



# HIV Vaccines

March 26–30, 2017 | Sheraton Steamboat | Steamboat Springs, Colorado | USA

*Scientific Organizers:*

**Andrew B. Ward**, The Scripps Research Institute, USA

**Penny L. Moore**, National Institute for Communicable Diseases, South Africa

**Robin Shattock**, Imperial College London, UK

*Part of the Keystone Symposia Global Health Series, supported by the Bill & Melinda Gates Foundation*

*Despite great progress in preventing and treating HIV, new infections continue to plague communities around the world, and the need for an HIV vaccine is as urgent as ever. Several large cohorts of HIV-infected individuals have enabled tremendous advances over the past five years in understanding immune responses to natural HIV infection. These advances have included the isolation of broad and potent anti-HIV antibodies, defining their developmental pathways, the generation of native-like Env trimers for immunization, and high-resolution structures of the envelope glycoprotein in complex with bnAbs. By 2017, many of these discoveries will have enabled new concepts to transition into human clinical trials, including passive monoclonal antibody therapy and novel immunization approaches. These platforms, incorporating improved technology for monitoring immune responses, will drive major advances in the vaccine field. This HIV Vaccines meeting will present the latest results from human clinical studies, along with the cutting-edge basic science behind such trials to highlight approaches that may lead to an HIV vaccine, and also reveal the molecular underpinnings of B and T cell-mediated immunity.*


*Session Topics:*

- Emerging Data
  - Lessons from Animal Vaccinations
  - B and T- Cells
  - Adjuvants and Delivery Systems
  - Human Clinical Trials
  - Transmission Biology
  - Lessons from Natural Infection
  - Immunogen Platforms
- plus two workshops*

**Scholarship Application & Discounted Abstract Deadline: November 29, 2016**

**Abstract Deadline: January 10, 2017**

**Discounted Registration Deadline: January 24, 2017**



Note: Scholarships are available for graduate students and postdoctoral fellows and are awarded based on the abstract submitted. Global Health Travel Awards are for investigators from low and middle income countries.

*Upper image of B12 antibody courtesy of NIAID, NIH*

Meeting Hashtag: #KShivvax

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### SUNDAY, MARCH 26

#### Arrival and Registration

### MONDAY, MARCH 27

#### Welcome and Keynote Address

\***Andrew B. Ward**, The Scripps Research Institute, USA  
**Nina Russell**, Bill & Melinda Gates Foundation, USA  
*HIV Vaccines - The Year in Review*

#### New Paradigms in Active and Passive Immunization

\***Andrew B. Ward**, The Scripps Research Institute, USA  
**Michel C. Nussenzweig**, HHMI/Rockefeller University, USA  
*Passive Protection with 3BNC117*  
**K. Rachael Parks**, University of Washington, USA  
*Short Talk: Optimizing the Expansion of Primary VRC01 Antibody Responses by Germline-Targeting Immunogens*  
**Todd C. Bradley**, Duke University Medical Center, USA  
*Short Talk: Immune Checkpoint Inhibitor Co-Administration with HIV Env Modifies the Antibody Repertoire*

**Alejandro Balazs**, Massachusetts General Hospital, USA  
*Development of Vectored ImmunoProphylaxis and ImmunoTherapy against HIV Infection*

**Jonah B. Sacha**, Oregon Health & Science University, USA  
*Cross-Species CMV Vaccination Reveals Viral Determinants for Induction of Non-Classical MHC-E-Restricted T Cells*

#### Workshop 1: Structural and Mechanistic Insights into Neutralization

\***Ian A. Wilson**, The Scripps Research Institute, USA  
**Kimmo Rantalainen**, The Scripps Research Institute, USA  
*Structure of Full-Length HIV Envelope in Complex with PGT151*  
**Raiees Andrabi**, The Scripps Research Institute, USA  
*Glycans as Anchors for Inducing HIV Broadly Neutralizing Antibodies*  
**Sasha Murrell**, The Scripps Research Institute, USA  
*Structural Investigation of A Novel Family of Broadly Neutralizing Antibodies that Target the N332 Supersite in HIV Env*  
**Evan M. Cale**, NIAID, National Institutes of Health, USA  
*Isolation of an HIV-1-Specific Neutralizing Antibody Lineage with Similar Characteristics to the gp41-gp120 Interface-Binding Antibody 35O22*  
**Gwo-Yu Chuang**, NIAID, National Institutes of Health, USA  
*Optimization of HIV-1 Broadly Neutralizing Antibodies by Surface-Matrix Scanning*  
**Till Schoofs**, Rockefeller University, USA  
*Antibody 10-1074 Suppresses Viremia in HIV-1 Infected Individuals*  
**Ryan Meyerhoff**, Duke University, USA  
*Induction of Antibodies Targeting the V3 Glycan Broadly Neutralizing Epitope in Rhesus Macaques using a Synthetic Immunogen*

