Announcing Keystone Symposia’s 2015 conference on:

The Golden Anniversary of B Cell Discovery

joint with the meeting on: HIV Vaccines

March 22–27, 2015
Fairmont Banff Springs
Banff, Alberta, Canada

Scientific Organizers:
Patrick C. Wilson, Michael P. Cancro and Anne Durandy

This 2015 meeting marks the golden anniversary of the discovery of B cells by Max Cooper and Robert Good in their classic Nature paper. Each topical session begins with a commentary on the history of the area, followed by presentations of the most current advances. Particular emphasis is placed on B cell immunopoiesis in germinal centers, on the interaction of B cells with follicular-helper T cells, on antibody-mediated immunity to HIV and influenza, and on plasma and memory B cell biology. The goal is to showcase the latest breakthroughs in B cell biology, antibody technologies and the potential for B cell/antibody-mediated vaccine development.

Session Topics:
- Antibody Therapy (Joint)
- Peripheral B Cell Development and Function
- B/T Cell Interactions (Joint)
- Memory and Plasma Cell Differentiation and Fate
- Anti-Viral B Cell Responses (Joint)
- Antibody Maturation and Class Switch
- B Cell Immune Deficiencies
- B Cell Autoimmunity
  plus six workshops with short talks
  chosen from abstracts

Discounted Abstract/Scholarship Deadline: Nov 19, 2014
Abstract Deadline: Dec 17, 2014
Discounted Registration Deadline: Jan 20, 2015

To see the full program and for additional details, visit www.keystonesymposia.org/15X6.
**Workshop 1: B1 Cell Biology (X6)**

**Antibody Therapy (Joint)**

**Keynote Session (Joint)**

**MONDAY, MARCH 23**

*Patrick C. Wilson*, University of Chicago, USA

*Giuseppe Pantaleo*, Centre Hospitalier Universitaire Vaudois, Switzerland

**Max D. Cooper**, Emory University, USA

Comparative Analysis of Alternative Adaptive Immune Systems

**Anthony S. Fauci**, NIAID, National Institutes of Health, USA

Toward an HIV Vaccine: A Scientific Journey

**Antibody Therapy (Joint)**

**Workshop 1: B1 Cell Biology (X6)**

*Thomas L. Rothstein*, Western Michigan University, USA

*Gregg J. Silverman*, New York University Langone Medical Center, USA

**Cecilia Cavazzoni**, Federal University of Rio de Janeiro, Brazil

Characterization of the Repertoire of Natural Antibodies Anti-HSC70

**Gudrun F. Debes**, University of Pennsylvania, USA

IL-10 Producing Innate-Like B Cells Are Part of the Skin Immune System and Require alpha4-beta1 Integrin to Migrate between the Peritoneum and Inflamed Skin

**Stephanie Glaesener**, Hannover Medical School, Germany

Pneumovax23© Directly Stimulates B Cells in vivo Generating a Predominant IgA Response Early after Vaccination

**Benchang Guo**, Feinstein Institute for Medical Research, USA

RasGRP1 Shapes Autoreactive Receptor Repertoire in B1a Cells which Prevents Autoimmune Disease

**Matthias Hahn**, University Medical Center Mainz, Germany

Over-Expression of an Alternative Splice Variant of the Negative NF-kappaB Regulator CYLD Leads to the Development of B-CLL in Mice

**Nichol E. Holodick**, Feinstein Institute for Medical Research, USA

Age-Related Decline in Natural IgM Function: Diversification and Selection of the B-1a Cell Pool with Age

**Rudolf Übelhart**, National Center for Tumor Diseases, Germany

Structural Differences between IgD and IgM Control B Cell Responsiveness and the Activation of Innate-Like B1 Cells

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**Workshop 2: B Cell Selection and Tolerance (X6)**

*Eric Meffre*, Yale University School of Medicine, USA

*David J. Rawlings*, University of Washington, Seattle Children’s Hospital Research Institute, USA

**Lars Nitschke**, University of Erlangen, Germany

Siglec-G: A B Cell Inhibitory Receptor Controlling Autoimmunity

**Martin S. Naradikian**, University of Pennsylvania, USA

Optical Trapping Virometry Reveals the Positive Cooperativity of HIV-1 Envelope Glycoproteins in Mediating Viral Infection

