**SUNDAY, MARCH 22**

Arrival and Registration

**MONDAY, MARCH 23**

Welcome and Keynote Session (Joint)

M. Juliana McElrath, Fred Hutchinson Cancer Research Center, USA
Accelerating HIV Vaccine Development to Prevent HIV Infection

Bruce D. Walker, Ragon Institute of MGH, MIT and Harvard, USA
I am Nothing Without You: the rationale for T cell plus B cell vaccines for HIV

Breakthrough Technologies (Joint)

Lotta von Boehmer, Stanford University, USA
Talk Title to be Announced

Guillaume J. Filion, Centre of Genomic Regulation, Spain
What Have We Learned from HIV-Barcodeing Technologies?

Sara Cristinelli, University of Lausanne, Switzerland
Short Talk: Characterization of the Epitranscriptomic Landscape of HIV-Infected Cells

Liang Shan, Washington University in St. Louis, USA
Short Talk: Development of Next-Generation Humanized Mouse Models for HIV-1 Cure Research

Christopher A. Cottrell, The Scripps Research Institute, USA
Short Talk: Coupling Cryo-Electron Microscopy Polyclonal Epitope Mapping (cryoEMPEM) with BCR Next-Gen Sequencing Provides the Molecular Details Necessary to Guide Iterative Structure-Based Immunogen Design

Workshop 1: Structure-Informed Vaccine Design (X5)

Payal P. Pratap, The Scripps Research Institute, USA
Using Electron Microscopy Polyclonal Epitope Mapping to Guide Iterative Structure-Based HIV Vaccine Design

Kim-Marie Dam, California Institute of Technology, USA
Cryo-EM Structure of a BG24 Infected Germline Precursor Bound to an Engineered SOSIP-Based Immunogen Provides Insight for Vaccine Design Strategies

Ryan S. Roark, University of Pennsylvania, USA
Isolation and Characterization of a Novel Rhesus HIV-1 V2 Apex Targeted Broadly Neutralizing Antibody with Structural Similarity to PGT145

Rory Henderson, Duke University, USA
Structural Characterization of Affinity Maturation in the HIV-1 Glycan-V3 DH270 Broadly Neutralizing Antibody B Cell Lineage

Tongqin Zhou, NIAID, National Institutes of Health, USA
Structural Basis of Neutralizing Antibodies Targeting the CD4-Binding Site and Fusion Peptide Elicited by Immunization with Heterologous HIV-1 Env in NHP

Aleksandar Antanasijevic, The Scripps Research Institute, USA
Characterization of Antibody Responses against Stabilized BG505 SOSIP Trimer Immunogens in Non-Human Primates by EMPEM

Morgan Elizabeth Abernathy, Caltech, USA
Structural Studies of HIV-1 Antibodies Elicited by Immunization in Rhesus Macaques

Sameer Kumar Malladi, Indian Institute of Science, India
One Step Computational Stabilization of HIV-1 Envelope gp140

Workshop 1: HIV Pathogenesis and Cure (X6)

Emily Hsieh, University of Washington, USA
Identifying HIV-1 Latency Maintenance Factors Using a High-Throughput, Combination CRISPR Screen

Saba Valadkhani, Case Western Reserve University, USA
HIV Infection Leads to the Induction of Quiescence Pathways and Entry into Latency

Benjamin K. Chen, Mount Sinai School of Medicine, USA
Single Cell RNA Sequencing Reveals Transcriptional Heterogeneity in HIV-1 Infected CD4+ T Cells in a Reservoir-Marking Humanized Mouse Model

Chantelle L. Ahlenstiel, Kirby Institute, University of New South Wales, Australia
RNA-Directed Epigenetic Silencing Protects Humanized Mice during HIV Challenge and Delays Virus Rebound Post-ART

Daniel Reeves, Fred Hutchinson Cancer Research Center, USA
HIV Reservoir Ecology Modeling Reveals Dynamics of Infected CD4 T Cell Clones during Suppressive ART

