy of a dengue antibody against Zika infection in rhesus monkeys. *Nat. Med.* 2018; 24:721-723.
188. López-Camacho C, Abbink P, Larocca RA, Dejnirattisai W, Boyd M, Badamchi-Zadeh A, Wallace ZR, Doig J, Velazquez RS, Neto RDL, Coelho DF, Kim YC, Donald CL, Owsianka A, De Lorenzo G, Kohl A, Gilbert SC, Dorrell L, Mongkolsapaya J, Patel AH, Screaton GR, **Barouch DH**, Hill AVS, Reyes-Sandoval A. Rational Zika vaccine design via the modulation of antigen membrane anchors in chimpanzee adenoviral vectors. *Nat. Commun.* 2018; 9:2441.
189. Bhattacharyya M, Whitney JB, Seaman M, **Barouch DH**, Penaloza-MacMaster P. T-cell subset differentiation and antibody responses following antiretroviral therapy during simian immunodeficiency virus infection. *Immunology* 2018; 155:458-466.
190. **Barouch DH**, Tomaka FL, Wegmann F, Stieh DJ, Alter G, Robb ML, Michael NL, Peter L, Nkolola JP, Borducchi EN, Chandrashekar A, Jetton D, Stephenson KE, Li W, Korber B, Tomaras GD, Montefiori DC, Gray G, Frahm N, McElrath MJ, Baden L, Johnson J, Hutter J, Swann E, Karita E, Kibuuka H, Mpendo J, Garrett N, Mngadi K, Chinyenze K, Priddy F, Lazarus E, Laher F, Nitayapan S, Pitisuttithum P, Bart S, Campbell T, Feldman R, Lucksinger G, Borremans C, Callewaert K, Roten R, Sadoff J, Scheppeler L, Weijtens M, Feddes-de Boer K, van Manen D, Vreugdenhil J, Zahn R, Lavreys L, Nijs S, Tolboom J, Hendriks J, Euler Z, Pau MG, Schuitemaker H. Evaluation of a mosaic HIV-1 vaccine in a multicentre, randomised, double-blind, placebo-controlled, phase 1/2a clinical trial (APPROACH) and in rhesus monkeys (NHP 13-19). *Lancet* 2018; 392:232-243.

191. Lofano G, Gorman MJ, Yousif AS, Yu WH, Fox JM, Dugast AS, Ackerman ME, Suscovich TJ, Weiner J, **Barouch D**, Streeck H, Little S, Smith D, Richman D, Lauffenburger D, Walker BD, Diamond MS, Alter G. Antigen-specific antibody Fc glycosylation enhances humoral immunity via the recruitment of complement. *Sci. Immunol.* 2018; 3: eaat7796.
192. Cox F, van der Fits L, Abbink P, Larocca RA, van Huizen E, Saeland E, Verhagen J, Peterson R, Tolboom J, Kaufmann B, Schuitemaker H, **Barouch DH**, Zahn R. Adenoviral vector type 26 encoding Zika virus (ZIKV) M-Env antigen induces humoral and cellular immune responses and protects mice and nonhuman primates against ZIKV challenge. *PLoS One* 2018; 13:e0202820.
193. Badamchi-Zadeh A, Moynihan KD, Larocca RA, Aid M, Provine NM, Iampietro MJ, Kinnear E, Penaloza-MacMaster P, Abbink P, Blass E, Tregoning JS, Irvine DJ, **Barouch DH**. Combined HDAC and BET inhibition enhances melanoma vaccine immunogenicity and efficacy. *J. Immunol.* 2018; 201:2744-2752.
194. Borducchi EN, Liu J, Nkolola JP, Cadena AM, Yu WH, Fischinger S, Broge T, Abbink P, Mercado NB, Chandrashekar A, Jetton D, Peter L, McMahan K, Moseley ET, Bekerman E, Hesselgesser J, Li W, Lewis MG, Alter G, Geleziunas R, **Barouch DH**. Antibody and TLR7 agonist delay viral rebound in SHIV-infected monkeys. *Nature* 2018; 563:360-364.
195. Stephenson KE, Keefer MC, Bunce CA, Frances D, Abbink P, Maxfield LF, Neubauer GH, Nkolola J, Peter L, Lane C, Park H, Verlinde C, Lombardo A, Yallop C, Havenga M, Fast P, Treanor J, **Barouch DH**. First-in-human randomized controlled trial of an oral, replicating adenovirus 26 vector vaccine for HIV-1. *PLoS One* 2018; 13:e0205139.
196. Shah SV, Manickam C, Ram DR, Kroll K, Itell H, Permar SR, **Barouch DH**, Klatt NR, Reeves RK. CMV primes functional alternative signaling in adaptive Δ g NK cells but is subverted by lentivirus infection in rhesus macaques. *Cell Rep.* 2018; 25:2766-2774.
197. Whitney JB, Lim SY, Osuna CE, Kublin JL, Chen E, Yoon G, Liu PT, Abbink P, Borducci EN, Hill A, Lewis MG, Geleziunas R, Robb ML, Michael NL, **Barouch DH**. Prevention of SIVmac251 reservoir seeding in rhesus monkeys by early antiretroviral therapy. *Nat. Commun.* 2018; 9:5429.
198. Pauthner MG, Nkolola JP, Havenar-Daughton C, Murrell B, Reiss SM, Bastidas R, Prévost J, Nedellec R, von Bredow B, Abbink P, Cottrell CA, Kulp DW, Tokatlian T, Nogal B, Bianchi M, Li H, Lee JH, Butera ST, Evans DT, Hangartner L, Finzi A, Wilson IA, Wyatt RT, Irvine DJ, Schief WR, Ward AB, Sanders RW, Crotty S, Shaw GM, **Barouch DH***, Burton DR*. Vaccine-induced protection from homologous tier 2 SHIV challenge in nonhuman primates depends on serum neutralizing antibody titers. *Immunity* 2019; 50:241-252.
199. Bricault CA, Yusim K, Seaman MS, Yoon H, Theiler J, Giorgi EE, Wagh K, Theiler M, Hraber P, Macke JP, Kreider EF, Learn GH, Hahn BH, Scheid JF, Kovacs JM, Shields JL, Lavine CL, Ghantous F, Rist M, Bayne MG, Neubauer GH, McMahan K, Peng H, Chéneau C, Jones JJ, Zeng J, Ochsenbauer C, Nkolola JP, Stephenson KE, Chen B, Gnanakaran S, Bonsignori M, Williams LD, Haynes BF, Doria-Rose N, Mascola JR, Montefiori DC,

- Barouch DH***, Korber B*. HIV-1 neutralizing antibody signatures and application to epitope-targeted vaccine design. *Cell Host Microbe* 2019; 25:59-72.
200. Jones AT, Shen X, Walter KL, LaBranche CC, Wyatt LS, Tomaras GD, Montefiori DC, Moss B, **Barouch DH**, Clements JD, Kozlowski PA, Varadarajan R, Amara RR. HIV-1 vaccination by needle-free oral injection induces strong mucosal immunity and protects against SHIV challenge. *Nat. Commun.* 2019; 10:798.
 201. Petitdemange C, Kasturi SP, Kozlowski PA, Nabi R, Quarnstrom CF, Reddy PBJ, Derdeyn CA, Spicer LM, Patel P, Legere T, Kovalenkov YO, Labranche CC, Villinger F, Tomai M, Vasilakos J, Haynes B, Kang CY, Gibbs JS, Yewdell JW, **Barouch D**, Wrammert J, Montefiori D, Hunter E, Amara RR, Masopust D, Pulendran B. Vaccine induction of antibodies and tissue-resident CD8⁺ T cells enhances protection against mucosal SHIV-infection in young macaques. *JCI Insight* 2019; 4:126047.
 202. Mahomed S, Garrett N, Capparelli E, Baxter C, Zuma NY, Gengiah T, Archary D, Moore P, Samsunder N, **Barouch DH**, Mascola J, Ledgerwood J, Morris L, Abdool Karim S. Assessing the safety and pharmacokinetics of the monoclonal antibodies, VRC07-523LS and PGT121 in HIV negative women in South Africa: study protocol for the CAPRISA 012A randomised controlled phase I trial. *BMJ Open* 2019; 9:e030283.
 203. Bender AM, Simonetti FR, Kumar MR, Fray EJ, Bruner KM, Timmons AE, Tai KY, Jenike KM, Antar AAR, Liu PT, Ho YC, Raugi DN, Seydi M, Gottlieb GS, Okoye AA, Del Prete GQ, Picker LJ, Mankowski JL, Lifson JD, Siliciano JD, Laird GM, **Barouch DH**, Clements JE, Siliciano RF. The landscape of persistent viral genomes in ART-treated SIV, SHIV, and HIV-2 infections. *Cell Host Microbe* 2019; 26:73-85.
 204. Ehrenberg PK, Shangguan S, Issac B, Alter G, Geretz A, Izumi T, Bryant C, Eller MA, Wegmann F, Apps R, Creegan M, Bolton DL, Sekaly RP, Robb ML, Gramzinski RA, Pau MG, Schuitemaker H, **Barouch DH**, Michael NL, Thomas R. A vaccine-induced gene expression signature correlates with protection against SIV and HIV in multiple trials. *Sci. Transl. Med.* 2019; 11: eaaw4236.
 205. Abbink P, Mercado NB, Nkolola JP, Peterson RL, Tuyishime H, McMahan K, Moseley ET, Borducchi EN, Chandrashekar A, Bondzie EA, Agarwal A, Belli AJ, Reimann KA, Keele BF, Geleziunas R, Lewis MG, **Barouch DH**. Lack of therapeutic efficacy of an antibody to $\alpha 4\beta 7$ in SIVmac251-infected rhesus macaques. *Science* 2019; 365:1029-1033.
 206. Pegu A, Borate B, Huang Y, Pauthner MG, Hessel AJ, Julg B, Doria-Rose NA, Schmidt SD, Carpp LN, Cully MD, Chen X, Shaw GM, **Barouch DH**, Haigwood NL, Corey L, Burton DR, Roederer M, Gilbert PB, Mascola JR, Huang Y. A meta-analysis of passive immunization studies shows that serum-neutralizing antibody titer associates with protection against SHIV challenge. *Cell Host Microbe* 2019; 26:336-346.
 207. Petrus MLC, Kiefer LA, Puri P, Heemskerk E, Seaman MS, **Barouch DH**, Arias S, van Wezel GP, Havenga M. A microbial expression system for high-level production of scFv HIV-neutralizing antibody fragments in *Escherichia coli*. *Appl. Microbiol. Biotechnol.* 2019; 103:8875-8888.

208. Larocca RA, Mendes EA, Abbink P, Peterson RL, Martinot AJ, Iampietro MJ, Kang ZH, Aid M, Kirilova M, Jacob-Dolan C, Tostanoski L, Borducchi EN, De La Barrera RA, **Barouch DH**. Adenovirus vector-based vaccines confer maternal-fetal protection against Zika virus challenge in pregnant IFN- α B β R-/- mice. *Cell Host Microbe* 2019;26:591-600.
209. López-Camacho C, Kim YC, Abbink P, Larocca RA, Huiskonen JT, **Barouch DH**, Reyes-Sandoval A. Assessment of immunogenicity and efficacy of a Zika vaccine using modified vaccinia Ankara virus as carriers. *Pathogens* 2019;8:E216.
210. Tartaglia LJ, Badamchi-Zadeh A, Abbink P, Blass E, Aid M, Gebre MS, Li Z, Pastores KC, Trott S, Gupte S, Larocca RA, **Barouch DH**. Alpha-defensin 5 differentially modulates adenovirus vaccine vectors from different serotypes in vivo. *PLoS Pathog.* 2019;15:e1008180.
211. Grubor-Bauk B, Wijesundara DK, Masavuli M, Abbink P, Peterson RL, Prow NA, Larocca RA, Mekonnen ZA, Shrestha A, Eyre NS, Beard MR, Gummow J, Carr J, Robertson SA, Hayball JD, **Barouch DH**, Gowans EJ. NS1 DNA vaccination protects against Zika infection through T cell-mediated immunity in immunocompetent mice. *Sci Adv.* 2019;5:eaax2388.
212. Tonnerre P, Melgaço JG, Torres-Cornejo A, Pinto MA, Yue C, Blümel J, de Sousa PSF, de Mello VDM, Moran J, de Filippis AMB, Wolski D, Grifoni A, Sette A, **Barouch DH**, Hoogeveen RC, Baylis SA, Lauer GM, Lewis-Ximenez LL. Evolution of the innate and adaptive immune response in women with acute Zika virus infection. *Nat. Microbiol.* 2020;5:76-83.
213. Dussupt V, Sankhala RS, Gromowski GD, Donofrio G, De La Barrera RA, Larocca RA, Zaky W, Mendez-Rivera L, Choe M, Davidson E, McCracken MK, Brien JD, Abbink P, Bai H, Bryan AL, Bias CH, Berry IM, Botero N, Cook T, Doria-Rose NA, Escuer AGI, Frimpong JA, Geretz A, Hernandez M, Hollidge BS, Jian N, Kabra K, Leggat DJ, Liu J, Pinto AK, Rutvisuttinunt W, Setliff I, Tran U, Townsley S, Doranz BJ, Rolland M, McDermott AB, Georgiev IS, Thomas R, Robb ML, Eckels KH, Barranco E, Koren M, Smith DR, Jarman RG, George SL, Stephenson KE, **Barouch DH**, Modjarrad K, Michael NL, Joyce MG, Krebs SJ. Potent Zika and dengue cross-neutralizing antibodies induced by Zika vaccination in a dengue-experienced donor. *Nat. Med.* 2020;26:228-235.
214. Stephenson KE, Wegmann F, Tomaka F, Walsh SR, Tan CS, Lavreys L, Ansel JL, Kanjilal DG, Jaegle K, Nkolola JP, Peter L, Fogel R, Bradshaw C, Tyler A, Makoni T, Howe L, Quijada D, Chandrashekar A, Bondzie EA, Borducchi EN, Yanosick KE, Hendriks J, Nijs S, Truysers C, Tolboom J, Zahn RC, Seaman MS, Alter G, Stieh DJ, Pau MG, Schuitemaker H, **Barouch DH**. Comparison of shortened mosaic HIV-1 vaccine schedules: a randomised, double-blind, placebo-controlled phase 1 trial (IPCAVD010/HPX1002) and a preclinical study in rhesus monkeys (NHP 17-22). *Lancet HIV* 2020;7:e410-e421.
215. Tartaglia LJ, Gupte S, Pastores KC, Trott S, Abbink P, Mercado NB, Li Z, Liu PT, Borducchi EN, Chandrashekar A, Bondzie EA, Hamza V, Kordana N, Mahrokhian S, Lavine CL, Seaman MS, Li H, Shaw GM, **Barouch DH**. Differential outcomes following