**Workshop 1: Envelope Structure and Immunogen Design Efforts (X5)**

*Leonidas Stamatatos*, Fred Hutchinson Cancer Research Center, USA

*John P. Moore*, Weill Medical College of Cornell University, USA

**Gabriel Ozorowski**, The Scripps Research Institute, USA

Characterization and Design of HIV-1 Env SOSIP gp140 Trimmers

**Jose Maximiliano Medina-Ramirez**, University of Amsterdam, Netherlands

A Native-Like HIV-1 Envelope Trimer that Engages Multiple Germline Precursors of Broadly Neutralizing Antibodies

**Guillaume B.E. Stewart-Jones**, National Institutes of Health, USA

Crystal Structures of Glycosylated JR-FL and BG505 SOSIP Trimmers at 3.7Å Resolution Reveal how N-Linked Glycosylation Shield the Glycan Free CD4 Binding Site

**M. Gordon Joyce**, U.S. Military HIV Research Program, USA

Designed HIV-1 Env Molecules from Multiple Clades that Display Structural and Antigenic Characteristics of the Mature Prefusion HIV-1 Env

**Javier Guenaga**, IAVI Neutralizing Antibody Center at TSRI, USA

Structure-Guided Identification of gp120 Residues that Increase the Propensity of Env Sequences to Form Native-Like Soluble Trimmers

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

Identification of New HR1 Proline Substitutions that Stabilize the Cleavage-Independent, Well-Ordered, Native Flexibly Linked (NFL) Trimmers

**Wei Cheng**, University of Michigan, USA

Optical Trapping Virometry Reveals the Positive Cooperativity of HIV-1 Envelope Glycoproteins in Mediating Viral Infection

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IL-4 and IL-21 Reciprocally Regulate T-BET Expression in Activated B Cells

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IL-4 and IL-21 Reciprocally Regulate T-BET Expression in Activated B Cells
Matthieu Perreau, University Hospital of Lausanne, Switzerland

Combined Immunological/Virological Therapies for HIV Functional Cure/Eradication

Michael Farzan, The Scripps Research Institute, USA

AAV-Expressed eCD4-Ig Provides Durable Protection from Multiple SHIV Challenges

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

FRIDAY, MARCH 27

* Session Chair † Invited but not yet accepted

Program current as of March 31, 2018. Program subject to change. Meal formats are based on meeting venue. For the most up-to-date details, visit www.keystonesymposia.org/15X6 and www.keystonesymposia.org/15X5.
Masayuki Kuraoka, Duke University, USA
BCR and TLR Synergy Elicits High Levels of AID Expression in Immature/T1 B Cells to Ensure Central B-Cell Tolerance
Kristin M.S. Schroeder, National Jewish Health, USA
B Cell Tolerance Mechanisms Limit Protective HIV Antibody Responses
Thomas Hägglöf, Karolinska Institutet, Sweden
Neutrophils License NKT Cells to Regulate Self-Reactive B Cell Responses
Christopher M. Tipton, Emory University, USA
Diversity, Cellular Origin and Autoreactivity of Antibody-Secreting Cell Expansions in Acute Systemic Lupus Erythematosus
Aaron J. Marshall, University of Manitoba, Canada
TAPP Adaptors Control Akt-Dependent Metabolic Activation of B Cells and Suppress Autoimmunity via Binding to the SHIP Product PI(3,4)P2

Peripheral B Cell Development and Function (X6)
*Michael P. Cancro, University of Pennsylvania, USA
New Paths to Peripheral B Cell Tolerance and Differentiation
Andrea Cerutti, Mount Sinai School of Medicine, USA
Marginal Zone B Cells
Stuart G. Tangye, Garvan Institute of Medical Research, Australia
Molecular Requirements for Productive Humoral Immunity in Humans - The Power of PIDs
Michael G. McHeyzer-Williams, The Scripps Research Institute, USA
Molecular Dynamics of Memory B Cell Responses
Claude-Agnès Reynaud, Necker-Paris Medical School, France
Short Talk: High Throughput Ig Sequencing of Paired Blood and Spleen Samples Allows a Redefinition of IgM Memory Subsets in Humans