Scott Sherrill-Mix, University of Pennsylvania, USA
HIV-1 Isolates from Treatment Interruption Rebound Plasma Have Higher p24 Release and Interferon Resistance than Those from Latent Viral Outgrowth

Mathew L. Jones, University of Oxford, UK
A Droplet Microfluidics Assay to Enrich, Quantify and Sequence Cells Latently Infected with HIV

Manon Nayrac, Centre de recherche du CHUM, Canada
Persistent HIV-1 in the Gut Drives Systemic Immune Activation on ART

Insights from Preclinical and Clinical Prophylactic Vaccine Trials (X5)

Sandhya Vasan, US Military HIV Research Program, USA
Talk Title to be Announced

William Schief, International AIDS Vaccine Initiative and The Scripps Research Institute, USA
Human Clinical Test of Germline Targeting: Preliminary Report on B-Cell Responses in the IAVI G001 Trial of eOD-GT8 60mer
Immunogen Design for Broadly Neutralizing Antibody Induction

**Panel 1: New Insights into HIV Virology (X6)**

- **Robin Shattock**, Imperial College London, UK
  Accelerated Experimental Medicine Trials for Iterative Vaccine Design

- **Amelia Escolano**, Rockefeller University, USA
  Short Talk: Sequential Immunization Strategies to Elicit anti HIV-1 Broadly Neutralizing Antibodies in Wild Type Animals

- **Jay A. Berzofsky**, NCI, National Institutes of Health, USA
  Short Talk: Vaccine-Induced Protection against Intrarectal AIDS Virus Transmission in the Absence of Anti-Env Antibodies Mediated by Trained Innate Immunity

**Panel 2: New Insights into Restriction Factors (X6)**

- **Mihai L. Azoitei**, Weill Medical College of Cornell University, USA
  Mannose Binding Lectin SOSIP Trimers on Iron Oxide Nanoparticles May Be Impaired by Neutralizing Antibody Induction by HIV-1 Envelope Glycoprotein with Glycan Shield Thickness of HIV-1 Envelope Trimer

- **Myungjin Lee**, National Institute of Allergy and Infectious Diseases, USA
  Setback of Broadly Neutralizing HIV-1 Antibodies and Its Correlation with Glycan Shield Thickness of HIV-1 Envelope Trimer

**Panel 3: New Insights into HIV Pathogenesis and Cure (X6)**

- **Harry B. Gristick**, California Institute of Technology, USA
  Short Talk: Engineering SOSIP-Based Immunogens to Elicit bNAbs against Multiple Epitopes

- **Frank Kirchhoff**, University of Ulm, Germany
  Novel Restriction Factors Targeting HIV-1 Dependencies

- **Jeremy Luban**, University of Massachusetts Medical School, USA
  Primate Immunodeficiency Virus Proteins Vpx and Vpr Counteract Transcriptional Repression of Proviruses by the HUSH Complex

**Panel 4: Hands-On Computer Session on Los Alamos Sequence Database (X5)**

- **Max Crispin**, University of Southampton, UK
  The Glycan Shield of HIV-1 in Immunogen Design

- **Priyamvada Acharya**, Duke University, USA
  Structural Details of Antibody Interactions with the HIV-1 Glycan Shield and Implications for Vaccine Design

- **Kevin O. Saunders**, Duke University, USA
  Stabilized CH505 TF Env Trimer Vaccination Elicits Protective Neutralizing Antibodies in Rhesus Macaques

- **Kimmo Rantaalainen**, The Scripps Research Institute, USA
  Short Talk: HIV-1 Envelope and MPER Antibody Structures in Lipid Assemblies
**Inducing/Modulating Antibody Effector Functions (X5)**

**Hugo Mouquet**, Institut Pasteur, France  
*Fc-Dependent Antibody Functions*

**Margaret E. Ackerman**, Dartmouth College, USA  
*Engineering IgG to Alter Fagamma Receptor Dependent Function*

**Rasmi Thomas**, U.S. Military Research Program, USA  
*Insights from Host Genetics and Transcriptomics on Effective Vaccine Elicited Responses*