- optimization of simian-human immunodeficiency viruses from clades AE, B and C. *J. Virol.* 2020;94:e01860-19.
216. Colby DJ, Sarnecki M, **Barouch DH**, Tipsuk S, Stieh DJ, Kroon E, Schuetz A, Intasan J, Sacdalan C, Pinyakorn S, Grandin P, Song H, Tovanabutra S, Shubin Z, Kim D, Paquin-Proulx D, Eller MA, Thomas R, de Souza M, Wiczorek L, Polonis VR, Pagliuzza A, Chomont N, Peter L, Nkolola JP, Vingerhoets J, Truysers C, Pau MG, Schuitemaker H, Phanuphak N, Michael N, Robb ML, Tomaka FL, Ananworanich J. Safety and immunogenicity of Ad26 and MVA vaccines in acutely treated HIV and effect on viral rebound after antiretroviral therapy interruption. *Nat. Med.* 2020;26:498-501.
 217. Aid M, Ram DR, Bosinger SE, **Barouch DH**, Reeves RK. Delineation and modulation of the natural killer cell transcriptome in rhesus macaques during ZIKV and SIV infections. *Front Cell Infect Microbiol.* 2020;10:194.
 218. Chandrashekar A, Liu J, Martinot AJ, McMahan K, Mercado NB, Peter L, Tostanoski LH, Yu J, Maliga Z, Nekorchuk M, Busman-Sahay K, Terry M, Wrijil LM, Ducat S, Martinez DR, Atyeo C, Fischinger S, Burke JS, Slein MD, Pessaint L, Van Ry A, Greenhouse J, Taylor T, Blade K, Cook A, Finneyfrock B, Brown R, Teow E, Velasco J, Zahn R, Wegmann F, Abbink P, Bondzie EA, Dagotto G, Gebre MS, He X, Jacob-Dolan C, Kordana N, Li Z, Lifton MA, Mahrokhian SH, Maxfield LF, Nityanandam R, Nkolola JP, Schmidt AG, Miller AD, Baric RS, Alter G, Sorger PK, Estes JD, Andersen H, Lewis MG, **Barouch DH**. SARS-CoV-2 infection protects against rechallenge in rhesus macaques. *Science* 2020;369:812-817.
 219. Yu J, Tostanoski LH, Peter L, Mercado NB, McMahan K, Mahrokhian SH, Nkolola JP, Liu J, Li Z, Chandrashekar A, Martinez DR, Loos C, Atyeo C, Fischinger S, Burke JS, Slein MD, Chen Y, Zuiani A, N Lelis FJ, Travers M, Habibi S, Pessaint L, Van Ry A, Blade K, Brown R, Cook A, Finneyfrock B, Dodson A, Teow E, Velasco J, Zahn R, Wegmann F, Bondzie EA, Dagotto G, Gebre MS, He X, Jacob-Dolan C, Kirilova M, Kordana N, Lin Z, Maxfield LF, Nampanya F, Nityanandam R, Ventura JD, Wan H, Cai Y, Chen B, Schmidt AG, Wesemann DR, Baric RS, Alter G, Andersen H, Lewis MG, **Barouch DH**. DNA vaccine protection against SARS-CoV-2 in rhesus macaques. *Science* 2020;369:806-811.
 220. Collier AY, Borducchi EN, Chandrashekar A, Moseley E, Peter L, Teodoro NS, Nkolola J, Abbink P, **Barouch DH**. Sustained maternal antibody and cellular immune responses in pregnant women infected with Zika virus and mother to infant transfer of Zika-specific antibodies. *Am J Reprod Immunol.* 2020; 84:e13288.
 221. López-Camacho C, De Lorenzo G, Slon-Campos JL, Dowall S, Abbink P, Larocca RA, Kim YC, Poggianella M, Graham V, Findlay-Wilson S, Rayner E, Carmichael J, Dejnirattisai W, Boyd M, Hewson R, Mongkolsapaya J, Screaton GR, **Barouch DH**, Burrone OR, Patel AH, Reyes-Sandoval A. Immunogenicity and efficacy of Zika virus envelope domain III in DNA, Protein, and ChAdOx1 adenoviral-vectored vaccines. *Vaccines* 2020;8:307.
 222. Stephenson KE, Tan CS, Walsh SR, Hale A, Ansel JL, Kanjilal DG, Jaegle K, Peter L, Borducchi EN, Nkolola JP, Makoni T, Fogel R, Bradshaw C, Tyler A, Moseley E, Chandrashekar A, Yanosick KE, Seaman MS, Eckels KH, De La Barrera RA, Thompson J, Dawson P, Thomas SJ, Michael NL, Modjarrad K, **Barouch DH**. Safety and immunogenicity

of a Zika purified inactivated virus vaccine given via standard, accelerated, or shortened schedules: a single-centre, double-blind, sequential-group, randomised, placebo-controlled, phase 1 trial. *Lancet Infect Dis* 2020;20:1061-1070.

223. Zost SJ, Gilchuk P, Case JB, Binshtein E, Chen RE, Nkolola JP, Schäfer A, Reidy JX, Trivette A, Nargi RS, Sutton RE, Suryadevara N, Martinez DR, Williamson LE, Chen EC, Jones T, Day S, Myers L, Hassan AO, Kafai NM, Winkler ES, Fox JM, Shrihari S, Mueller BK, Meiler J, Chandrashekar A, Mercado NB, Steinhardt JJ, Ren K, Loo YM, Kallewaard NL, McCune BT, Keeler SP, Holtzman MJ, **Barouch DH**, Gralinski LE, Baric RS, Thackray LB, Diamond MS, Carnahan RH, Crowe JE Jr. Potently neutralizing and protective human antibodies against SARS-CoV-2. *Nature* 2020;584:443-449.
224. Mercado NB, Zahn R, Wegmann F, Loos C, Chandrashekar A, Yu J, Liu J, Peter L, McMahan K, Tostanoski LH, He X, Martinez DR, Rutten L, Bos R, van Manen D, Vellinga J, Custers J, Langedijk JP, Kwaks T, Bakkers MJG, Zuijdgeest D, Rosendahl Huber SK, Atyeo C, Fischinger S, Burke JS, Feldman J, Hauser BM, Caradonna TM, Bondzie EA, Dagotto G, Gebre MS, Hoffman E, Jacob-Dolan C, Kirilova M, Li Z, Lin Z, Mahrokhian SH, Maxfield LF, Nampanya F, Nityanandam R, Nkolola JP, Patel S, Ventura JD, Verrington K, Wan H, Pessaint L, Van Ry A, Blade K, Strasbaugh A, Cabus M, Brown R, Cook A, Zouantchangadou S, Teow E, Andersen H, Lewis MG, Cai Y, Chen B, Schmidt AG, Reeves RK, Baric RS, Lauffenburger DA, Alter G, Stoffels P, Mammen M, Van Hoof J, Schuitemaker H, **Barouch DH**. Single-shot Ad26 vaccine protects against SARS-CoV-2 in rhesus macaques. *Nature* 2020;586:583-588.
225. Gilchuk P, Bombardi RG, Erasmus JH, Tan Q, Nargi R, Soto C, Abbink P, Suscovich TJ, Durnell LA, Khandhar A, Archer J, Liang J, Fouch ME, Davidson E, Doranz BJ, Jones T, Larson E, Ertel S, Granger B, Fuerte-Stone J, Roy V, Broge T, Linnekin TC, Linde CH, Gorman MJ, Nkolola J, Alter G, Reed SG, **Barouch DH**, Diamond MS, Crowe JE Jr, Van Hoven N, Thackray LB, Carnahan RH. Integrated pipeline for the accelerated discovery of antiviral antibody therapeutics. *Nat Biomed Eng* 2020;4:1030-1043.
226. Atyeo C, Fischinger S, Zohar T, Slein MD, Burke J, Loos C, McCulloch DJ, Newman KL, Wolf C, Yu J, Shuey K, Feldman J, Hauser BM, Caradonna T, Schmidt AG, Suscovich TJ, Linde C, Cai Y, **Barouch D**, Ryan ET, Charles RC, Lauffenburger D, Chu H, Alter G. Distinct early serological signatures track with SARS-CoV-2 survival. *Immunity* 2020;53:524-532.
227. Zhao P, Praissman JL, Grant OC, Cai Y, Xiao T, Rosenbalm KE, Aoki K, Kellman BP, Bridger R, **Barouch DH**, Brindley MA, Lewis NE, Tiemeyer M, Chen B, Woods RJ, Wells L. Virus-receptor interactions of glycosylated SARS-CoV-2 Spike and human ACE2 receptor. *Cell Host Microbe* 2020;28:586-601.
228. Tostanoski LH, Wegmann F, Martinot AJ, Loos C, McMahan K, Mercado NB, Yu J, Chan CN, Bondoc S, Starke CE, Nekorchuk M, Busman-Sahay K, Piedra-Mora C, Wrijil LM, Ducat S, Custers J, Atyeo C, Fischinger S, Burke JS, Feldman J, Hauser BM, Caradonna TM, Bondzie EA, Dagotto G, Gebre MS, Jacob-Dolan C, Lin Z, Mahrokhian SH, Nampanya F, Nityanandam R, Pessaint L, Porto M, Ali V, Benetiene D, Tevi K, Andersen H, Lewis MG, Schmidt AG, Lauffenburger DA, Alter G, Estes JD, Schuitemaker H, Zahn R, **Barouch DH**.

- Ad26 vaccine protects against SARS-CoV-2 severe clinical disease in hamsters. *Nat Med* 2020;26:1694-1700.
229. Brook OR, Piper KG, Mercado NB, Gebre MS, **Barouch DH**, Busman-Sahay K, Starke CE, Estes JD, Martinot AJ, Wrijil L, Ducat S, Hecht JL. Feasibility and safety of ultrasound-guided minimally invasive autopsy in COVID-19 patients. *Abdom Radiol* 2020; in press.
 230. van Dorp CH, Conway JM, **Barouch DH**, Whitney JB, Perelson AS. Models of SIV rebound after treatment interruption that involve multiple reactivation events. *PLoS Comput Biol* 2020;16:e1008241.
 231. Alter G, Yu WH, Chandrashekar A, Borducchi EN, Ghneim K, Sharma A, Nedellec R, McKenney KR, Linde C, Broge T, Suscovich TJ, Linnekin T, Abbink P, Mercado NB, Nkolola JP, McMahan K, Bondzie EA, Hamza V, Peter L, Kordana N, Mahrokhian S, Seaman MS, Li W, Lewis MG, Lauffenburger DA, Hangartner L, Sekaly RP, **Barouch DH**. Passive transfer of vaccine-elicited antibodies protects against SIV in rhesus macaques. *Cell* 2020;183:185-196.
 232. Baden LR, Stieh DJ, Sarnecki M, Walsh SR, Tomaras GD, Kublin JG, McElrath MJ, Alter G, Ferrari G, Montefiori D, Mann P, Nijss S, Callewaert K, Goepfert P, Edupuganti S, Karita E, Langedijk JP, Wegmann F, Corey L, Pau MG, **Barouch DH**, Schuitemaker H, Tomaka F; Traverse/HVTN 117/HPX2004 Study Team. Safety and immunogenicity of two heterologous HIV vaccine regimens in healthy, HIV-uninfected adults (TRAVERSE): a randomised, parallel-group, placebo-controlled, double-blind, phase 1/2a study. *Lancet HIV* 2020;7:e688-e698.
 233. Iyer AS, Jones FK, Nodoushani A, Kelly M, Becker M, Slater D, Mills R, Teng E, Kamruzzaman M, Garcia-Beltran WF, Astudillo M, Yang D, Miller TE, Oliver E, Fischinger S, Atyeo C, Iafrate AJ, Calderwood SB, Lauer SA, Yu J, Li Z, Feldman J, Hauser BM, Caradonna TM, Branda JA, Turbett SE, LaRocque RC, Mellon G, **Barouch DH**, Schmidt AG, Azman AS, Alter G, Ryan ET, Harris JB, Charles RC. Persistence and decay of human antibody responses to the receptor binding domain of SARS-CoV-2 spike protein in COVID-19 patients. *Sci Immunol* 2020;5:eabe0367.
 234. Aid M, Busman-Sahay K, Vidal SJ, Maliga Z, Bondoc S, Starke C, Terry M, Jacobson CA, Wrijil L, Ducat S, Brook OR, Miller AD, Porto M, Pellegrini KL, Pino M, Hoang TN, Chandrashekar A, Patel S, Stephenson K, Bosinger SE, Andersen H, Lewis MG, Hecht JL, Sorger PK, Martinot AJ, Estes JD, **Barouch DH**. Vascular disease and thrombosis in SARS-CoV-2-infected rhesus macaques. *Cell* 2020;183:1354-1366.
 235. Bos R, Rutten L, van der Lubbe JEM, Bakkers MJG, Hardenberg G, Wegmann F, Zuijdgeest D, de Wilde AH, Koornneef A, Verwilligen A, van Manen D, Kwaks T, Vogels R, Dalebout TJ, Myeni SK, Kikkert M, Snijder EJ, Li Z, **Barouch DH**, Vellinga J, Langedijk JPM, Zahn RC, Custers J, Schuitemaker H. Ad26 vector-based COVID-19 vaccine encoding a prefusion-stabilized SARS-CoV-2 Spike immunogen induces potent humoral and cellular immune responses. *NPJ Vaccines* 2020; 5:91.

236. Bricker KM, Obregon-Perko V, Uddin F, Williams B, Uffman EA, Garrido C, Fouda GG, Geleziunas R, Robb M, Michael N, **Barouch DH**, Chahroudi A. Therapeutic vaccination of SIV-infected, ART-treated infant rhesus macaques using Ad48/MVA in combination with TLR-7 stimulation. *PLoS Pathog* 2020;16:e1008954.
237. Liu PT, Keele BF, Abbink P, Mercado NB, Liu J, Bondzie EA, Chandrashekar A, Borducchi EN, Hesselgesser J, Mish M, Chin G, Bekerman E, Geleziunas R, **Barouch DH**. Origin of rebound virus in chronically SIV-infected rhesus monkeys following treatment discontinuation. *Nat Commun* 2020;11:5412.
238. Bekerman E, Cox S, Babusis D, Campigotto F, Das M, **Barouch DH**, Cihlar T, Callebaut C. Two-dose emtricitabine/tenofovir alafenamide plus bictegravir prophylaxis protects macaques against SHIV infection. *J Antimicrob Chemother* 2020;76:692-698.
239. Zohar T, Loos C, Fischinger S, Atyeo C, Wang C, Slein MD, Burke J, Yu J, Feldman J, Hauser BM, Caradonna T, Schmidt AG, Cai Y, Streeck H, Ryan ET, **Barouch DH**, Charles RC, Lauffenburger DA, Alter G. Compromised humoral functional evolution tracks with SARS-CoV-2 mortality. *Cell* 2020;183:1508-1519.
240. Mahomed S, Garrett N, Karim QA, Zuma NY, Capparelli E, Baxter C, Gengiah T, Archary D, Samsunder N, Rose ND, Moore P, Williamson C, **Barouch DH**, Fast PE, Pozzetto B, Hankins C, Carlton K, Ledgerwood J, Morris L, Mascola J, Abdool Karim S. Assessing the safety and pharmacokinetics of the anti-HIV monoclonal antibody CAP256V2LS alone and in combination with VRC07-523LS and PGT121 in South African women: study protocol for the first-in-human CAPRISA 012B phase I clinical trial. *BMJ Open* 2020;10:e042247.
241. Martinot AJ, Blass E, Yu J, Aid M, Mahrokhian SH, Cohen SB, Plumlee CR, Larocca RA, Siddiqi N, Wakabayashi S, Gardner M, Audette R, Devorak A, Urdahl KB, Rubin EJ, **Barouch DH**. Protective efficacy of an attenuated *Mtb* Δ LprG vaccine in mice. *PLoS Pathog* 2020;16:e1009096.
242. Offersen R, Yu WH, Scully EP, Julg B, Euler Z, Sadanand S, Garcia-Dominguez D, Zheng L, Rasmussen TA, Jennewein MF, Linde C, Sassic J, Lofano G, Vigano S, Stephenson KE, Fischinger S, Suscovich TJ, Lichterfeld M, Lauffenburger D, Rosenberg ES, Allen T, Altfeld M, Charles RC, Østergaard L, Tolstrup M, **Barouch DH**, Søgaard OS, Alter G. HIV antibody Fc N-linked glycosylation is associated with viral rebound. *Cell Rep* 2020;33:108502.
243. Edlow AG, Li JZ, Collier AY, Atyeo C, James KE, Boatn AA, Gray KJ, Bordt EA, Shook LL, Yonker LM, Fasano A, Diouf K, Croul N, Devane S, Yockey LJ, Lima R, Shui J, Matute JD, Lerou PH, Akinwunmi BO, Schmidt A, Feldman J, Hauser BM, Caradonna TM, De la Flor D, D'Avino P, Regan J, Corry H, Coxen K, Fajnzylber J, Pepin D, Seaman MS, **Barouch DH**, Walker BD, Yu XG, Kaimal AJ, Roberts DJ, Alter G. Assessment of maternal and neonatal SARS-CoV-2 viral load, transplacental antibody transfer, and placental pathology in pregnancies during the COVID-19 pandemic. *JAMA Netw Open* 2020;3:e2030455.
244. McMahan K, Yu J, Mercado NB, Loos C, Tostanoski LH, Chandrashekar A, Liu J, Peter L, Atyeo C, Zhu A, Bondzie EA, Dagotto G, Gebre MS, Jacob-Dolan C, Li Z, Nampanya F, Patel S, Pessaint L, Van Ry A, Blade K, Yalley-Ogunro J, Cabus M, Brown R, Cook A, Teow

