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.

Meeting Hashtag: #KShivvax
www.keystonesymposia.org/17C9
Welcome and Keynote Address

**MONDAY, MARCH 27**

**Arrival and Registration**

**Welcome and Keynote Address**

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

*Nina D. 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 3BCN117

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 Rantalaainen, 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

Evans M. Calle, 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*, University of Amsterdam and Weill Cornell Medical College, Netherlands

Paul Kellam, Kymab, UK

Mice with Fully Human Immunoglobulin Locis and their Use for Predictive Vaccine Antigen Discovery

Maria Blasi, Duke University Medical Center, USA

Short Talk: Sequential Immunizations with an Integrate 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 for Immunology, USA

Short Talk: Germlinal 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-Idiotype Antibodies against Inferred Germline b12, a CD4 Binding Site Antibody, as Tools for Detection of Naive 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

Cari 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

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 Germline Precursors of Broadly Neutralizing HIV-1 Antibodies

**Poster Session 2**

**WEDNESDAY, MARCH 29**

**Human Clinical Trials**

*Gabriella Scarlatti*, Global HIV Vaccine Enterprise, USA
**Short Talk: Individual-level meta-analysis of HIV-1 Vaccine Elicited Mucosal Antibodies in Human Volunteers**

Mark B. Foinberg, IAVI International AIDS Vaccine Initiative, USA
**Expanding 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: Indirect ELISPOT assays of HIV-1-specific cytotoxic T lymphocytes**

M. Juliana McClain, Fred Hutchinson Cancer Research Center, USA
**Induction of HIV-Specific Humoral 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
**Short Talk: Unexpected Antibody Isotypes and Neutralizing Profile in Patients Controlling HIV**

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 de 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
**Short Talk: Determinants of Antibody B Cell Lineages in Human Clinical Trials**

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 B. 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*, The Scripps Research Institute, USA
**Short Talk: Striking Impact of HIV-1 Envelope Glycoengineering on BnAb Sensitivities**

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 Georg 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 Trimmers**

Jose Maximilliano 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**

* Session Chair † Invited but not yet accepted  Program current as of October 14, 2019. Program subject to change. Meal formats are based on meeting venue. For the most up-to-date details, visit www.keystonesymposia.org/17C9.
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, University of Amsterdam and Weill Cornell Medical College, Netherlands
Inducing HIV-1 Neutralizing Antibodies with Native-Like Envelope Trimers

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

FRIDAY, MARCH 31
Departure