**Pengfei Wang**, Aaron Diamond AIDS Research Center, Columbia University Medical Center, USA  
*Short Talk: Quantifying the Contribution of Fc-Mediated Effector Functions to the Antiviral Activity of Anti-HIV-1 IgG1 Antibodies In Vivo*

**Amy Chung**, University of Melbourne, Australia  
*Short Talk: Inhibitory Role of Serum IgA upon Fc Functions in HIV Infection and Broadly Neutralizing Antibodies*

**New Insights into HIV Latency and Reservoirs (X6)**

**Carine M. Van Lint**, University of Brussels, Belgium  
*The Molecular Basis of HIV-1 Latency*

**Robert F. Siliciano**, Johns Hopkins University School of Medicine, USA  
*The Persistence of the Latent HIV Reservoirs*

**María Buzon**, Vall d´Hebrón Research Institute, Spain  
*Characterization of the HIV Reservoir using the Single Cell FISH/flow Assay*

**Angela Ciuffi**, Institute of Microbiology - CHUV/UNIL, Switzerland  
*Single Cell Transcriptomics*
**Workshop 3: Vaccine Platforms (X5)**

**Marie-Claire E. Gauduin**, Texas Biomedical Research Institute, USA  
*Efficacy of a Novel Epithelial Stem Cell-Based AIDS Vaccine to Induce Mucosal Immune Responses and Control SIV Transmission in Macaques*

**Lise Chauveau**, University of Oxford, UK  
*Immunisation with cGAMP-Loaded HIV-Derived VLPs Elicits Protective T Cell and Antibody Responses*

**Tulley Shofer**, NIH, USA  
*Stabilized and Non-stabilized HIV-1 Env Constructs Expressed in a Replicating Ad4 Vector Induce Autologous Tier 2 Neutralization in Rabbits*

**Rui Kong**, NIAID, National Institutes of Health, USA  
*Development of an HIV-1 Fusion Peptide Immunogen Using Chikungunya Virus-Like Particles*

**Christine N. Daniels**, Duke University, USA  
*Design and Immunogenicity of V3-glycan Epitope-Focused Nanoparticles*

**David Peterhoff**, University Regensburg, Germany  
*Bioconjugation of Stabilized HIV Envelope Trimers to Different Nanoparticle Carriers*

**Ehsan Suleiman**, University of Natural Resources and Life Sciences, Vienna, Austria  
*Scalable and bnAb Epitope-Preserving Conjugation of Tag-Free, Native-Like HIV-1 Envelope Trimers onto Liposomes Using EDC/Sulfo-NHS Chemistry*

**Ralph A. Pantophlet**, Simon Fraser University, Canada  
*Glycomimicry Yields HIV Cross-Reactive Antibodies Following Immunization of Animals That Express an Entire Human Antibody Repertoire*

**CD8 T Cell Inducing Vaccines (X5)**

**Louis J. Picker**, Oregon Health & Science University, USA  
*Dissecting Mechanisms by which RhCMV-Vectored Vaccines Confer Protection*

**Andrew J. McMichael**, Oxford University, UK  
*Understanding HLA-E Mediated Antigen Presentation to Inform Vaccine Design*

**Magnus Adrian Gero Hoffmann**, California Institute of Technology, USA  
*Short Talk: Virus-Like Particles Presenting Clusters of CD4 Expose a Universal Vulnerability of HIV-1 by Mimicking Viral Target Cells*

**Bonnie J. Howell**, Merck & Co., Inc., USA  
*Short Talk: Butyrophilins: Novel Immune Checkpoint Targets for HIV*

**Hands-On Computer Session on Los Alamos Immunology Database (X5)**

**Workshop 4: Concepts in Protective Antibody Responses (X5)**

**Michael R. Betts**, University of Pennsylvania, USA  
*Characteristics of Lymphoid Tissue CD8+ T Cells Associated with Efficient HIV Control*