- E, Andersen H, Lewis MG, Lauffenburger DA, Alter G, **Barouch DH**. Correlates of protection against SARS-CoV-2 in rhesus macaques. *Nature* 2021;590:630-634.
245. Sadoff J, Le Gars M, Shukarev G, Heerwegh D, Truysers C, de Groot AM, Stoop J, Tete S, Van Damme W, Leroux-Roels I, Berghmans PJ, Kimmel M, Van Damme P, de Hoon J, Smith W, Stephenson KE, De Rosa SC, Cohen KW, McElrath MJ, Cormier E, Scheper G, **Barouch DH**, Hendriks J, Struyf F, Douoguih M, Van Hoof J, Schuitemaker H. Interim results of a phase 1-2a trial of Ad26.COV2.S Covid-19 vaccine. *N Engl J Med* 2021;384:1824-1835.
 246. Best K, **Barouch DH**, Guedj J, Ribeiro RM, Perelson AS. Zika virus dynamics: Effects of inoculum dose, the innate immune response and viral interference. *PLoS Comput Biol* 2021;17:e1008564.
 247. Dagotto G, Mercado NB, Martinez DR, Hou YJ, Nkolola JP, Carnahan RH, Crowe JE Jr, Baric RS, **Barouch DH**. Comparison of subgenomic and total RNA in SARS-CoV-2 challenged rhesus macaques. *J Virol* 2021;95:e02370-20.
 248. Hu Z, Leet DE, Allesøe RL, Oliveira G, Li S, Luoma AM, Liu J, Forman J, Huang T, Iorgulescu JB, Holden R, Sarkizova S, Gohil SH, Redd RA, Sun J, Elagina L, Giobbie-Hurder A, Zhang W, Peter L, Ciantra Z, Rodig S, Olive O, Shetty K, Pyrdol J, Uduman M, Lee PC, Bachiredy P, Buchbinder EI, Yoon CH, Neuberger D, Pentelute BL, Hachohen N, Livak KJ, Shukla SA, Olsen LR, **Barouch DH**, Wucherpennig KW, Fritsch EF, Keskin DB, Wu CJ, Ott PA. Personal neoantigen vaccines induce persistent memory T cell responses and epitope spreading in patients with melanoma. *Nat Med* 2021;27:515-525.
 249. Murakowski DK, Barton JP, Peter L, Chandrashekar A, Bondzie E, Gao A, **Barouch DH**, Chakraborty AK. Adenovirus-vectored vaccine containing multidimensionally conserved parts of the HIV proteome is immunogenic in rhesus macaques. *Proc Natl Acad Sci U S A* 2021;118:e2022496118.
 250. Salisch NC, Stephenson KE, Williams K, Cox F, van der Fits L, Heerwegh D, Truysers C, Habets MN, Kanjilal DG, Larocca RA, Abbink P, Liu J, Peter L, Fierro C, De La Barrera RA, Modjarrad K, Zahn RC, Hendriks J, Cahill CP, Leyssen M, Douoguih M, van Hoof J, Schuitemaker H, **Barouch DH**. A double-blind, randomized, placebo-controlled phase 1 study of Ad26.ZIKV.001, an Ad26-vectored anti-Zika virus vaccine. *Ann Intern Med* 2021;174:585-594.
 251. Bartsch YC, Fischinger S, Siddiqui SM, Chen Z, Yu J, Gebre M, Atyeo C, Gorman MJ, Zhu AL, Kang J, Burke JS, Slein M, Gluck MJ, Beger S, Hu Y, Rhee J, Petersen E, Mormann B, Aubin MS, Hasdianda MA, Jambaulikar G, Boyer EW, Sabeti PC, **Barouch DH**, Julg BD, Musk ER, Menon AS, Lauffenburger DA, Nilles EJ, Alter G. Discrete SARS-CoV-2 antibody titers track with functional humoral stability. *Nat Commun* 2021;12:1018.
 252. Hsu DC, Schuetz A, Imerbsin R, Silsorn D, Pegu A, Inthawong D, Sopanaporn J, Visudhiphan P, Chuenarom W, Keawboon B, Shi W, Robb ML, Mascola JR, Geleziunas R, Koup RA, **Barouch DH**, Michael NL, Vasan S. TLR7 agonist, N6-LS and PGT121 delayed viral rebound in SHIV-infected macaques after antiretroviral therapy interruption. *PLoS Pathog* 2021;17:e1009339.

253. Yu KK, Fischinger S, Smith MT, Atyeo C, Cizmeci D, Wolf CR, Layton ED, Logue JK, Aguilar MS, Shuey K, Loos C, Yu J, Franko N, Choi RY, Wald A, **Barouch DH**, Koelle DM, Lauffenburger D, Chu HY, Alter G, Seshadri C. Comorbid illnesses are associated with altered adaptive immune responses to SARS-CoV-2. *JCI Insight* 2021;6:e146242.
254. Cadena AM, Ventura JD, Abbink P, Borducchi EN, Tuyishime H, Mercado NB, Walker-Sperling V, Siamatu M, Liu PT, Chandrashekar A, Nkolola JP, McMahan K, Kordana N, Hamza V, Bondzie EA, Fray E, Kumar M, Fischinger S, Shin SA, Lewis MG, Siliciano RF, Alter G, **Barouch DH**. Persistence of viral RNA in lymph nodes in ART-suppressed SIV/SHIV-infected rhesus macaques. *Nat Commun* 2021;12:1474.
255. Jacob-Dolan C, Feldman J, McMahan K, Yu J, Zahn R, Wegmann F, Schuitemaker H, Schmidt AG, **Barouch DH**. Coronavirus-specific antibody cross reactivity in rhesus macaques following SARS-CoV-2 vaccination and infection. *J Virol* 2021;95:e00117-21.
256. Stephenson KE, Le Gars M, Sadoff J, de Groot AM, Heerwegh D, Truyers C, Atyeo C, Loos C, Chandrashekar A, McMahan K, Tostanoski LH, Yu J, Gebre MS, Jacob-Dolan C, Li Z, Patel S, Peter L, Liu J, Borducchi EN, Nkolola JP, Souza M, Tan CS, Zash R, Julg B, Nathavitharana RR, Shapiro RL, Azim AA, Alonso CD, Jaegle K, Ansel JL, Kanjilal DG, Guiney CJ, Bradshaw C, Tyler A, Makoni T, Yanosick KE, Seaman MS, Lauffenburger DA, Alter G, Struyf F, Douoguih M, Van Hoof J, Schuitemaker H, **Barouch DH**. Immunogenicity of the Ad26.COV2.S vaccine for COVID-19. *JAMA* 2021;325:1535-1544.
257. Yu J, Li Z, He X, Gebre MS, Bondzie EA, Wan H, Jacob-Dolan C, Martinez DR, Nkolola JP, Baric RS, **Barouch DH**. Deletion of the SARS-CoV-2 spike cytoplasmic tail increases infectivity in pseudovirus neutralization assays. *J Virol* 2021;95:e00044-21.
258. van der Lubbe JEM, Rosendahl Huber SK, Vijayan A, Dekking L, van Huizen E, Vreugdenhil J, Choi Y, Baert MRM, Feddes-de Boer K, Izquierdo Gil A, van Heerden M, Dalebout TJ, Myeni SK, Kikkert M, Snijder EJ, de Waal L, Stittelaar KJ, Tolboom JTBM, Serroyen J, Muchene L, van der Fits L, Rutten L, Langedijk JPM, **Barouch DH**, Schuitemaker H, Zahn RC, Wegmann F. Ad26.COV2.S protects Syrian hamsters against G614 spike variant SARS-CoV-2 and does not enhance respiratory disease. *NPJ Vaccines* 2021;6:39.
259. Sadoff J, Gray G, Vandebosch A, Cárdenas V, Shukarev G, Grinsztejn B, Goepfert PA, Truyers C, Fennema H, Spiessens B, Offergeld K, Scheper G, Taylor KL, Robb ML, Treanor J, **Barouch DH**, Stoddard J, Ryser MF, Marovich MA, Neuzil KM, Corey L, Cauwenberghs N, Tanner T, Hardt K, Ruiz-Guiñazú J, Le Gars M, Schuitemaker H, Van Hoof J, Struyf F, Douoguih M; ENSEMBLE Study Group. Safety and efficacy of single-dose Ad26.COV2.S vaccine against Covid-19. *N Engl J Med* 2021;384:2187-2201.
260. Vidal SJ, Collier AY, Yu J, McMahan K, Tostanoski LH, Ventura JD, Aid M, Peter L, Jacob-Dolan C, Anioke T, Chang A, Wan H, Aguayo R, Ngo D, Gerszten RE, Seaman MS, **Barouch DH**. Correlates of neutralization against SARS-CoV-2 variants of concern by early pandemic sera. *J Virol* 2021;95:e0040421.

261. Solforosi L, Kuipers H, Jongeneelen M, Rosendahl Huber SK, van der Lubbe JEM, Dekking L, Czapska-Casey DN, Izquierdo Gil A, Baert MRM, Drijver J, Vaneman J, van Huizen E, Choi Y, Vreugdenhil J, Kroos S, de Wilde AH, Kourkouta E, Custers J, van der Vlugt R, Veldman D, Huizingh J, Kaszas K, Dalebout TJ, Myeni SK, Kikkert M, Snijder EJ, **Barouch DH**, Böszörményi KP, Stammes MA, Kondova I, Verschoor EJ, Verstrepen BE, Koopman G, Mooij P, Bogers WMJM, van Heerden M, Muchene L, Tolboom JTB, Roozendaal R, Brandenburg B, Schuitemaker H, Wegmann F, Zahn RC. Immunogenicity and efficacy of one and two doses of Ad26.COV2.S COVID vaccine in adult and aged NHP. *J Exp Med* 2021;218:e20202756.
262. Collier AY, McMahan K, Yu J, Tostanoski LH, Aguayo R, Ansel J, Chandrashekar A, Patel S, Apraku Bondzie E, Sellers D, Barrett J, Sanborn O, Wan H, Chang A, Anioke T, Nkolola J, Bradshaw C, Jacob-Dolan C, Feldman J, Gebre M, Borducchi EN, Liu J, Schmidt AG, Suscovich T, Linde C, Alter G, Hacker MR, **Barouch DH**. Immunogenicity of COVID-19 mRNA vaccines in pregnant and lactating women. *JAMA* 2021;325:2370-2380.
263. He X, Chandrashekar A, Zahn R, Wegmann F, Yu J, Mercado NB, McMahan K, Martinot AJ, Piedra-Mora C, Beecy S, Ducat S, Chamanza R, Huber SR, van Heerden M, van der Fits L, Borducchi EN, Lifton M, Liu J, Nampanya F, Patel S, Peter L, Tostanoski LH, Pessaint L, Van Ry A, Finneyfrock B, Velasco J, Teow E, Brown R, Cook A, Andersen H, Lewis MG, Schuitemaker H, **Barouch DH**. Low-dose Ad26.COV2.S protection against SARS-CoV-2 challenge in rhesus macaques. *Cell* 2021;184:3467-3473.
264. Larocca RA, Abbink P, Ventura JD, Chandrashekar A, Mercado N, Li Z, Borducchi E, De La Barrera RA, Eckels KH, Modjarrad K, Busch MP, Michael NL, **Barouch DH**. Impact of prior dengue immunity on Zika vaccine protection in rhesus macaques and mice. *PLoS Pathog* 2021;17:e1009673.
265. Alter G, Yu J, Liu J, Chandrashekar A, Borducchi EN, Tostanoski LH, McMahan K, Jacob-Dolan C, Martinez DR, Chang A, Anioke T, Lifton M, Nkolola J, Stephenson KE, Atyeo C, Shin S, Fields P, Kaplan I, Robins H, Amanat F, Krammer F, Baric RS, Le Gars M, Sadoff J, de Groot AM, Heerwegh D, Struyf F, Douoguih M, van Hoof J, Schuitemaker H, **Barouch DH**. Immunogenicity of Ad26.COV2.S vaccine against SARS-CoV-2 variants in humans. *Nature* 2021; 596:268-272.
266. Yu J, Tostanoski LH, Mercado NB, McMahan K, Liu J, Jacob-Dolan C, Chandrashekar A, Atyeo C, Martinez DR, Anioke T, Bondzie EA, Chang A, Gardner S, Giffin VM, Hope DL, Nampanya F, Nkolola J, Patel S, Sanborn O, Sellers D, Wan H, Hayes T, Bauer K, Pessaint L, Valentin D, Flinchbaugh Z, Brown R, Cook A, Bueno-Wilkerson D, Teow E, Andersen H, Lewis MG, Martinot AJ, Baric RS, Alter G, Wegmann F, Zahn R, Schuitemaker H, **Barouch DH**. Protective efficacy of Ad26.COV2.S against SARS-CoV-2 B.1.351 in macaques. *Nature* 2021; 596:423-427.
267. Weingarten-Gabbay S, Klaeger S, Sarkizova S, Pearlman LR, Chen DY, Gallagher KME, Bauer MR, Taylor HB, Dunn WA, Tarr C, Sidney J, Rachimi S, Conway HL, Katsis K, Wang Y, Leistriz-Edwards D, Durkin MR, Tomkins-Tinch CH, Finkel Y, Nachshon A, Gentili M, Rivera KD, Carulli IP, Chea VA, Chandrashekar A, Bozkus CC, Carrington M; MGH COVID-19 Collection & Processing Team, Bhardwaj N, **Barouch DH**, Sette A, Maus MV,

- Rice CM, Clauser KR, Keskin DB, Pregibon DC, Hacohen N, Carr SA, Abelin JG, Saeed M, Sabeti PC. Profiling SARS-CoV-2 HLA-I peptidome reveals T cell epitopes from out-of-frame ORFs. *Cell* 2021; 184:3962-3980.
268. **Barouch DH**, Stephenson KE, Sadoff J, Yu J, Chang A, Gebre M, McMahan K, Liu J, Chandrashekar A, Patel S, Le Gars M, de Groot AM, Heerwegh D, Struyf F, Douoguih M, van Hoof J, Schuitemaker H. Durable humoral and cellular immune responses 8 months after Ad26.COV2.S vaccination. *N Engl J Med* 2021; 385:951-953.
 269. Najafabadi AH, Abadi ZIN, Aikins ME, Foulds KE, Donaldson MM, Yuan W, Okeke EB, Nam J, Xu Y, Weerappuli P, Hetrick T, Adams D, Lester PA, Salazar AM, **Barouch DH**, Schwendeman A, Seder RA, Moon JJ. Vaccine nanodiscs plus polyICLC elicit robust CD8+ T cell responses in mice and non-human primates. *J Control Release* 2021; 337:168-178.
 270. Ali A, Canaday LM, Feldman HA, Cevik H, Moran MT, Rajaram S, Lakes N, Tuazon JA, Seelamneni H, Krishnamurthy D, Blass E, **Barouch DH**, Waggoner SN. Natural killer cell immunosuppressive function requires CXCR3-dependent redistribution within lymphoid tissues. *J Clin Invest* 2021; 131:e146686.
 271. Sivapalan R, Liu J, Chakraborty K, Arthofer E, Choudhry M, Barie PS, **Barouch DH**, Henley T. Virus Induced Lymphocytes (VIL) as a novel viral antigen-specific T cell therapy for COVID-19 and potential future pandemics. *Sci Rep* 2021; 11:15295.
 272. O'Brien MP, Forleo-Neto E, Musser BJ, Isa F, Chan KC, Sarkar N, Bar KJ, Barnabas RV, **Barouch DH**, Cohen MS, Hurt CB, Burwen DR, Marovich MA, Hou P, Heirman I, Davis JD, Turner KC, Ramesh D, Mahmood A, Hooper AT, Hamilton JD, Kim Y, Purcell LA, Baum A, Kyratsous CA, Krainson J, Perez-Perez R, Mohseni R, Kowal B, DiCioccio AT, Stahl N, Lipsich L, Braunstein N, Herman G, Yancopoulos GD, Weinreich DM; Covid-19 Phase 3 Prevention Trial Team. Subcutaneous REGEN-COV Antibody Combination to Prevent Covid-19. *N Engl J Med* 2021; 385:1184-1195.
 273. Dalvie NC, Rodriguez-Aponte SA, Hartwell BL, Tostanoski LH, Biedermann AM, Crowell LE, Kaur K, Kumru OS, Carter L, Yu J, Chang A, McMahan K, Courant T, Lebas C, Lemnios AA, Rodrigues KA, Silva M, Johnston RS, Naranjo CA, Tracey MK, Brady JR, Whittaker CA, Yun D, Brunette N, Wang JY, Walkey C, Fiala B, Kar S, Porto M, Lok M, Andersen H, Lewis MG, Love KR, Camp DL, Silverman JM, Kleanthous H, Joshi SB, Volkin DB, Dubois PM, Collin N, King NP, **Barouch DH**, Irvine DJ, Love JC. Engineered SARS-CoV-2 receptor binding domain improves manufacturability in yeast and immunogenicity in mice. *Proc Natl Acad Sci U S A* 2021; 118:e2106845118.
 274. Wesley MS, Chiong KT, Seaton KE, Arocena CA, Sawant S, Hare J, Hernandez K, Rojas M, Heptinstall J, Beaumont D, Crisafi K, Nkolola J, **Barouch DH**, Sarzotti-Kelsoe M, Tomaras GD, Yates NL. Validation of a triplex pharmacokinetic assay for simultaneous quantitation of HIV-1 broadly neutralizing antibodies PGT121, PGDM1400, and VRC07-523-LS. *Front Immunol* 2021; 12:709994.
 275. Schmaier AA, Pajares Hurtado GM, Manickas-Hill ZJ, Sack KD, Chen SM, Bhambhani V, Quadir J, Nath AK, Collier AY, Ngo D, **Barouch DH**, Shapiro NI, Gerszten RE, Yu XG;