#### Lessons from Animal Vaccinations

\***Rogier W. Sanders**, Weill Medical College of Cornell University, USA  
**Paul Kellam**, Kymab, UK  
*Mice with Fully Human Immunoglobulin Loci and their Use for Predictive Vaccine Antigen Discovery*  
**Maria Blasi**, Duke University Medical Center, USA  
*Short Talk: Sequential Immunizations with an Integrase Defective LentiVector Induce Higher Magnitude and More Durable Antibody Responses than DNA and Protein Based Vaccine Regimens*  
**Nancy L. Haigwood**, Oregon Health & Science University, USA  
*Passive and Active Studies in Primate Models to Inform HIV Vaccines*  
**Peter D. Kwong**, NIAID, National Institutes of Health, USA  
*Short Talk: Peptide-Coupled Carrier Proteins to Focus the Immune Response to an HIV-1 Site of Vulnerability*  
**Andrew B. Ward**, The Scripps Research Institute, USA  
*Structures of HIV Neutralizing Antibodies Elicited from Animal Immunization with SOSIP Env Trimers*

#### Poster Session 1

### TUESDAY, MARCH 28

#### B and T Cells

\***Barton F. Haynes**, Duke University Medical Center, USA  
**Gunilla B. Karlsson Hedestam**, Karolinska Institutet, Sweden  
*Individualized Profiling of Germline V Genes and Application to Env Trimer Immunogenicity Studies in NHPs*  
**Thomas B. Kepler**, Boston University, USA  
*B Cell Clonal Dynamics during Sequential Immunizations*  
**Sabrina Helmold**, NCI, National Institutes of Health, USA  
*Short Talk: Dynamics of T Follicular Helper Cells and Germinal Center B Cells over the Course of Vaccination in Rhesus Macaques*  
**Stephen J. Kent**, University of Melbourne, Australia  
*ADCC and Beyond*  
**Colin Havenar-Daughton**, La Jolla Institute of Allergy and Immunology, USA  
*Short Talk: Germinal Centers Correlate with HIV Trimer-Induced Neutralizing Antibody Induction and Inform Improved Immunization Scheduling for Maximizing HIV Neutralizing Antibody Responses*  
**Marie Pancera**, Fred Hutchinson Cancer Research Center, USA  
*Short Talk: Anti-Idiotypic Antibodies against Inferred Germline b12, a CD4 Binding Site Antibody, as Tools for Detection of Naïve B Cells Expressing Germline b12-like Precursors and Rational Immunogen Design*

#### Hands-On Computer Session on Los Alamos Sequence Database

#### Adjuvants and Delivery Systems

\***Robin Shattock**, Imperial College London, UK  
**Carl R. Alving**, Walter Reed Army Institute of Research, USA  
*Rational Basis for Creation and Selection of Adjuvant Formulations for HIV-1 Vaccines*  
**Mark T. Orr**, Infectious Disease Research Institute, USA  
*Tailoring Vaccine Responses with Formulated TLR Agonist Adjuvants*

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**James J. Kobie**, University of Rochester, Medical Center, USA  
*Short Talk: IL-33 Enhances the Induction, Durability, and Breadth of the Antibody Response to a DNA/Protein-Based HIV Env Vaccine*

**Darrell J. Irvine**, Massachusetts Institute of Technology, USA  
*Regulation of the Germinal Center Reaction and Humoral Response by Vaccine Kinetics*

### Poster Session 2

#### WEDNESDAY, MARCH 29

##### Human Clinical Trials

\***Gabriella Scarlatti**, Global HIV Vaccine Enterprise, USA

**Mark B. Feinberg**, IAVI International AIDS Vaccine Initiative, USA  
*Expediting Ebola Vaccine Development and Implications for HIV Vaccine R&D Efforts*

**Alberto Cagigi**, NIAID, National Institutes of Health, USA  
*Short Talk: Potential for Immunization with eOD-GT8 to Drive B Cell Responses Toward the Production of CD4bs Antibodies*

**Barton F. Haynes**, Duke University Medical Center, USA  
*Testing the Concept of B Cell Lineage Immunogen Design for Initiation of Broadly Neutralizing B Cell Lineages in Human Clinical Trials*

**Kelly E. Seaton**, Duke Human Vaccine Institute, USA  
*Short Talk: Individual-level meta-analysis of HIV-1 Vaccine Elicited Mucosal Antibodies in Human Volunteers*

**M. Juliana McElrath**, Fred Hutchinson Cancer Research Center, USA  
*Induction of HIV-Specific Immunity with Recent Clinical Vaccine Approaches*

**Robin Shattock**, Imperial College London, UK  
*DNA Vaccination for Experimental Medicine Trials of HIV Vaccines*

##### Hands-On Computer Session on Los Alamos Immunology Database

##### Lessons from Infection

\***Penny L. Moore**, University of the Witwatersrand and National Institute for Communicable Diseases, South Africa