**David Patrick Merriam**, University of California, Davis, USA  
*Short Talk: RhCMV/SIV Vaccine Up-Regulates Interferon-Stimulated Genes in Gut and Drives CD8 Infiltration of B-Cell Follicles in Mesenteric Lymph Nodes*

**Sushma Boppana**, University of Alabama at Birmingham, USA  
*Short Talk: Cross-Reactivity Is a TCR-Dependent Function in HIV Vaccine-Induced CD8 T-Cell Responses*

**Tom Partridge**, University of Oxford, UK  
*Short Talk: Immunopeptidomic Profiling Reveals Novel Classes of HLA Class I-Bound HIV-1 Epitopes*

**Immunotherapeutic and Gene Therapy Approaches Targeting the HIV Reservoirs (X6)**

**Rafick-Pierre Sekaly**, Case Western Reserve University, USA  
*Anti-Inflammatory Cytokines Drive HIV Latency and Immune Dysfunction: Novel Targets for HIV Cure*

**Paula M. Cannon**, University of Southern California, Keck School of Medicine, USA  
*Gene Therapy Approaches to HIV Cure*

**Douglas F. Nixon**, Weill Cornell Medicine, USA  
*Endogenous Retroelements as Modulators and Markers of HIV Latency*

**Petronela Ancuta**, Centre de Recherche de l’Universite de Montreal, Canada  
*Targeting the Circadian Clock Machinery in Th17 Cells for HIV Cure/Remission Strategies*

**Poster Session 3**

**THURSDAY, MARCH 26**

**Therapeutic Vaccines (Joint)**

**Barbara K. Felber**, NCI, National Institutes of Health, USA  
*Therapeutic Vaccines – Preclinical to Clinical Trials*

**Dan H. Barouch**, Beth Israel Deaconess Medical Center, USA  
*Therapeutic Antibody and Vaccine Strategies*

**R. Brad Jones**, George Washington University, USA  
*HIV Reservoirs Exhibit Inherent Resistance to Elimination by Cytotoxic T Cells*

**Julie Ake**, Walter Reed Army Institute of Research, USA  
*MHRP Therapeutic Vaccine Strategies: Past, Present and Future*

**Joana Dias**, NIAID, National Institutes of Health, USA  
*Short Talk: Early bnAb Therapy in SHIVAD8-EO-Infected Rhesus Macaques*

**Bruna Oriol-Tordera**, IrsiCaixa, Spain  
*Short Talk: Impact of Romidepsin on Immune Gene Transcription Activity in Kick-and-Kill Strategies Aiming at HIV Functional Cure*

**Workshop 4: Concepts in Protective Antibody Responses (X5)**
KEYSTONE SYMPOSIA
on Molecular and Cellular Biology

HIV Vaccines (X5)
Scientific Organizers: Persephone Borrow, Georgia D. Tomaras and Rogier W. Sanders
Part of the Keystone Symposia Global Health Series, supported by the Bill & Melinda Gates Foundation

Sponsored by Merck & Co., Inc.

HIV Pathogenesis and Cure (X6)
Scientific Organizers: Robert F. Siliciano, Carine M. Van Lint and Romas Geleziunas
March 22-26, 2020 • Keystone Resort • Keystone, CO, USA
Part of the Keystone Symposia Global Health Series, supported by the Bill & Melinda Gates Foundation

Sponsored by Merck & Co., Inc.