- MGH COVID-19 Collection and Processing Team, Peters KG, Flaumenhaft R, Parikh SM. Tie2 activation protects against prothrombotic endothelial dysfunction in COVID-19. *JCI Insight* 2021; 6:e151527.
276. Tostanoski LH, Gralinski LE, Martinez DR, Schaefer A, Mahrokhian SH, Li Z, Nampanya F, Wan H, Yu J, Chang A, Liu J, McMahan K, Ventura JD, Dinno KH, Leist SR, Baric RS, **Barouch DH**. Protective efficacy of rhesus adenovirus COVID-19 vaccines against mouse-adapted SARS-CoV-2. *J Virol* 2021; 95:e0097421.
 277. Chandrashekar A, Liu J, Yu J, McMahan K, Tostanoski LH, Jacob-Dolan C, Mercado NB, Anioke T, Chang A, Gardner S, Giffin VM, Hope DL, Nampanya F, Patel S, Sanborn O, Sellers D, Wan H, Martinot AJ, Baczenas JJ, O'Connor SL, Pessaint L, Valentin D, Espina B, Wattay L, Ferrari MG, Brown R, Cook A, Bueno-Wilkerson D, Teow E, Andersen H, Lewis MG, **Barouch DH**. Prior infection with SARS-CoV-2 WA1/2020 partially protects rhesus macaques against re-infection with B.1.1.7 and B.1.351 variants. *Sci Transl Med* 2021; 13:eabj2641.
 278. Langelotto F, Dellacherie MO, Yeager C, Ijaz H, Yu J, Cheng CA, Dimitrakakis N, Seiler BT, Gebre MS, Gilboa T, Johnson R, Storm N, Bardales S, Graveline A, White D, Tringides CM, Cartwright MJ, Doherty EJ, Honko A, Griffiths A, Barouch DH, Walt DR, Mooney DJ. A modular biomaterial scaffold-based vaccine elicits durable adaptive immunity to subunit SARS-CoV-2 antigens. *Adv Healthc Mater* 2021; 10:e2101370.
 279. Roozendaal R, Solforosi L, Stieh DJ, Serroyen J, Straetemans R, Dari A, Boulton M, Wegmann F, Rosendahl Huber SK, van der Lubbe JEM, Hendriks J, Le Gars M, Dekking L, Czapska-Casey DN, Guimera N, Janssen S, Tete S, Chandrashekar A, Mercado NB, Yu J, Koudstaal W, Perez-Ruixo JJ, Sadoff J, **Barouch DH**, Schuitemaker H, Zahn R. SARS-CoV-2 binding and neutralizing antibody levels after Ad26.COV2.S vaccination predict durable protection in rhesus macaques. *Nat Commun* 2021; 12:5877.
 280. Stephenson KE, Julg B, Tan CS, Zash R, Walsh SR, Rolle CP, Monczor AN, Lupo S, Gelderblom HC, Ansel JL, Kanjilal DG, Maxfield LF, Nkolola J, Borducchi EN, Abbink P, Liu J, Peter L, Chandrashekar A, Nityanandam R, Lin Z, Setaro A, Sapiente J, Chen Z, Sunner L, Cassidy T, Bennett C, Sato A, Mayer B, Perelson AS, deCamp A, Priddy FH, Wagh K, Giorgi EE, Yates NL, Arduino RC, DeJesus E, Tomaras GD, Seaman MS, Korber B, **Barouch DH**. Safety, pharmacokinetics and antiviral activity of PGT121, a broadly neutralizing monoclonal antibody against HIV-1: a randomized, placebo-controlled, phase 1 clinical trial. *Nat Med* 2021; 27:1718-1724.
 281. Collier AY, Yu J, McMahan K, Liu J, Chandrashekar A, Maron JS, Atyeo C, Martinez DR, Ansel JL, Aguayo R, Rowe M, Jacob-Dolan C, Sellers D, Barrett J, Ahmad K, Anioke T, VanWyk H, Gardner S, Powers O, Bondzie EA, Wan H, Baric RS, Alter G, Hacker MR, **Barouch DH**. Differential kinetics of immune responses elicited by Covid-19 vaccines. *N Engl J Med* 2021; 385:2010-2012.
 282. Gopalakrishnan RM, Aid M, Mercado NB, Davis C, Malik S, Geiger E, Varner V, Jones R, Bosinger SE, Piedra-Mora C, Martinot AJ, **Barouch DH**, Reeves RK, Tan CS. Increased

IL-6 expression precedes reliable viral detection in the rhesus macaque brain during acute SIV infection. *JCI Insight* 2021; 6:e152013.

283. Tostanoski LH, Yu J, Mercado NB, McMahan K, Jacob-Dolan C, Martinot AJ, Piedra-Mora C, Anioke T, Chang A, Giffin VM, Hope DL, Wan H, Bondzie EA, Mahrokhian SH, Wrijil LM, Bauer K, Pessaint L, Porto M, Piegols J, Faudree A, Spence B, Kar S, Amanat F, Krammer F, Andersen H, Lewis MG, Wegmann F, Zahn R, Schuitemaker H, **Barouch DH**. Immunity elicited by natural infection or Ad26.COVS2.S vaccination protects hamsters against SARS-CoV-2 variants of concern. *Sci Transl Med* 2021; 13:eabj3789.
284. Iketani S, Liu L, Nair MS, Chandrashekar A, Mohri H, Wang M, **Barouch DH**, Huang Y, Ho DD. Ad26.COVS2.S boosts antibody and T-cell responses following BNT162b2 vaccination. *Emerg Microbes Infect* 2021; 10:2220-2222.
285. Nilles EJ, Siddiqui SM, Fischinger S, Bartsch YC, de St Aubin M, Zhou G, Gluck MJ, Berger S, Rhee J, Petersen E, Mormann B, Loesche M, Hu Y, Chen Z, Yu J, Gebre M, Atyeo C, Gorman MJ, Zhu AL, Burke J, Slein M, Hasdianda MA, Jambaulikar G, Boyer EW, Sabeti PC, **Barouch DH**, Julg B, Kucharski AJ, Musk ER, Lauffenburger DA, Alter G, Menon AS. Epidemiological and Immunological Features of Obesity and SARS-CoV-2. *Viruses* 2021; 13:2235.
286. Rodrigues KA, Rodriguez-Aponte SA, Dalvie NC, Lee JH, Abraham W, Carnathan DG, Jimenez LE, Ngo JT, Chang JYH, Zhang Z, Yu J, Chang A, Nakao C, Goodwin B, Naranjo CA, Zhang L, Silva M, **Barouch DH**, Silvestri G, Crotty S, Love JC, Irvine DJ. Phosphate-mediated coanchoring of RBD immunogens and molecular adjuvants to alum potentiates humoral immunity against SARS-CoV-2. *Sci Adv* 2021; 7:eabj6538.
287. Yu J, Collins ND, Mercado NB, McMahan K, Chandrashekar A, Liu J, Anioke T, Chang A, Giffin VM, Hope DL, Sellers D, Nampanya F, Gardner S, Barrett J, Wan H, Velasco J, Teow E, Cook A, Van Ry A, Pessaint L, Andersen H, Lewis MG, Hofer C, Burke DS, Barkei EK, King HAD, Subra C, Bolton D, Modjarrad K, Michael NL, **Barouch DH**. Protective efficacy of gastrointestinal SARS-CoV-2 delivery against intranasal and intratracheal SARS-CoV-2 challenge in rhesus macaques. *J Virol* 2022; 96:e0159921.
288. Nanishi E, Borriello F, O'Meara TR, McGrath ME, Saito Y, Haupt RE, Seo HS, van Haren SD, Cavazzoni CB, Brook B, Barman S, Chen J, Diray-Arce J, Doss-Gollin S, De Leon M, Prevost-Reilly A, Chew K, Menon M, Song K, Xu AZ, Caradonna TM, Feldman J, Hauser BM, Schmidt AG, Sherman AC, Baden LR, Ernst RK, Dillen C, Weston SM, Johnson RM, Hammond HL, Mayer R, Burke A, Bottazzi ME, Hotez PJ, Strych U, Chang A, Yu J, Sage PT, **Barouch DH**, Dhe-Paganon S, Zanoni I, Ozonoff A, Frieman MB, Levy O, Dowling DJ. An aluminum hydroxide:CpG adjuvant enhances protection elicited by a SARS-CoV-2 receptor binding domain vaccine in aged mice. *Sci Transl Med* 2022; 14:eabj5305.
289. Gebre MS, Rauch S, Roth N, Yu J, Chandrashekar A, Mercado NB, He X, Liu J, McMahan K, Martinot A, Martinez DR, Giffin V, Hope D, Patel S, Sellers D, Sanborn O, Barrett J, Liu X, Cole AC, Pessaint L, Valentin D, Flinchbaugh Z, Yalley-Ogunro J, Muench J, Brown R, Cook A, Teow E, Andersen H, Lewis MG, Boon ACM, Baric RS, Mueller SO,

Petsch B, **Barouch DH**. Optimization of non-coding regions for a non-modified mRNA COVID-19 vaccine. *Nature* 2022; 601:410-414.

290. Vidal SJ, Bekerman E, Hansen D, Lu B, Wang K, Mwangi J, Rowe W, Campigotto F, Zheng J, Kato D, Chandrashekar A, Barrett J, Patel S, Wan H, Anioke T, Mercado NB, Nkolola JP, Ferguson MJ, Rinaldi WJ, Callebaut C, Blair W, Cihlar T, Geleziunas R, Yant SR, **Barouch DH**. Long-acting capsid inhibitor protects macaques from repeat SHIV challenges. *Nature* 2022; 601:612-616.
291. Tostanoski LH, Chandrashekar A, Patel S, Yu J, Jacob-Dolan C, Chang A, Powers OC, Sellers D, Gardner S, Barrett J, Sanborn O, Stephenson KE, Ansel JL, Jaegle K, Seaman MS, Porto M, Lok M, Spence B, Cayer K, Nase D, Holman S, Bradette H, Kar S, Andersen H, Lewis MG, Cox F, Tolboom JTB, de Groot AM, Heerwegh D, Le Gars M, Sadoff J, Wegmann F, Zahn RC, Schuitemaker H, **Barouch DH**. Passive transfer of Ad26.COV2.S-elicited IgG from humans attenuates SARS-CoV-2 disease in hamsters. *NPJ Vaccines* 2022; 7:2.
292. O'Brien MP, Forleo-Neto E, Sarkar N, Isa F, Hou P, Chan KC, Musser BJ, Bar KJ, Barnabas RV, **Barouch DH**, Cohen MS, Hurt CB, Burwen DR, Marovich MA, Brown ER, Heirman I, Davis JD, Turner KC, Ramesh D, Mahmood A, Hooper AT, Hamilton JD, Kim Y, Purcell LA, Baum A, Kyratsous CA, Krainson J, Perez-Perez R, Mohseni R, Kowal B, DiCioccio AT, Geba GP, Stahl N, Lipsich L, Braunstein N, Herman G, Yancopoulos GD, Weinreich DM; COVID-19 Phase 3 Prevention Trial Team. Effect of Subcutaneous Casirivimab and Imdevimab Antibody Combination vs Placebo on Development of Symptomatic COVID-19 in Early Asymptomatic SARS-CoV-2 Infection: A Randomized Clinical Trial. *JAMA* 2022; 327:432-441.
293. Cobb RR, Nkolola J, Gilchuk P, Chandrashekar A, Yu J, House RV, Earnhart CG, Dorsey NM, Hopkins SA, Snow DM, Chen RE, VanBlargan LA, Hechenblaickner M, Hoppe B, Collins L, Tomic MT, Nonet GH, Hackett K, Slaughter JC, Lewis M, Andersen H, Cook A, Diamond MS, Carnahan RH, **Barouch DH**, Crowe JE Jr. A combination of two human neutralizing antibodies prevents SARS-CoV-2 infection in cynomolgus macaques. *Med* 2022; 3:188-203.
294. Siddiqui SM, Bowman KA, Zhu AL, Fischinger S, Beger S, Maron JS, Bartsch YC, Atyeo C, Gorman MJ, Yanis A, Hultquist JF, Lorenzo-Redondo R, Ozer EA, Simons LM, Talj R, Rankin DA, Chapman L, Meade K, Steinhart J, Mullane S, Siebert S, Streeck H, Sabeti P, Halasa N, Musk ER, **Barouch DH**, Menon AS, Nilles EJ, Lauffenburger DA, Alter G. Serological Markers of SARS-CoV-2 Reinfection. *mBio* 2022; 13:e0214121.
295. Sadoff J, Gray G, Vandebosch A, Cárdenas V, Shukarev G, Grinsztejn B, Goepfert PA, Truysers C, Van Dromme I, Spiessens B, Vingerhoets J, Custers J, Scheper G, Robb ML, Treanor J, Ryser MF, **Barouch DH**, Swann E, Marovich MA, Neuzil KM, Corey L, Stoddard J, Hardt K, Ruiz-Guiñazú J, Le Gars M, Schuitemaker H, Van Hoof J, Struyf F, Douoguih M; ENSEMBLE Study Group. Final Analysis of Efficacy and Safety of Single-Dose Ad26.COV2.S. *N Engl J Med* 2022; 386:847-860.

296. Mahrokhian SH, Tostanoski LH, Jacob-Dolan C, Zahn RC, Wegmann F, McMahan K, Yu J, Gebre MS, Bondzie EA, Wan H, Powers O, Ye T, Barrett J, Schuitemaker H, **Barouch DH**. Durability and expansion of neutralizing antibody breadth following Ad26.COVS.2.S vaccination of mice. *NPJ Vaccines* 2022; 7:23.
297. Yu J, Collier AY, Rowe M, Mardas F, Ventura JD, Wan H, Miller J, Powers O, Chung B, Siamatu M, Hachmann NP, Surve N, Nampanya F, Chandrashekar A, **Barouch DH**. Neutralization of the SARS-CoV-2 Omicron BA.1 and BA.2 Variants. *N Engl J Med* 2022; 386:1579-1580.
298. Collier AY, Yu J, McMahan K, Liu J, Atyeo C, Ansel JL, Fricker ZP, Pavlakis M, Curry MP, Jacob-Dolan C, Patel H, Sellers D, Barrett J, Rowe M, Ahmad K, Gompers A, Aguayo R, Chandrashekar A, Alter G, Hacker MR, **Barouch DH**. COVID-19 mRNA Vaccine Immunogenicity in Immunosuppressed Individuals. *J Infect Dis* 2022; 225:1124-1128.
299. Liu J, Chandrashekar A, Sellers D, Barrett J, Jacob-Dolan C, Lifton M, McMahan K, Sciacca M, VanWyk H, Wu C, Yu J, Collier AY, **Barouch DH**. Vaccines elicit highly conserved cellular immunity to SARS-CoV-2 Omicron. *Nature* 2022; 603:493-496.
300. Mahomed S, Garrett N, Capparelli EV, Osman F, Harkoo I, Yende-Zuma N, Gengiah TN, Archary D, Samsunder N, Baxter C, Mkhize NN, Modise T, Carlton K, McDermott A, Moore PL, Abdool Karim Q, **Barouch DH**, Fast PE, Mascola JR, Ledgerwood JE, Morris L, Abdool Karim SS. Safety and pharmacokinetics of monoclonal antibodies VRC07-523LS and PGT121 administered subcutaneously for HIV prevention. *J Infect Dis* 2022; 226:510-520.
301. He X, Aid M, Chandrashekar A, Yu J, McMahan K, Wegmann F, Jacob-Dolan C, Maron JS, Atyeo C, Wan H, Sellers D, Liu J, Lifton M, Gardner S, A Bondzie E, Barrett J, Ahmad K, Anioke T, Yalley-Ogunro J, Muench J, Goode A, Andersen H, Lewis MG, Alter G, Schuitemaker H, Zahn R, **Barouch DH**. A homologous or variant booster vaccine after Ad26.COVS.2.S immunization enhances SARS-CoV-2-specific immune responses in rhesus macaques. *Sci Transl Med* 2022; 14:eabm4996.
302. Collier AY, Brown CM, McMahan KA, Yu J, Liu J, Jacob-Dolan C, Chandrashekar A, Tierney D, Ansel JL, Rowe M, Sellers D, Ahmad K, Aguayo R, Anioke T, Gardner S, Siamatu M, Bermudez Rivera L, Hacker MR, Madoff LC, **Barouch DH**. Characterization of immune responses in fully vaccinated individuals following breakthrough infection with the SARS-CoV-2 delta variant. *Sci Transl Med* 2022; 14:eabn6150.
303. Chandrashekar A, Yu J, McMahan K, Jacob-Dolan C, Liu J, He X, Hope D, Anioke T, Barrett J, Chung B, Hachmann NP, Lifton M, Miller J, Powers O, Sciacca M, Sellers D, Siamatu M, Surve N, VanWyk H, Wan H, Wu C, Pessaint L, Valentin D, Van Ry A, Muench J, Boursiquot M, Cook A, Velasco J, Teow E, Boon ACM, Suthar MS, Jain N, Martinot AJ, Lewis MG, Andersen H, **Barouch DH**. Vaccine protection against the SARS-CoV-2 Omicron variant in macaques. *Cell* 2022; 185:1549-1555.
304. Dalvie NC, Tostanoski LH, Rodriguez-Aponte SA, Kaur K, Bajoria S, Kumru OS, Martinot AJ, Chandrashekar A, McMahan K, Mercado NB, Yu J, Chang A, Giffin VM, Nampanya F, Patel S, Bowman L, Naranjo CA, Yun D, Flinchbaugh Z, Pessaint L, Brown R,