**Thumbi Ndung'u**, University of KwaZulu-Natal, South Africa  
*Antiretroviral Treatment of Acute HIV Infection and the Prospect for a Functional Cure*

**Christiane Moog**, INSERM and Université of Strasbourg, France  
*Short Talk: Unexpected Antibody Isotypes and Neutralizing Profile in Patients Controlling HIV*

**Julie M. Overbaugh**, Fred Hutchinson Cancer Research Center, USA  
*Unique Aspects of the Infant HIV-Specific Neutralizing Antibody Response*

**Alexandra Trkola**, University of Zürich, Switzerland  
*Determinants of bnAb Development*

### Poster Session 3

#### THURSDAY, MARCH 30

##### Broadly Neutralizing Antibodies: Hurdles and Opportunities

\***Alexandra Trkola**, University of Zürich, Switzerland

**Penny L. Moore**, University of the Witwatersrand and National Institute for Communicable Diseases, South Africa  
*Longitudinal Studies of Neutralizing Antibody Development in the CAPRISA Cohort*

**Kshitij Wagh**, Los Alamos National Laboratory, USA  
*Short Talk: Env Glycan Holes Negatively Impact Development of Heterologous Neutralization Breadth in HIV-1 Infections*

**Brandon DeKosky**, University of Kansas, USA  
*Short Talk: High-Throughput Paired Heavy and Light Chain Analyses of HIV Broadly Neutralizing Antibody Lineages*

**Elise Landais**, International AIDS Vaccine Initiative, USA  
*Broadly Neutralizing Antibodies to HIV-1: Lessons from Protocol C Studies*

**Wilton Bryan Williams**, Duke University, USA  
*Short Talk: SHIV-CH505 Infection of Rhesus macaques Recapitulates HIV-1 Env-Antibody Evolution in Humans*

**Samantha Leigh Grimley**, San Diego Biomedical Research Institute, USA  
*Short Talk: Striking Impact of HIV-1 Envelope Glycoengineering on BnAb Sensitivities*

**Nicole A. Doria-Rose**, NIAID, National Institutes of Health, USA  
*Tracing Virus-Antibody Co-Evolution of MPER-directed Neutralizing Antibodies*

##### Workshop 2: Testing Vaccine Platforms in Animals

\***Richard T. Wyatt**, IAVI Neutralizing Antibody Center at The Scripps Research Institute, USA

**Diane L. Bolton**, US Military HIV Research Program, WRAIR, USA  
*Immunogenicity and Efficacy of MVA, gp145 Vaccination Against Heterologous Tier 2 SHIV C Challenge in Rhesus*

**Qifeng Han**, Duke University, USA  
*HIV gp41 Immunodominance Following gp140 Immunization Occurs in Humans but is Not Detected in Rhesus Macaques*

**Mattias Forsell**, Umeå University, Sweden  
*Autologous But Not Heterologous Antibodies Negatively Regulate Subunit-Specific Germinal Center B Cell Responses to the HIV-1 Envelope Glycoproteins*

**Matthias Pauthner**, The Scripps Research Institute, USA  
*Optimized Env Trimer Immunization Parameters Amplify Onset, Magnitude and Consistency of Autologous Tier 2 Neutralizing Antibody Development in Nonhuman Primates*

**Paola Andrea Martinez**, Karolinska Institutet, Sweden  
*F9, A New Class of Antibody that Neutralizes Autologous Tier 2 Viruses in Rhesus Immunized with Liposome Conjugated Well-Ordered Trimers*

**Jose Maximiliano Medina-Ramirez**, University of Amsterdam, Netherlands  
*A Native-Like Envelope Trimer with Enhanced Binding of Inferred Germline Precursors of Broadly Neutralizing HIV-1 Antibodies*

**James E. Voss**, The Scripps Research Institute, USA  
*Reproducible Elicitation of HIV Envelope V2-Apex Focused Neutralizing Antibodies in Rabbits*

##### Immunogen Platforms

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\***Peter D. Kwong**, NIAID, National Institutes of Health, USA

**Jon Steichen**, The Scripps Research Institute, USA

*HIV Vaccine Design to Target Germline Precursors of N332-Dependent Broadly Neutralizing Antibodies*

**Neil P. King**, University of Washington, USA

*Design of Novel Self-Assembling Protein Nanomaterials as Next-Generation Vaccine Scaffolds*

**Rogier W. Sanders**, Weill Medical College of Cornell University, USA

*Inducing HIV-1 Neutralizing Antibodies with Native-Like Envelope Trimers*

**Meeting Wrap-Up: Outcomes and Future Directions (Organizers)**

**FRIDAY, MARCH 31**

**Departure**