James D. Stamos, National Cancer Institute, USA
Passive Immunization with Anti-V2 Monoclonal Antibodies Does Not Protect against SIV Acquisition

Susan Zolla-Pazner, Icahn School of Medicine at Mount Sinai, USA
Differential V2-Directed Antibody Responses in Non-Human Primates Infected with SHIVs or Immunized with Diverse HIV Vaccines

Mangaikarasi Asokan, VRC, National Institutes of Health, USA
Delineating the in vivo Role of FC Function during Passive bNAb Therapy in Macaques and People

Ann Marie Carias, Northwestern University, USA
Evaluation of the Kinetics of Systemic Distribution of IV Injected Monoclonal Antibodies Modified to Alter Host Mediated FC Interaction in the Rhesus Macaque Model

Cassandra Almasri, National Institutes of Health, USA
Potent Anti-Viral Activity of Trispecific Broadly Neutralizing HIV Antibodies

Qingbo Liu, NIAID, National Institutes of Health, USA
Rational Design of Framework Region-3 Insertions for Anti-HIV-1 Antibody Improvement

Mohammad M. Sajadi, University of Maryland School of Medicine, USA
Next Generation CD4 Binding Site Broadly Neutralizing Antibodies That Combine Extreme Potency and Breadth

Celestin Godwe†, Center for Research for Emerging and Re-Emerging Diseases CREMER, Cameroon
HIV Epidemic in Rural Areas of Cameroon: Contrasted Prevalence and Broad Diversity

**Workshop 2 (X6)**

Chynna Hendricks, University of Miami, USA
Presence of Macrophage-tropic Variants in HIV-1-Infected Individuals Undergoing Antiretroviral Therapy Interruption

Rebecca T. Veenhuis, Johns Hopkins University School of Medicine, USA
Monocytosis from ART-Suppressed HIV Infected Individuals Contain Reactivativev HIV

Alex Sigal, Africa Health Research Institute, South Africa
CNS HIV Bears Envelope Markers Consistent with T Cell Origin in the Face of ART

Deanna Alene Kulpa, Emory University, USA
Unprimed CD8+ Lymphocytes Inhibit Latency Reversal in a Primary Cell In Vitro Model of HIV Latency

Srona Sengupta, Johns Hopkins University School of Medicine, USA
TCR-Mimic Bispecific Antibodies against HIV pMHC-I Report on Endogenous Antigen Presentation and Can Induce Killing of pMHC-Bearing Cells

Mayra A. Carrillo, UCLA, USA
Adoptive Peripheral T Cell versus Hematopoietic Stem Cell (HSC)-Based HIV-Specific CAR-T Cell Therapy Approaches in Vivo

Xiao Lan Chang, Oregon Health and Science University, USA
Antibody-Mediated CCR5 Blockade Recapitulates the CCR5 Deficiency-Mediated Protection from Sexual HIV Acquisition

Collin Kieffer, University of Illinois at Urbana-Champaign, USA
Spatial Profiling of HIV-1 Transmission in Lymphoid Tissues from Humanized Mice and Human Patients with Single-Cell to Single-Virus Resolution

**Forward Vision: HIV Clinical Trials (X5)**

Georgia D. Tomaras, Duke University Medical Center, USA
Interpretation of Immune Responses Elicited in Clinical Trials

Fatima Laher, University of the Witwatersrand, South Africa
Durability of Vaccine-Induced Immune Responses: What the P5 Trials are Revealing

Nichole R. Klat, University of Miami, USA
Potential Role of the Microbiome in HIV Vaccination

Peng Zhang, NIAID, National Institutes of Health, USA
Short Talk: mRNA-Based Env-Gag Vaccine Induced Heterologous Tier-2 Neutralizing Antibodies in Macaques

**Clinical Trials (X6)**

Sharon R. Lewin, University of Melbourne, Australia
Immune Checkpoint Blockers and HIV Cure Strategies

Steven G. Deeks, University of California, San Francisco, USA
Immunotherapy and HIV Control

Joshua T. Schiffer, Fred Hutchinson Cancer Research Center, USA
Short Talk: Mycophenolate Mofetil for Depletion of the HIV Reservoir

Yannick Christoph Bartsch, Ragon Institute of MGH, MIT and Harvard, USA
Short Talk: Short-Term Posttreatment Control of HIV Correlates with Distinct Antibody Features

**Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (X5)**

Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (X6)

**FRIDAY, MARCH 27**

Departure