- Velasco J, Teow E, Cook A, Andersen H, Lewis MG, Camp DL, Silverman JM, Nagar GS, Rao HD, Lothe RR, Chandrasekharan R, Rajurkar MP, Shaligram US, Kleanthous H, Joshi SB, Volkin DB, Biswas S, Love JC, **Barouch DH**. SARS-CoV-2 receptor binding domain displayed on HBsAg virus-like particles elicits protective immunity in macaques. *Sci Adv*. 2022; 8:eabl6015.
305. Bekker LG, Garrett N, Goga A, Fairall L, Reddy T, Yende-Zuma N, Kassanjee R, Collie S, Sanne I, Boulle A, Seocharan I, Engelbrecht I, Davies MA, Champion J, Chen T, Bennett S, Mametja S, Semanya M, Moultrie H, de Oliveira T, Lessells RJ, Cohen C, Jassat W, Groome M, Von Gottberg A, Le Roux E, Khuto K, **Barouch D**, Mahomed H, Wolmarans M, Rousseau P, Bradshaw D, Mulder M, Opie J, Louw V, Jacobson B, Rowji P, Peter JG, Takalani A, Odhiambo J, Mayat F, Takuva S, Corey L, Gray GE; Sisonke Protocol Team; Sisonke Study Team. Effectiveness of the Ad26.COV2.S vaccine in health-care workers in South Africa (the Sisonke study): results from a single-arm, open-label, phase 3B, implementation study. *Lancet* 2022; 399:1141-1153.
 306. McMahan K, Giffin V, Tostanoski LH, Chung B, Siamatu M, Suthar MS, Halfmann P, Kawaoka Y, Piedra-Mora C, Jain N, Ducat S, Kar S, Andersen H, Lewis MG, Martinot AJ, **Barouch DH**. Reduced pathogenicity of the SARS-CoV-2 omicron variant in hamsters. *Med* 2022; 3:262-268.
 307. Kaplonek P, Cizmeci D, Fischinger S, Collier AR, Suscovich T, Linde C, Broge T, Mann C, Amanat F, Dayal D, Rhee J, de St Aubin M, Nilles EJ, Musk ER, Menon AS, Sapphire EO, Krammer F, Lauffenburger DA, **Barouch DH**, Alter G. mRNA-1273 and BNT162b2 COVID-19 vaccines elicit antibodies with differences in Fc-mediated effector functions. *Sci Transl Med*. 2022; 14:eabm2311.
 308. Aid M, Vidal SJ, Piedra-Mora C, Ducat S, Chan CN, Bondoc S, Colarusso A, Starke CE, Nekorchuk M, Busman-Sahay K, Estes JD, Martinot AJ, **Barouch DH**. Ad26.COV2.S prevents upregulation of SARS-CoV-2 induced pathways of inflammation and thrombosis in hamsters and rhesus macaques. *PLoS Pathog*. 2022; 18:e1009990.
 309. Moldt B, Chandrashekar A, Borducchi EN, Nkolola JP, Stephenson H, Nagel M, Hung M, Goldsmith J, Pace CS, Carr B, Thomsen ND, Blair WS, Geleziunas R, **Barouch DH**. HIV envelope antibodies and TLR7 agonist partially prevent viral rebound in chronically SHIV-infected monkeys. *PLoS Pathog*. 2022; 18:e1010467.
 310. Zhu DY, Gorman MJ, Yuan D, Yu J, Mercado NB, McMahan K, Borducchi EN, Lifton M, Liu J, Nampanya F, Patel S, Peter L, Tostanoski LH, Pessaint L, Van Ry A, Finneyfrock B, Velasco J, Teow E, Brown R, Cook A, Andersen H, Lewis MG, Lauffenburger DA, **Barouch DH**, Alter G. Defining the determinants of protection against SARS-CoV-2 infection and viral control in a dose-down Ad26.CoV2.S vaccine study in nonhuman primates. *PLoS Biol*. 2022; 20:e3001609.
 311. Piedra-Mora C, Robinson SR, Tostanoski LH, Dayao DAE, Chandrashekar A, Bauer K, Wrijil L, Ducat S, Hayes T, Yu J, Bondzie EA, McMahan K, Sellers D, Giffin V, Hope D, Nampanya F, Mercado NB, Kar S, Andersen H, Tzipori S, **Barouch DH**, Martinot AJ.

Reduced SARS-CoV-2 disease outcomes in Syrian hamsters receiving immune sera: Quantitative image analysis in pathologic assessments. *Vet Pathol.* 2022; 59:648-660.

312. Roh JD, Kitchen RR, Guseh JS, McNeill JN, Aid M, Martinot AJ, Yu A, Platt C, Rhee J, Weber B, Trager LE, Hastings MH, Ducat S, Xia P, Castro C, Singh A, Atlason B, Churchill TW, Di Carli MF, Ellinor PT, **Barouch DH**, Ho JE, Rosenzweig A. Plasma proteomics of COVID-19-associated cardiovascular complications: implications for pathophysiology and therapeutics. *JACC Basic Transl Sci.* 2022; 7:425-441.
313. Julg B, Stephenson KE, Wagh K, Tan SC, Zash R, Walsh S, Ansel J, Kanjilal D, Nkolola J, Walker-Sperling VEK, Ophel J, Yanosick K, Borducchi EN, Maxfield L, Abbink P, Peter L, Yates NL, Wesley MS, Hassell T, Gelderblom HC, deCamp A, Mayer BT, Sato A, Gerber MW, Giorgi EE, Gama L, Koup RA, Mascola JR, Monczor A, Lupo S, Rolle CP, Arduino R, DeJesus E, Tomaras GD, Seaman MS, Korber B, **Barouch DH**. Safety and antiviral activity of triple combination broadly neutralizing monoclonal antibody therapy against HIV-1: a phase 1 clinical trial. *Nat Med.* 2022; 28:1288-1296.
314. Ventura JD, Nkolola JP, Chandrashekar A, Borducchi EN, Liu J, Mercado NB, Hope DL, Giffin VM, McMahan K, Geleziunas R, Murry JP, Yang Y, Lewis MG, Pau MG, Wegmann F, Schuitemaker H, Fray EJ, Kumar MR, Siliciano JD, Siliciano RF, Robb ML, Michael NL, **Barouch DH**. Therapeutic efficacy of an Ad26/MVA vaccine with SIV gp140 protein and vesatolimod in ART-suppressed rhesus macaques. *NPJ Vaccines.* 2022; 7:53.
315. Walker-Sperling VEK, Mercado NB, Chandrashekar A, Borducchi EN, Liu J, Nkolola JP, Lewis M, Murry JP, Yang Y, Geleziunas R, Robb ML, Michael NL, Pau MG, Wegmann F, Schuitemaker H, Fray EJ, Kumar MR, Siliciano JD, Siliciano RF, **Barouch DH**. Therapeutic efficacy of combined active and passive immunization in ART-suppressed, SHIV-infected rhesus macaques. *Nat Commun.* 2022; 13:3463.
316. Hachmann NP, Miller J, Collier AY, Ventura JD, Yu J, Rowe M, Bondzie EA, Powers O, Surve N, Hall K, **Barouch DH**. Neutralization Escape by SARS-CoV-2 Omicron Subvariants BA.2.12.1, BA.4, and BA.5. *N Engl J Med.* 2022; 387:86-88.
317. Herman GA, O'Brien MP, Forleo-Neto E, Sarkar N, Isa F, Hou P, Chan KC, Bar KJ, Barnabas RV, **Barouch DH**, Cohen MS, Hurt CB, Burwen DR, Marovich MA, Musser BJ, Davis JD, Turner KC, Mahmood A, Hooper AT, Hamilton JD, Parrino J, Subramaniam D, Baum A, Kyratsous CA, DiCioccio AT, Stahl N, Braunstein N, Yancopoulos GD, Weinreich DM; COVID-19 Phase 3 Prevention Trial Team. Efficacy and safety of a single dose of casirivimab and imdevimab for the prevention of COVID-19 over an 8-month period: a randomised, double-blind, placebo-controlled trial. *Lancet Infect Dis.* 2022; 22:1444-1454.
318. Nkolola JP, Yu J, Wan H, Chang A, McMahan K, Anioke T, Jacob-Dolan C, Powers O, Ye T, Chandrashekar A, Sellers D, Barrett J, Loo YM, Esser MT, Carnahan RH, Crowe JE Jr, **Barouch DH**. A bivalent SARS-CoV-2 monoclonal antibody combination does not affect the immunogenicity of a vector-based COVID-19 vaccine in macaques. *Sci Transl Med.* 2022; 14:eabo6160.

319. Hartwell BL, Melo MB, Xiao P, Lemnios AA, Li N, Chang JYH, Yu J, Gebre MS, Chang A, Maiorino L, Carter C, Moyer TJ, Dalvie NC, Rodriguez-Aponte SA, Rodrigues KA, Silva M, Suh H, Adams J, Fontenot J, Love JC, **Barouch DH**, Villinger F, Ruprecht RM, Irvine DJ. Intranasal vaccination with lipid-conjugated immunogens promotes antigen transmucosal uptake to drive mucosal and systemic immunity. *Sci Transl Med*. 2022; 14(654):eabn1413.
320. Gebre MS, Rauch S, Roth N, Gergen J, Yu J, Liu X, Cole AC, Mueller SO, Petsch B, **Barouch DH**. mRNA vaccines induce rapid antibody responses in mice. *NPJ Vaccines* 2022; 7:88.
321. Nanishi E, McGrath ME, O'Meara TR, Barman S, Yu J, Wan H, Dillen CA, Menon M, Seo HS, Song K, Xu AZ, Sebastian L, Brook B, Bosco AN, Borriello F, Ernst RK, **Barouch DH**, Dhe-Paganon S, Levy O, Frieman MB, Dowling DJ. mRNA booster vaccination protects aged mice against the SARS-CoV-2 Omicron variant. *Commun Biol*. 2022; 5:790.
322. Liu J, Yu J, McMahan K, Jacob-Dolan C, He X, Giffin V, Wu C, Sciacca M, Powers O, Nampanya F, Miller J, Lifton M, Hope D, Hall K, Hachmann NP, Chung B, Anioke T, Li W, Muench J, Gamblin A, Boursiquot M, Cook A, Lewis MG, Andersen H, **Barouch DH**. CD8 T cells contribute to vaccine protection against SARS-CoV-2 in macaques. *Sci Immunol*. 2022; 7:eabq7647.
323. Tan CS, Collier AY, Yu J, Liu J, Chandrashekar A, McMahan K, Jacob-Dolan C, He X, Roy V, Hauser BM, Munt JE, Mallory ML, Mattocks M, Powers JM, Meganck RM, Rowe M, Hemond R, Bondzie EA, Jaegle KH, Baric RS, Schmidt AG, Alter G, Le Gars M, Sadoff J, **Barouch DH**. Durability of heterologous and homologous COVID-19 vaccine boosts. *JAMA Netw Open* 2022; 5:e2226335.
324. Gilbert PB, Huang Y, deCamp AC, Karuna S, Zhang Y, Magaret CA, Giorgi EE, Korber B, Edlefsen PT, Rossenkhon R, Juraska M, Rudnicki E, Kochar N, Huang Y, Carpp LN, **Barouch DH**, Mkhize NN, Hermanus T, Kgagudi P, Bekker V, Kaldine H, Mapengo RE, Eaton A, Domin E, West C, Feng W, Tang H, Seaton KE, Heptinstall J, Brackett C, Chiong K, Tomaras GD, Andrew P, Mayer BT, Reeves DB, Sobieszczyk ME, Garrett N, Sanchez J, Gay C, Makhema J, Williamson C, Mullins JI, Hural J, Cohen MS, Corey L, Montefiori DC, Morris L. Neutralization titer biomarker for antibody-mediated prevention of HIV-1 acquisition. *Nat Med*. 2022; 28:1924-1932.
325. He X, Aid M, Ventura JD, Borducchi E, Lifton M, Liu J, **Barouch DH**. Rapid loss of CD4 T cells by pyroptosis during acute SIV infection in rhesus macaques. *J Virol*. 2022; 96:e0080822.
326. Dai W, Wu F, McMyn N, Song B, Walker-Sperling VE, Varriale J, Zhang H, **Barouch DH**, Siliciano JD, Li W, Siliciano RF. Genome-wide CRISPR screens identify combinations of candidate latency reversing agents for targeting the latent HIV-1 reservoir. *Sci Transl Med*. 2022; 14:eabh3351.
327. Hachmann NP, Miller J, Collier AY, **Barouch DH**. Neutralization Escape by SARS-CoV-2 Omicron Subvariant BA.4.6. *N Engl J Med*. 2022; 387:1904-1906.

328. Dagotto G, Ventura JD, Martinez DR, Anioke T, Chung BS, Siamatu M, Barrett J, Miller J, Schäfer A, Yu J, Tostanoski LH, Wagh K, Baric RS, Korber B, **Barouch DH**. Immunogenicity and protective efficacy of a rhesus adenoviral vaccine targeting conserved COVID-19 replication transcription complex. *NPJ Vaccines*. 2022; 7:125.
329. Nilles EJ, Paulino CT, de St Aubin M, Restrepo AC, Mayfield H, Dumas D, Finch E, Garnier S, Etienne MC, Iselin L, Duke W, Jarolim P, Oasan T, Yu J, Wan H, Peña F, Iihoshi N, Abdalla G, Lopez B, Cruz L, Henríquez B, Espinosa-Bode A, Puello YC, Durski K, Baldwin M, Baez AA, Merchant RC, **Barouch DH**, Skewes-Ramm R, Gutiérrez EZ, Kucharski A, Lau CL. SARS-CoV-2 seroprevalence, cumulative infections, and immunity to symptomatic infection - A multistage national household survey and modelling study, Dominican Republic, June-October 2021. *Lancet Reg Health Am*. 2022;16:100390.
330. Yu J, Thomas PV, McMahan K, Jacob-Dolan C, Liu J, He X, Hope D, Martinez EJ, Chen WH, Sciacca M, Hachmann NP, Lifton M, Miller J, Powers OC, Hall K, Wu C, Barrett J, Swafford I, Currier JR, King J, Corbitt C, Chang WC, Golub E, Rees PA, Peterson CE, Hajduczki A, Hussin E, Lange C, Gong H, Matyas GR, Rao M, Paquin-Proulx D, Gromowski GD, Lewis MG, Andersen H, Davis-Gardner M, Suthar MS, Michael NL, Bolton DL, Joyce MG, Modjarrad K, **Barouch DH**. Protection against SARS-CoV-2 Omicron BA.1 variant challenge in macaques by prime-boost vaccination with Ad26.COV2.S and SpFN. *Sci Adv*. 2022; 8:eade4433.
331. Boon ACM, Darling TL, Halfmann PJ, Franks J, Webby RJ, **Barouch DH**, Port JR, Munster VJ, Diamond MS, Kawaoka Y. Reduced airborne transmission of SARS-CoV-2 BA.1 Omicron virus in Syrian hamsters. *PLoS Pathog*. 2022; 18:e1010970.
332. Cooper A, Sidaway A, Chandrashekar A, Latta E, Chakraborty K, Yu J, McMahan K, Giffin V, Manickam C, Kroll K, Mosher M, Reeves RK, Gam R, Arthofer E, Choudhry M, Henley T, **Barouch DH**. A genetically engineered, stem-cell-derived cellular vaccine. *Cell Rep Med*. 2023; in press.
333. Stieh DJ, **Barouch DH**, Comeaux C, Sarnecki M, Stephenson KE, Walsh SR, Sawant S, Heptinstall J, Tomaras GD, Kublin JG, McElrath MJ, Cohen KW, De Rosa SC, Alter G, Ferrari G, Montefiori D, Mann P, Nijs S, Callewaert K, Goepfert PA, Edupuganti S, Karita E, Seaman MS, Corey L, Baden LR, Pau MG, Schuitemaker H, Tomaka F. Safety and immunogenicity of Ad26-vectored HIV vaccine with mosaic immunogens and a novel mosaic Envelope protein in HIV-uninfected adults: A Phase 1/2a study. *J Infect Dis*. 2023; in press.
334. Collier AY, Miller J, Hachmann NP, McMahan K, Liu J, Bondzie EA, Gallup L, Rowe M, Schonberg E, Thai S, Barrett J, Borducchi EN, Bouffard E, Jacob-Dolan C, Mazurek CR, Mutoni A, Powers O, Sciacca M, Surve N, VanWyk H, Wu C, **Barouch DH**. Immunogenicity of the BA.5 Bivalent mRNA Vaccine Boosters. *N Engl J Med*. 2023; in press.
335. Miller J, Hachmann NP, Collier AY, Lasrado N, Mazurek CR, Patio RC, Powers O, Surve N, Theiler J, Korber B, **Barouch DH**. Substantial Neutralization Escape by the SARS-CoV-2 Omicron Variants BQ.1.1 and XBB.1. *N Engl J Med*. 2023; in press.

Other Peer-Reviewed Publications (Reviews, Case Reports, Conference Proceedings)

Reviews

1. **Barouch DH**, Letvin NL. DNA vaccination for HIV-1 and SIV. *Intervirology* 2000; 43:282-287.
2. **Barouch DH**, Letvin NL. CD8+ cytotoxic T lymphocyte responses to lentiviruses and herpesviruses. *Curr. Opin. Immunol.* 2001; 13:479-482.
3. Letvin NL, **Barouch DH**, Montefiori DC. Prospects for vaccine protection against HIV-1 infection and AIDS. *Annu. Rev. Immunol.* 2002; 20:73-99.
4. Peyerl FW, **Barouch DH**, Letvin NL. Structural constraints of viral escape from HIV- and SIV-specific cytotoxic T-lymphocytes. *Viral Immunol.* 2004; 17:144-151.
5. Lemckert AAC, Goudsmit J, **Barouch DH**. Challenges in the search for an HIV vaccine. *Eur. J. Epidemiol.* 2004; 19:513-516.
6. **Barouch DH**, Letvin NL. HIV escape from cytotoxic T lymphocytes: a potential hurdle for vaccines? *Lancet* 2004; 364:10-11.
7. **Barouch DH**, Letvin NL, Seder RA. The role of cytokine DNAs as vaccine adjuvants for optimizing cellular immune responses. *Immunol. Rev.* 2004; 202:266-274.
8. **Barouch DH**, Nabel GJ. Adenovirus vector-based vaccines for human immunodeficiency virus type 1. *Hum. Gene Ther.* 2005; 16:149-156.
9. **Barouch DH**. Rational design of gene-based vaccines. *J. Path.* 2006; 208:283-289.
10. Thorner AR, **Barouch DH**. HIV-1 vaccine development: progress and prospects. *Curr. Infect. Dis. Rep.* 2007; 9:71-75.
11. **Barouch DH**. Challenges in the development of an HIV-1 vaccine. *Nature* 2008; 455:613-619.
12. Kaufman DR, **Barouch DH**. T lymphocyte trafficking and vaccine-elicited mucosal immunity. *Clin. Exp. Immunol.* 2009; 157:165-173.
13. Rhee EG, **Barouch DH**. Harnessing innate immunity for HIV vaccine development. *Clin. Exp. Immunol.* 2009; 157:174-180.
14. **Barouch DH**, Korber B. HIV-1 vaccine development after STEP. *Annu. Rev. Med.* 2010; 61:153-167.
15. **Barouch DH**. Novel adenovirus vector-based vaccines for HIV-1. *Curr. Opin. HIV AIDS* 2010; 5:386-390.

16. **Barouch DH**, Ndung'u T, Alter G, Cardozo T, Chohan B, Fellay J, Frahm N, Fuchs J, Leslie A, Liu Y, Moore P, Rabadan R. Young and early career investigators: report from the Global HIV Vaccine Enterprise working group. *Nat. Precedings* 2010; doi:10.1038/npre.2010.4800.2.
17. Burton DR, Ahmed R, **Barouch DH**, Butera ST, Crotty S, Godzik A, Kaufmann DE, McElrath MJ, Nussenzweig MC, Pulendran B, Scanlan CN, Schief WR, Silvestri G, Streeck H, Walker BD, Walker LM, Ward AB, Wilson IA, Wyatt R. A blueprint for HIV vaccine discovery. *Cell Host Microbe* 2012; 12:396-407.
18. Stephenson KE, **Barouch DH**. A global approach to HIV-1 vaccine development. *Immunol. Rev.* 2013; 254:295-304.
19. Johnson JA, **Barouch DH**, Baden LR. Nonreplicating vectors in HIV vaccines. *Curr. Opin. HIV AIDS* 2013; 8:411-419.
20. **Barouch DH**. The quest for an HIV vaccine – moving forward. *New Engl. J. Med.* 2013; 369:2073-2076.
21. **Barouch DH**, Deeks SG. Immunologic strategies for HIV-1 remission and eradication. *Science* 2014; 345:169-174.
22. **Barouch DH**, Picker LJ. Novel vaccine vectors for HIV-1. *Nat. Rev. Microbiol.* 2014; 12:765-771.
23. **Barouch DH**, Michael NL. Accelerating HIV-1 vaccine efficacy trials. *Cell* 2014; 159:969-972.
24. Alter G, **Barouch DH**. Natural evolution of broadly neutralizing antibodies. *Cell* 2015; 161:427-428.
25. Julg B, **Barouch DH**. Novel immunological strategies for HIV-1 eradication. *J. Virus Erad.* 2015; 1:232-236.
26. Stephenson KE, **Barouch DH**. Broadly neutralizing antibodies for HIV eradication. *Curr. HIV/AIDS Rep.* 2016; 13:31-37.
27. Stephenson KE, D'Couto HT, **Barouch DH**. New concepts in HIV-1 vaccine development. *Curr. Opin. Immunol.* 2016; 41:39-46.
28. Deeks SG, Lewin SR, Ross AL, Ananworanich J, Benkirane M, Cannon P, Chomont N, Douek D, Lifson JD, Lo YR, Kuritzkes D, Margolis D, Mellors J, Persaud D, Tucker JD, Barre-Sinoussi F; International AIDS Society Towards a Cure Working Group, Alter G, Auerbach J, Autran B, **Barouch DH**, Behrens G, Cavazzana M, Chen Z, Cohen ÉA, Corbelli GM, Eholié S, Eyal N, Fidler S, Garcia L, Grossman C, Henderson G, Henrich TJ, Jefferys R, Kiem HP, McCune J, Moodley K, Newman PA, Nijhuis M, Nsubuga MS, Ott M, Palmer S, Richman D, Saez-Cirion A, Sharp M, Siliciano J, Silvestri G, Singh J, Spire B, Taylor J, Tolstrup M, Valente S, van Lunzen J, Walensky R, Wilson I, Zack J. International AIDS Society global scientific strategy: towards an HIV cure 2016. *Nat Med.* 2016; 22:839-850.

29. Tomalka J, Ghneim K, Bhattacharyya S, Aid M, **Barouch DH**, Sekaly RP, Ribeiro SP. The sooner the better: innate immunity as a path toward the HIV cure. *Curr. Opin. Virol.* 2016; 19:85-91.
30. **Barouch DH**, Thomas SJ, Michael NL. Prospects for a Zika virus vaccine. *Immunity* 2017; 46:176-182.
31. Ackerman ME, **Barouch DH**, Alter G. Systems serology for evaluation of HIV vaccine trials. *Immunol Rev.* 2017; 275:262-270.
32. Abbink P, Stephenson KE, **Barouch DH**. Zika virus vaccines. *Nat. Rev. Microbiol.* 2018; 16:594-600.
33. Alter G, **Barouch D**. Immune correlate-guided HIV vaccine design. *Cell Host Microbe* 2018; 24:25-33.
34. Julg B, Dee L, Ananworanich J, **Barouch DH**, Bar K, Caskey M, Colby DJ, Dawson L, Dong KL, Dubé K, Eron J, Frater J, Gandhi RT, Geleziunas R, Goulder P, Hanna GJ, Jefferys R, Johnston R, Kuritzkes D, Li JZ, Likhitwonnawut U, van Lunzen J, Martinez-Picado J, Miller V, Montaner LJ, Nixon DF, Palm D, Pantaleo G, Peay H, Persaud D, Salzwedel J, Salzwedel K, Schacker T, Sheikh V, Søgaard OS, Spudich S, Stephenson K, Sugarman J, Taylor J, Tebas P, Tiemessen CT, Tressler R, Weiss CD, Zheng L, Robb ML, Michael NL, Mellors JW, Deeks SG, Walker BD. Recommendations for analytical antiretroviral treatment interruptions in HIV research trials-report of a consensus meeting. *Lancet HIV* 2019; 6:e259-e268.
35. Julg B, **Barouch DH**. Neutralizing antibodies for HIV-1 prevention. *Curr. Opin. HIV AIDS.* 2019; 14:318-324.
36. Stephenson KE, Wagh K, Korber B, **Barouch DH**. Vaccines and Broadly Neutralizing Antibodies for HIV-1 Prevention. *Annu. Rev. Immunol.* 2020;38:673-703.
37. Dagotto G, Yu J, **Barouch DH**. Approaches and Challenges in SARS-CoV-2 Vaccine Development. *Cell Host Microbe* 2020;28:364-370.
38. Muñoz-Fontela C, Dowling WE, Funnell SGP, Gsell PS, Riveros-Balta AX, Albrecht RA, Andersen H, Baric RS, Carroll MW, Cavaleri M, Qin C, Crozier I, Dallmeier K, de Waal L, de Wit E, Delang L, Dohm E, Duprex WP, Falzarano D, Finch CL, Frieman MB, Graham BS, Gralinski LE, Guilfoyle K, Haagmans BL, Hamilton GA, Hartman AL, Herfst S, Kaptein SJF, Klimstra WB, Knezevic I, Krause PR, Kuhn JH, Le Grand R, Lewis MG, Liu WC, Maisonnasse P, McElroy AK, Munster V, Oreshkova N, Rasmussen AL, Rocha-Pereira J, Rockx B, Rodríguez E, Rogers TF, Salguero FJ, Schotsaert M, Stittelaar KJ, Thibaut HJ, Tseng CT, Vergara-Alert J, Beer M, Brasel T, Chan JFW, García-Sastre A, Neyts J, Perlman S, Reed DS, Richt JA, Roy CJ, Segalés J, Vasan SS, Henao-Restrepo AM, **Barouch DH**. Animal models for COVID-19. *Nature* 2020;586:509-515.
39. Gebre MS, Brito LA, Tostanoski LH, Edwards DK, Carfi A, **Barouch DH**. Novel approaches for vaccine development. *Cell* 2021;184:1589-1603.

40. Julg B, **Barouch D**. Broadly neutralizing antibodies for HIV-1 prevention and therapy. *Semin Immunol*. 2021; 51:101475.
41. Jacob-Dolan C, **Barouch DH**. COVID-19 vaccines: adenoviral vectors. *Annu Rev Med* 2022; 73:41-54.
42. Muñoz-Fontela C, Widerspick L, Albrecht RA, Beer M, Carroll MW, de Wit E, Diamond MS, Dowling WE, Funnell SGP, García-Sastre A, Gerhards NM, de Jong R, Munster VJ, Neyts J, Perlman S, Reed DS, Richt JA, Riveros-Balta X, Roy CJ, Salguero FJ, Schotsaert M, Schwartz LM, Seder RA, Segalés J, Vasani SS, Henao-Restrepo AM, **Barouch DH**. Advances and gaps in SARS-CoV-2 infection models. *PLoS Pathog* 2022; 18:e1010161.
43. Kalinke U, **Barouch DH**, Rizzi R, Lagkadinou E, Türeci Ö, Pather S, Neels P. Clinical development and approval of COVID-19 vaccines. *Expert Rev Vaccines* 2022; 21:609-619.
44. DeGrace MM, Ghedin E, Frieman MB, Krammer F, Grifoni A, Alisoltani A, Alter G, Amara RR, Baric RS, **Barouch DH**, Bloom JD, Bloyet LM, Bonenfant G, Boon ACM, Boritz EA, Bratt DL, Bricker TL, Brown L, Buchser WJ, Carreño JM, Cohen-Lavi L, Darling TL, Davis-Gardner ME, Dearlove BL, Di H, Dittmann M, Doria-Rose NA, Douek DC, Drosten C, Edara VV, Ellebedy A, Fabrizio TP, Ferrari G, Fischer WM, Florence WC, Fouchier RAM, Franks J, García-Sastre A, Godzik A, Gonzalez-Reiche AS, Gordon A, Haagmans BL, Halfmann PJ, Ho DD, Holbrook MR, Huang Y, James SL, Jaroszewski L, Jeevan T, Johnson RM, Jones TC, Joshi A, Kawaoka Y, Kercher L, Koopmans MPG, Korber B, Koren E, Koup RA, LeGresley EB, Lemieux JE, Liebeskind MJ, Liu Z, Livingston B, Logue JP, Luo Y, McDermott AB, McElrath MJ, Meliopoulos VA, Menachery VD, Montefiori DC, Mühlemann B, Munster VJ, Munt JE, Nair MS, Netzl A, Niewiadomska AM, O'Dell S, Pekosz A, Perlman S, Pontelli MC, Rockx B, Rolland M, Rothlauf PW, Sacharen S, Scheuermann RH, Schmidt SD, Schotsaert M, Schultz-Cherry S, Seder RA, Sedova M, Sette A, Shabman RS, Shen X, Shi PY, Shukla M, Simon V, Stumpf S, Sullivan NJ, Thackray LB, Theiler J, Thomas PG, Trifkovic S, Türelí S, Turner SA, Vakaki MA, van Bakel H, VanBlargan LA, Vincent LR, Wallace ZS, Wang L, Wang M, Wang P, Wang W, Weaver SC, Webby RJ, Weiss CD, Wentworth DE, Weston SM, Whelan SPJ, Whitener BM, Wilks SH, Xie X, Ying B, Yoon H, Zhou B, Hertz T, Smith DJ, Diamond MS, Post DJ, Suthar MS. Defining the risk of SARS-CoV-2 variants on immune protection. *Nature* 2022; 605:640-652.
45. Figueiredo JC, Hirsch FR, Kushi LH, Nembhard WN, Crawford JM, Mantis N, Finster L, Merin NM, Merchant A, Reckamp KL, Melmed GY, Braun J, McGovern D, Parekh S, Corley DA, Zohoori N, Amick BC, Du R, Gregersen PK, Diamond B, Taioli E, Sariol C, Espino A, Weiskopf D, Gifoni A, Brien J, Hanege W, Lipsitch M, Zidar DA, Scheck McAlearney A, Wajnberg A, LaBaer J, Yvonne Lewis E, Binder RA, Moormann AM, Forconi C, Forrester S, Batista J, Schieffelin J, Kim D, Biancon G, VanOudenhove J, Halene S, Fan R, **Barouch DH**, Alter G, Pinninti S, Boppana SB, Pati SK, Latting M, Karaba AH, Roback J, Sekaly R, Neish A, Brincks AM, Granger DA, Karger AB, Thyagarajan B, Thomas SN, Klein SL, Cox AL, Lucas T, Furr-Holden D, Key K, Jones N, Wrammerr J, Suthar M, Yu Wong S, Bowman NM, Simon V, Richardson LD, McBride R, Krammer F, Rana M, Kennedy J, Boehme K, Forrest C, Granger SW, Heaney CD, Knight Lapinski M, Wallet S, Baric RS, Schifanella L, Lopez M, Fernández S, Kenah E, Panchal AR, Britt WJ, Sanz I, Dhodapkar M, Ahmed R, Bartelt LA,

Markmann AJ, Lin JT, Hagan RS, Wolfgang MC, Skarbinski J. Mission, Organization, and Future Direction of the Serological Sciences Network for COVID-19 (SeroNet) Epidemiologic Cohort Studies. *Open Forum Infect Dis.* 2022; 9:ofac171.

46. Wherry EJ, **Barouch DH**. T cell immunity to COVID-19 vaccines. *Science* 2022; 377:821-822.
47. **Barouch DH**. Covid-19 Vaccines - Immunity, Variants, Boosters. *N Engl J Med.* 2022; 387:1011-1020.

Case Reports

1. **Barouch DH**, Faquin WC, Chen Y, Koralnik IJ, Robbins GK, Davis BT. BKV-associated hemorrhagic cystitis in a human immunodeficiency virus-infected patient. *Clin. Infect. Dis.* 2002; 35:326-329.
2. Marty FM, **Barouch DH**, Coakley EP, Baden LR. Disseminated trichosporonosis caused by *Trichosporon loubieri*. *J. Clin. Microbiol.* 2003; 41:5317-5320.
3. Merchant EA, Flint K, **Barouch DH**, Blair BM. Co-infection with coronavirus disease 2019, previously undiagnosed human immunodeficiency virus, *Pneumocystis jirovecii* pneumonia and cytomegalovirus pneumonitis, with possible immune reconstitution inflammatory syndrome. *IDCases* 2021;24:e01153.

Conference Proceedings

1. **Barouch DH**, Letvin NL. Cytokine-induced augmentation of DNA vaccine-elicited SIV-specific immunity in rhesus monkeys. *Dev. Biol.* 2000; 104:85-92.
2. **Barouch DH**, Fu TM, Montefiori DC, Lewis MG, Shiver JW, Letvin NL. Vaccine-elicited immune responses prevent clinical AIDS in SHIV-89.6P-infected rhesus monkeys. *Immunol. Lett.* 2001; 79:57-61.
3. **Barouch DH**, Letvin NL. Viral evolution and challenges in the development of HIV-1 vaccines. *Vaccine* 2002; 20:A66-A68.
4. **Barouch DH**. Viral escape from CTL responses in vaccinated rhesus monkeys following SHIV or SIV infection. *Retroviruses of Human AIDS and Related Animal Diseases* 2003; 105-108.

Non-Peer Reviewed Publications (Books, Chapters, Editorials)

Books

1. **Barouch DH**. *Voyages in Conceptual Chemistry*. Boston: Jones and Bartlett Publishers; 1997.

Chapters

1. **Barouch DH**, Brainard D, Hurtado R, Eisenberg M. Urinary tract infections. In: Basch EM, Messersmith WA, Birnbaum SL, Garza C (eds.) *The MGH Primer of Outpatient Medicine*. Philadelphia: Lippincott, Williams, and Wilkins; 2002.
2. **Barouch DH**. BK virus infections in humans. In: Schlossberg D (ed.) *MD Consult Infectious Diseases*. Published online: Elsevier; 2003.
3. **Barouch DH**, Baden L, Dolin R. Vaccines for human immunodeficiency virus-1 infection. Chapter 126 (pp. 1707-1719) in: Mandell GL, Bennett JE, Dolin R (eds.) *Principles and Practice of Infectious Diseases, 6th Edition*. New York: Churchill Livingstone; 2004.
4. **Barouch DH**. The blood and lymph. Chapters 9-11 (pp. 125-182) in: Seifter J, Ratner A, Sloane D (eds.) *Concepts in Medical Physiology*. Baltimore: Lippincott, Williams, & Wilkins; 2005.
5. Thorner AR, **Barouch DH**. Therapeutic vaccines. Chapter 31 (pp. 541-546) in: Dolin R, Masur H, Saag M (eds.) *AIDS Therapy, 3rd Edition*. Philadelphia: Elsevier; 2007.
6. Lemckert AAC, Vogels R, Radosevic K, **Barouch DH**, Goudsmit J. Replication-incompetent adenoviral vectors for vaccination. In: Ruiz PS (ed.) *Genetic Vectors Research Focus*. Nova Publishers; 2008.
7. **Barouch DH**, Baden L, Dolin R. Vaccines for human immunodeficiency virus infection. Chapter 130 (pp. 1887-1895) in: Mandell GL, Bennett JE, Dolin R (eds.) *Principles and Practice of Infectious Diseases, 7th Edition*. New York: Churchill Livingstone; 2009.
8. Rhee EG, **Barouch DH**. Adenoviruses. Chapter 143 (pp. 2027-2033) in: Mandell GL, Bennett JE, Dolin R (eds.) *Principles and Practice of Infectious Diseases, 7th Edition*. New York: Churchill Livingstone; 2009.
9. **Barouch DH**, Baden L, Dolin R. Vaccines for human immunodeficiency virus infection. Chapter 132 (pp. 1666-1673) in: Mandell GL, Bennett JE, Dolin R (eds.) *Principles and Practice of Infectious Diseases, 8th Edition*. New York: Churchill Livingstone; 2014.
10. Stephenson KE, Rhee EG, **Barouch DH**. Adenoviruses. Chapter 145 (pp. 1787-1793) in: Mandell GL, Bennett JE, Dolin R (eds.) *Principles and Practice of Infectious Diseases, 8th Edition*. New York: Churchill Livingstone; 2014.
11. Del Rio C, Curran JW, Baden LR, **Barouch DH**. Epidemiology and prevention of AIDS and HIV infection, including preexposure prophylaxis and HIV vaccine development. Chapter 119 (pp. 1599-1618) in: Bennett JE, Dolin R, Blaser MJ (eds.) *Principles and Practice of Infectious Diseases, 9th Edition*. New York: Churchill Livingstone; 2019.

12. Stephenson KE, Rhee EG, **Barouch DH**. Adenoviruses. Chapter 142 (pp. 1908-1915) in: Bennett JE, Dolin R, Blaser MJ (eds.) *Principles and Practice of Infectious Diseases*, 9th Edition. New York: Churchill Livingstone; 2019.

Editorials

1. **Barouch DH**. Modeling the effects of mass vaccination with CTL-based AIDS vaccines. *AIDS Clin. Care* 2004; 16:6-7.
2. **Barouch DH**. Phase 1 clinical trials of two HIV-1 vaccine candidates. *AIDS Clin. Care* 2007; 19:26-28.
3. **Barouch DH**. HIV-1 vaccine candidate ineffective. *AIDS Clin. Care* 2007; 19:93.
4. **Barouch DH**. Bovine adenovirus vectored vaccine for avian influenza. *Mol. Ther.* 2008; 16:807-808.
5. **Barouch DH**. HIV vaccine trial canceled. *AIDS Clin. Care* 2008; 20:69.
6. **Barouch DH**. Identification of new broadly reactive HIV-1-specific monoclonal antibodies. *AIDS Clin. Care* 2010; 22:74-75.
7. **Barouch DH**. Immune correlates of HIV vaccine protection. *AIDS Clin. Care* 2012; 24:44.
8. Julg B, **Barouch DH**. HIV-1 latency by transition. *Immunity* 2017; 47:611-612.
9. **Barouch DH**. A step forward for HIV vaccines. *Lancet HIV* 2018; 5:e338-339.

Theses

1. **Barouch DH**. The interaction between the major and minor coat proteins of polyomavirus. A.B. thesis, Harvard University; 1993.
2. **Barouch DH**. Peptide binding and presentation by HLA-A2. D.Phil. thesis, Oxford University; 1995.
3. **Barouch DH**. Augmentation and suppression of immune responses to an HIV-1 DNA vaccine by cytokines and costimulation. M.D. thesis, Harvard Medical School; 1999.

Narrative Report

My primary academic focus involves translational research in the fields of viral immunology, vaccinology, and therapeutics, as well as training the next generation of physician-scientists. This focus represents the intersection of my clinical interests in infectious diseases and global health and my basic research interests in immunology and virology.

Investigation. My laboratory focuses on studying the immunology and pathogenesis of viral infections and developing novel vaccine and treatment strategies. We have led the development of vaccine candidates for multiple pathogens of global significance, including HIV, Zika virus, tuberculosis, and most recently SARS-CoV-2. We received four NIH U19 Integrated Preclinical/Clinical AIDS Vaccine Development (IPCAVD) program grants in 2005, 2008, 2012, and 2018 to construct adenovirus serotype 26 (Ad26) vectors, mosaic immunogens, and Env proteins and to evaluate these vaccine candidates in preclinical and clinical studies. Phase 3 clinical efficacy trials are underway with our mosaic Ad26/Env vaccine. We applied the Ad26 vector to the development of a SARS-CoV-2 vaccine, which led to the J&J Ad26.COVS.2 vaccine, which is now being rolled out throughout the world. We received two NIH U19/UM1 grants in 2011 and 2016 to establish consortia for innovative AIDS research (CIAR) in nonhuman primates and two NIH UM1 Martin Delaney Collaboratory (MDC) grants in 2016 and 2021 to develop HIV-1 cure strategies. In addition, we received Gates Foundation consortium grants to develop replicating adenovirus vectors, novel Env protein immunogens, broadly neutralizing antibodies, biomarkers for the viral reservoir, animal models for SARS-CoV-2, pan-coronavirus vaccines, and TB vaccines. My group is a key part of the Bill & Melinda Gates Foundation Collaboration for AIDS Vaccine Discovery (CAVD) and the Ragon Institute of MGH, MIT, and Harvard. I currently serve as Director, Center for Virology and Vaccine Research, Beth Israel Deaconess Medical Center and William Bosworth Castle Professor of Medicine and Professor of Immunology, Harvard Medical School. I was elected to the National Academy of Medicine in 2020.

Teaching and Education. I am highly committed to teaching medical students, graduate students, research fellows, clinical fellows, and junior faculty. I have served as an instructor in multiple courses in immunology, virology, and vaccinology at Harvard College, Harvard Medical School, Harvard School of Public Health, and MIT from 2005-Present. I have also served on the HMS Committee on Virology from 2007-Present, on the HMS Committee on Immunology from 2011-Present, the Subcommittee on Admissions for the Harvard-MIT M.D./Ph.D. Program from 2018-Present, and the Committee on Admissions for the Harvard Immunology Program from 2021-Present.

Clinical Activities. I have served on the Infectious Diseases inpatient consultation service at Brigham and Women's Hospital and Beth Israel Deaconess Medical Center for 2-4 weeks per year from 2004-Present.

Summary. My NIH-funded independent research program focuses on translational immunology, vaccine development, and eradication strategies for infectious diseases of global importance such as HIV-1, Zika virus, tuberculosis, and SARS-CoV-2. We have developed molecular solutions to immunologic problems, evaluated novel vaccine concepts and antibodies in animal models, and advanced multiple vaccine candidates into phase 1, phase 2, and phase 3 clinical trials. My bench-to-bedside approach towards virology research involves both basic and clinical investigation. In addition, I maintain a strong commitment to teaching and mentorship and to providing clinical care to patients with infectious diseases.

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Dan H. Barouch

eRA COMMONS USER NAME (credential, e.g., agency login): DANBAROUCH

POSITION TITLE: William Bosworth Castle Professor of Medicine

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Harvard College, Cambridge, MA	A.B.	06/1993	Biochemistry
Oxford University, Oxford, UK	Ph.D.	09/1995	Immunology
Harvard Medical School, Boston, MA	M.D.	06/1999	Medicine
Massachusetts General Hospital, Boston, MA	Resident	07/2001	Medicine
Brigham and Women's Hospital, Boston, MA	Fellow	07/2004	Infectious Diseases

A. Personal Statement

My laboratory focuses on studying the immunology and pathogenesis of viral infections and developing novel vaccine and treatment strategies. We have led the development of vaccine candidates for multiple pathogens of global significance, including HIV, Zika virus, tuberculosis, and SARS-CoV-2. We received four NIH U19 Integrated Preclinical/Clinical AIDS Vaccine Development (IPCAVD) program grants in 2005, 2008, 2012, and 2018 to construct adenovirus serotype 26 (Ad26) vectors, mosaic immunogens, and Env proteins and to evaluate these vaccine candidates in preclinical and clinical studies. Phase 3 clinical efficacy trials are underway with our mosaic Ad26/Env vaccine. We applied the Ad26 vector to the development of a SARS-CoV-2 vaccine, which led to the J&J Ad26.COV2.S vaccine that is now being utilized throughout the world. We received two NIH U19/UM1 grants in 2011 and 2016 to establish consortia for innovative AIDS research (CIAR) in nonhuman primates and two NIH UM1 Martin Delaney Collaboratory (MDC) grants in 2016 and 2021 to develop HIV-1 cure strategies. In addition, we received Gates Foundation consortium grants to develop replicating adenovirus vectors, novel Env protein immunogens, broadly neutralizing antibodies, biomarkers for the viral reservoir, animal models for SARS-CoV-2, pan-coronavirus vaccines, and TB vaccines. My group is a key part of the Bill & Melinda Gates Foundation Collaboration for AIDS Vaccine Discovery (CAVD) and the Ragon Institute of MGH, MIT, and Harvard. I currently serve as Director, Center for Virology and Vaccine Research, Beth Israel Deaconess Medical Center and William Bosworth Castle Professor of Medicine and Professor of Immunology, Harvard Medical School.

UM1 AI164556

Barouch, Dan H.; Mellors, John; Vasan, Sandy (MPI)

08/13/21-04/30/26

Immunotherapy for Cure I4C 2.0

U01 CA260476

Barouch, Dan H. (PI)

09/30/2020-09/29/2025

Immunologic Signatures of SARS-CoV-2 Vaccination and Disease

R01 AI149670

Barouch, Dan H.; Shalek, Alex K. (MPI)

06/01/2020-05/31/2025

Single-Cell Analysis of the HIV/SIV Reservoir

U01 AI145801

Barouch, Dan H.; Juelg, Boris (MPI)

05/01/2020-04/30/2024

Ad26 Based Therapeutic Vaccines for HIV

UM1 AI068614

Corey, Lawrence; Gray, Glenda; Barouch, Dan H.; Tomaras, Georgia (MPI)

12/01/2020-11/30/2027

HIV Vaccines Clinical Trials Network (HVTN) Leadership and Operations Center (LOC)

U19 AI128751

Barouch, Dan H. (PI)

02/01/2018-01/31/2023

Development of Ad26/Env Vaccines for HIV

R01 AI129797

Barouch, Dan H. (PI)

08/01/2017-07/31/2022

Optimization of Broadly Neutralizing Antibodies for HIV Eradication

UM1 AI124377

Barouch, Dan H.; Picker, Louis (MPI)

05/01/2016-04/30/2022

Consortium for Innovative AIDS Research in Nonhuman Primates

B. Positions, Scientific Appointments, and Honors

Positions and Scientific Appointments

2002-2004 Instructor in Medicine, Harvard Medical School, Boston, MA

2004-2006 Assistant Professor of Medicine, Harvard Medical School, Boston, MA

2004- Associate Physician, Brigham and Women's Hospital, Boston, MA

2004- Associate Physician, Dana-Farber Cancer Institute, Boston, MA

2004- Staff Physician, Beth Israel Deaconess Medical Center, Boston, MA

2004-2013 ZRG1 VACC Study Section, HIV Vaccines, NIH/NIAID, Bethesda, MD
Chair (2011-2013), Permanent Member (2008-2011), Temporary Member (2004-2008)

2006-2010 Associate Professor of Medicine, Harvard Medical School, Boston, MA

2009-2012 Chief, Division of Vaccine Research, Beth Israel Deaconess Medical Center, Boston, MA

2009- Director, Vaccine Program and Steering Committee, Ragon Institute, Cambridge, MA

2010- Professor of Medicine, Harvard Medical School, Boston, MA

2012-2015 Associate Immunologist, Massachusetts General Hospital, Boston, MA

2012- Director, Center for Virology and Vaccine Research, Beth Israel Deaconess Medical Center

2015- Immunologist, Massachusetts General Hospital, Boston, MA

2015-2020 Research Associate, CAPRISA, Durban, South Africa

2015- Professor of Immunology, Harvard Medical School, Boston, MA

2020- William Bosworth Castle Professor of Medicine, Harvard Medical School, Boston, MA

2022- Forum on Microbiologic Threats, National Academies, Washington, DC

Honors

1991-1993 Barry M. Goldwater Scholarship

1992 Phi Beta Kappa, Harvard College

1993 Lawrence J. Henderson Prize, Department of Biochemistry, Harvard College

1993 Thomas T. Hoopes Prize, Harvard College

1993 A.B. *summa cum laude*, Harvard College

1993-1995 British Marshall Scholarship

1996 Certificate of Distinction in Teaching, Harvard College

1999 Soma Weiss Research Award, Harvard Medical School

1999 Leon Reznick Memorial Prize, Harvard Medical School

1999 M.D. *summa cum laude*, Harvard Medical School

2002 Partners in Excellence Award, Mass. General Hospital, Brigham & Women's Hospital, Boston, MA

2004	Maxwell Finland Young Investigator Award, Massachusetts Infectious Diseases Society
2009	American Society for Clinical Investigation (ASCI)
2010	Sir William Osler Young Investigator Award, Interurban Clinical Club
2012	Oswald Avery Award, Infectious Diseases Society of America
2013	Association of American Physicians (AAP)
2015	Eagleson Lecture Award, ABSA
2015	World's Most Highly Cited Researchers, Thomson Reuters
2015	Distinguished Speaker, Walter Reed Army Institute of Research (WRAIR)
2015-2022	Highly Cited Researcher, Clarivate Analytics
2016	Medical All-Star, Boston Red Sox
2016	Honorary Researcher, Centre de Recherche, Centre Hospitalier de l'Université de Montréal
2016	Bostonian of the Year 2016, Boston Globe Magazine
2017	Cannon Eley Lectureship, Boston Children's Hospital
2017	Investigator of the Year, Massachusetts Society for Medical Research
2017	Official Citation, Massachusetts House of Representatives and Massachusetts Senate
2017	Drexel Prize in Immunology, Drexel University College of Medicine
2019	Best Academic Research Team, World Vaccine Congress
2020	National Academy of Medicine
2020	Bloomberg 50 Most Influential People, Bloomberg Businessweek
2021	Susan Swerling Lectureship, Dana-Farber Cancer Institute
2021	Global Citizen Hero, American Red Cross
2021	STAT Madness Winner, Editor's Pick, STAT News
2021	Ray Stata Leadership and Innovation Award, Massachusetts High Technology Council
2021	George Ledlie Prize, Harvard University
2021	COVID-19 Vaccine Superhero, Johnson & Johnson
2021	Heroes Among Us Award, Boston Celtics
2021	Bostonian of the Year 2021, Boston Globe Magazine
2022	Franklin Epstein Lectureship, Beth Israel Deaconess Medical Center
2022	Bernard Fields Lectureship, Conference on Retroviruses and Opportunistic Infections (CROI)
2022	Stanley Plotkin Lectureship, Fondation Merieux, Annecy, France
2022	Daniel Jick Excellence in Leadership Award, Beth Israel Deaconess Medical Center

C. Contributions to Science

1. HIV/SIV Vaccines and Prevention. We developed and evaluated novel adenovirus vectors and mosaic HIV immunogens to address the challenge of global HIV diversity. These vaccines have been evaluated in challenge studies in rhesus macaques and human efficacy trials. We have also evaluated antiretroviral drugs as long-acting pre-exposure prophylaxis in macaques.

- a. **Barouch DH**, Kunstman J, Kuroda MJ, Schmitz JE, Santra S, Peyerl FW, Krivulka GR, Beaudry K, Lifton MA, Gorgone DA, Montefiori DC, Lewis MG, Wolinsky SM, Letvin NL. Eventual AIDS vaccine failure in a rhesus monkey by viral escape from cytotoxic T lymphocytes. *Nature* 2002; 415:335-339.
- b. Liu J, O'Brien KL, Lynch DM, Simmons NL, La Porte A, Riggs AM, Abbink P, Coffey RT, Grandpre LE, Seaman MS, Landucci G, Forthal DN, Montefiori DC, Carville A, Mansfield KG, Havenga MJ, Pau MG, Goudsmit J, **Barouch DH**. Immune control of an SIV challenge by a T-cell-based vaccine in rhesus monkeys. *Nature* 2009; 457:87-91. PMC2614452.
- c. **Barouch DH**, Liu J, Li H, Maxfield LF, Abbink P, Lynch DM, Iampietro MJ, SanMiguel A, Seaman MS, Ferrari G, Forthal DN, Ourmanov I, Hirsch VM, Carville A, Mansfield KG, Stablein D, Pau MG, Schuitemaker H, Sadoff JC, Billings EM, Rao M, Robb ML, Kim JH, Marovich MA, Goudsmit J, Michael NL. Vaccine protection against acquisition of neutralization-resistant SIV challenges in rhesus monkeys. *Nature* 2012; 482:89-93. PMC3271177.
- d. Vidal SJ, Bekerman E, Hansen D, Lu B, Wang K, Mwangi J, Rowe W, Campigotto F, Zheng J, Kato D, Chandrashekar A, Barrett J, Patel S, Wan H, Anioke T, Mercado NB, Nkolola JP, Ferguson MJ, Rinaldi WJ, Callebaut C, Blair W, Cihlar T, Geleziunas R, Yant SR, **Barouch DH**. Long-acting capsid inhibitor protects macaques from repeat SHIV challenges. *Nature* 2022; 601:612-616. PMC8753592.

2. HIV/SIV Pathogenesis and Eradication Strategies. We showed that the SIV reservoir is seeded early during acute infection, and we demonstrated therapeutic efficacy of neutralizing antibodies and therapeutic vaccines in SHIV-infected rhesus macaques, including clearance of early distal foci of virus in tissues.

- a. Whitney JB, Hill AL, Sanisetty S, Penaloza-MacMaster P, Liu J, Shetty M, Parenteau L, Cabral C, Shields J, Blackmore S, Smith JY, Brinkman AL, Peter LE, Mathew SI, Smith KM, Borducchi EN, Rosenbloom DIS, Lewis MG, Hattersley J, Li B, Hesselgesser J, Geleziunas R, Robb ML, Kim JH, Michael NL, **Barouch DH**. Rapid seeding of the viral reservoir prior to SIV viraemia in rhesus monkeys. *Nature* 2014; 512:74-77. PMC4126858.
- b. Liu J, Ghneim K, Sok D, Bosche WJ, Li Y, Chipriano E, Berkemeier B, Oswald K, Borducchi E, Cabral C, Peter L, Brinkman A, Shetty M, Jimenez J, Mondesir J, Lee B, Giglio P, Chandrashekar A, Abbink P, Colantonio A, Gittens C, Baker C, Wagner W, Lewis MG, Li W, Sekaly RP, Lifson JD, Burton DR, **Barouch DH**. Antibody-mediated protection against SHIV challenge includes systemic clearance of distal virus. *Science* 2016; 353:1045-1049. PMC5237379.
- c. Borducchi EN, Cabral C, Stephenson KE, Liu J, Abbink P, Ng'ang'a D, Nkolola JP, Brinkman AL, Peter L, Lee BC, Jimenez J, Jetton D, Mondesir J, Mojta S, Chandrashekar A, Molloy K, Alter G, Gerold JM, Hill AL, Lewis MG, Pau MG, Schuitemaker H, Hesselgesser J, Geleziunas R, Kim JH, Robb ML, Michael NL, **Barouch DH**. Ad26/MVA therapeutic vaccination with TLR7 stimulation in SIV-infected rhesus monkeys. *Nature* 2016; 540:284-287. PMC5145754.
- d. Borducchi EN, Liu J, Nkolola JP, Cadena AM, Yu WH, Fischinger S, Broge T, Abbink P, Mercado NB, Chandrashekar A, Jetton D, Peter L, McMahan K, Moseley ET, Bekerman E, Hesselgesser J, Li W, Lewis MG, Alter G, Geleziunas R, **Barouch DH**. Antibody and TLR7 agonist delay viral rebound in SHIV-infected monkeys. *Nature* 2018; 563:360-364. PMC6237629.

3. Zika Virus Immunology and Vaccine Development. We demonstrated the first proof-of-concept evidence of protection by Zika vaccine candidates in mice and rhesus macaques by DNA vaccines, adenovirus vectors, and inactivated virus vaccines, including prevention of fetal neuropathology in Zika-infected rhesus macaques.

- a. Larocca RA, Abbink P, Peron JP, Zanotto PM, Iampietro MJ, Badamchi-Zadeh A, Boyd M, Ng'ang'a D, Kirilova M, Nityanandam R, Mercado NB, Li Z, Moseley ET, Bricault CA, Borducchi EN, Giglio PB, Jetton D, Neubauer G, Nkolola JP, Maxfield LF, De La Barrera RA, Jarman RG, Eckels KH, Michael NL, Thomas SJ, **Barouch DH**. Vaccine protection against Zika virus from Brazil. *Nature* 2016; 536:474-478. PMC5003703.
- b. Abbink P, Larocca RA, De La Barrera RA, Bricault CA, Moseley ET, Boyd M, Kirilova M, Li Z, Ng'ang'a D, Nanayakkara O, Nityanandam R, Mercado NB, Borducchi EN, Agarwal A, Brinkman AL, Cabral C, Chandrashekar A, Giglio PB, Jetton D, Jimenez J, Lee BC, Mojta S, Molloy K, Shetty M, Neubauer GH, Stephenson KE, Peron JP, Zanotto PM, Misamore J, Finneyfrock B, Lewis MG, Alter G, Modjarrad K, Jarman RG, Eckels KH, Michael NL, Thomas SJ, **Barouch DH**. Protective efficacy of multiple vaccine platforms against Zika virus challenge in rhesus monkeys. *Science* 2016; 353:1129-1132. PMC5237380.
- c. Aid M, Abbink P, Larocca RA, Boyd M, Nityanandam R, Nanayakkara O, Martinot AJ, Moseley ET, Blass E, Borducchi EN, Chandrashekar A, Brinkman AL, Molloy K, Jetton D, Tartaglia LJ, Liu J, Best K, Perelson AS, De La Barrera RA, Lewis MG, **Barouch DH**. Zika virus persistence in the central nervous system and lymph nodes of rhesus monkeys. *Cell* 2017; 169:610-620. PMC5426912.
- d. Martinot AJ, Abbink P, Afacan O, Prohl AK, Bronson R, Hecht JL, Borducchi EN, Larocca RA, Peterson RL, Rinaldi W, Ferguson M, Didier PJ, Weiss D, Lewis MG, De La Barrera RA, Yang E, Warfield SK, **Barouch DH**. Fetal neuropathology in Zika virus-infected pregnant female rhesus monkeys. *Cell* 2018; 173:1111-1122. PMC5959775.

4. SARS-CoV-2 Immunology and Vaccine Development. We demonstrated early proof-of-concept evidence of natural immunity and vaccine immunity against SARS-CoV-2 in rhesus macaques. We also showed that both antibody and T cell responses correlate of protection. In addition, we demonstrated that optimization of non-coding regions can improve mRNA vaccines against SARS-CoV-2.

- a. Chandrashekar A, Liu J, Martinot AJ, McMahan K, Mercado NB, Peter L, Tostanoski LH, Yu J, Maliga Z, Nekorchuk M, Busman-Sahay K, Terry M, Wrijil LM, Ducat S, Martinez DR, Atyeo C, Fischinger S, Burke JS, Slein MD, Pessaint L, Van Ry A, Greenhouse J, Taylor T, Blade K, Cook A, Finneyfrock B, Brown R, Teow E, Velasco J, Zahn R, Wegmann F, Abbink P, Bondzie EA, Dagotto G, Gebre MS, He X, Jacob-Dolan C, Kordana N, Li Z, Lifton MA, Mahrokhian SH, Maxfield LF, Nityanandam R, Nkolola JP, Schmidt AG, Miller AD, Baric RS, Alter G, Sorger PK, Estes JD, Andersen H, Lewis MG, **Barouch**

DH. SARS-CoV-2 infection protects against rechallenge in rhesus macaques. *Science* 2020; 369:812-817. PMC7243369.

- b. Mercado NB, Zahn R, Wegmann F, Loos C, Chandrashekar A, Yu J, Liu J, Peter L, McMahan K, Tostanoski LH, He X, Martinez DR, Rutten L, Bos R, van Manen D, Vellinga J, Custers J, Langedijk JP, Kwaks T, Bakkens MJG, Zuijdgeest D, Rosendahl Huber SK, Atyeo C, Fischinger S, Burke JS, Feldman J, Hauser BM, Caradonna TM, Bondzie EA, Dagotto G, Gebre MS, Hoffman E, Jacob-Dolan C, Kirilova M, Li Z, Lin Z, Mahrokhian SH, Maxfield LF, Nampanya F, Nityanandam R, Nkolola JP, Patel S, Ventura JD, Verrington K, Wan H, Pessaint L, Van Ry A, Blade K, Strasbaugh A, Cabus M, Brown R, Cook A, Zouantchangadou S, Teow E, Andersen H, Lewis MG, Cai Y, Chen B, Schmidt AG, Reeves RK, Baric RS, Lauffenburger DA, Alter G, Stoffels P, Mammen M, Van Hoof J, Schuitemaker H, **Barouch DH.** Single-shot Ad26 vaccine protects against SARS-CoV-2 in rhesus macaques. *Nature* 2020;586:583-588. PMC7581548.
- c. McMahan K, Yu J, Mercado NB, Loos C, Tostanoski LH, Chandrashekar A, Liu J, Peter L, Atyeo C, Zhu A, Bondzie EA, Dagotto G, Gebre MS, Jacob-Dolan C, Li Z, Nampanya F, Patel S, Pessaint L, Van Ry A, Blade K, Yalley-Ogunro J, Cabus M, Brown R, Cook A, Teow E, Andersen H, Lewis MG, Lauffenburger DA, Alter G, **Barouch DH.** Correlates of protection against SARS-CoV-2 in rhesus macaques. *Nature*. 2021;590:630-634. PMC7906955.
- d. Gebre MS, Rauch S, Roth N, Yu J, Chandrashekar A, Mercado NB, He X, Liu J, McMahan K, Martinot A, Martinez DR, Giffin V, Hope D, Patel S, Sellers D, Sanborn O, Barrett J, Liu X, Cole AC, Pessaint L, Valentin D, Flinchbaugh Z, Yalley-Ogunro J, Muench J, Brown R, Cook A, Teow E, Andersen H, Lewis MG, Boon ACM, Baric RS, Mueller SO, Petsch B, Barouch DH. Optimization of non-coding regions for a non-modified mRNA COVID-19 vaccine. *Nature* 2022; 601:410-414. PMC8770133.

5. SARS-CoV-2 Clinical Vaccine Studies. We demonstrated both humoral and cellular immune responses to Ad26.COV2.S and differential immune kinetics of the BNT162b2, mRNA-1273, and Ad26.COV2.S vaccines in humans. We also showed substantial antibody evasion but conserved T cell recognition of SARS-CoV-2 variants.

- a. Collier AY, Yu J, McMahan K, Liu J, Chandrashekar A, Maron JS, Atyeo C, Martinez DR, Ansel JL, Aguayo R, Rowe M, Jacob-Dolan C, Sellers D, Barrett J, Ahmad K, Anioke T, VanWyk H, Gardner S, Powers O, Bondzie EA, Wan H, Baric RS, Alter G, Hacker MR, **Barouch DH.** Differential kinetics of immune responses elicited by Covid-19 vaccines. *N Engl J Med* 2021; 385:2010-2012. PMC8531985.
- b. Alter G, Yu J, Liu J, Chandrashekar A, Borducchi EN, Tostanoski LH, McMahan K, Jacob-Dolan C, Martinez DR, Chang A, Anioke T, Lifton M, Nkolola J, Stephenson KE, Atyeo C, Shin S, Fields P, Kaplan I, Robins H, Amanat F, Krammer F, Baric RS, Le Gars M, Sadoff J, de Groot AM, Heerwegh D, Struyf F, Douoguih M, van Hoof J, Schuitemaker H, **Barouch DH.** Immunogenicity of Ad26.COV2.S vaccine against SARS-CoV-2 variants in humans. *Nature* 2021; 596:268-272. PMC8357629.
- c. Liu J, Chandrashekar A, Sellers D, Barrett J, Jacob-Dolan C, Lifton M, McMahan K, Sciacca M, VanWyk H, Wu C, Yu J, Collier AY, **Barouch DH.** Vaccines elicit highly conserved cellular immunity to SARS-CoV-2 Omicron. *Nature* 2022; 603:493-496. PMC8930761.
- d. Hachmann NP, Miller J, Collier AY, Ventura JD, Yu J, Rowe M, Bondzie EA, Powers O, Surve N, Hall K, **Barouch DH.** Neutralization Escape by SARS-CoV-2 Omicron Subvariants BA.2.12.1, BA.4, and BA.5. *N Engl J Med.* 2022; 387:86-88. PMC9258748.

Complete List of Published Work in MyBibliography (411 peer-reviewed publications):

<https://www.ncbi.nlm.nih.gov/myncbi/dan.barouch.1/bibliography/public/>