Natural and Vaccine-Induced Development of Antibody Response (X5)
*Susan Zolla-Pazner, Icahn School of Medicine at Mount Sinai, USA
Developmental Pathways of Broadly Neutralizing Antibodies
Antonio Lanzavecchia, Institute for Research in Biomedicine, Switzerland
Overcoming HIV-1 Evasion of Antibody Avidity with Intra-Spike Crosslinking Reagents
Pamela J. Bjorkman, California Institute of Technology, USA
Structural Definition of a Novel Set of Converged Broadly Neutralizing Influenza Antibodies Elicited in H5N1 Vaccines
Goetz R. Ehrhardt, University of Toronto, Canada
Bio-marker Discovery on Memory B Cells and Plasma Cells Using Monoclonal VLR Antibodies
Carole Henry, University of Chicago, USA
Activation of Circulating Platelets Leads to the Release of Potent Antiviral IgG
Mattias Forsell, Umeå University, Sweden
New Molecular and Proteomic Techniques for the "Deep" Profiling of Vaccine-Elicited Cellular and Serological Antibody Repertoires
KEYSTONE SYMPOSIA
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Greg A. Kirchenbaum, Vaccine and Gene Therapy Institute of Florida, USA
Longitudinal Profiling of Young and Elderly Individuals in Response to Seasonal Influenza Vaccination

Ignacio Sanz, Emory University, School of Medicine, USA
Identification of Long-lived Plasma Cells in Human Bone Marrow

Workshop 2: New Immunization Tactics (X5)

*Nicole A. Doria-Rose, NIAID, National Institutes of Health, USA
*Gunilla B. Karlsson Hedestam, Karolinska Institutet, Sweden
Rena D. Astronomo, Fred Hutchinson Cancer Research Center, USA
Low Concentrations of Broadly-Neutralizing Antibodies (bnAbs) Protect Against Early Events of Mucosal HIV-1 Infection in a Human ex vivo Vaginal Explant Model

Jinghe Huang, NIAID, National Institutes of Health, USA
Isolation of a Broad and Potent CD4-Binding Site Monoclonal Antibody with Novel Binding Characteristics

Joseph G. Jardine, The Scripps Research Institute, USA
In vivo Activation of GL-VRC01 Class Antibodies in Transgenic Mice by Germline-Targeted Immunizations

Huaxin Liao, Duke University Medical Center, USA
HIV-1 CH505 Env Immunogens Initiated CD4 Binding Site Antibody Lineage in Rhesus macaques

Aaron Louie, National Institutes of Health, USA
HIV-Specific Antibodies Derived from Exhaused Memory B Cells of Infected Individuals Show Deficiencies in Neutralization and Somatic Hypermuntation

Delphine C. Malherbe, Oregon Health & Science University, USA
Early Breadth Clade C Env Immunogens Elicit Cross-Clade NAbs and Env-Specific Tfh Responses

Jose M. Martinez-Navio, University of Miami - LSTP, USA
Host Anti-Ab responses following AAV-Mediated Delivery of Antibodies Against HIV and SIV

Rogier W. Sanders, Weill Medical College of Cornell University, USA
HIV Neutralizing Antibodies Induced by Native-Like Envelope Trimers

Workshop 4: B Cell Development and Signaling (X6)

Julia Jelisova, Sanford Burnham Medical Research Institute, USA
GSK3 Regulates B Cell Metabolism, Cell Growth and Proliferation

Nikita S. Kolhatkar, University of Washington, USA
The Role of Altered Antigen Receptor Signaling in Wiskott Aldrich Syndrome

Ai Kotani, Tokai University, Japan
A Single miRNA Substitutes for Requirement of EBF1 in B Lineage Commitment

Jimmin Lee, NIAID, National Institutes of Health, USA
Defining the Oligomeric State on B Cell Receptors on the Surfaces of Human Naive and Memory B Cells Using Super-Resolution Fluorescence Microscopy

Stephen K. H. Li, Western University, Canada
Identification of a Negative Regulatory Role for the E26 Transformation-Specific Transcription Factor Spi-C in the Murine B Cell Lineage

Hongsheng Wang, NIAID, National Institutes of Health, USA
An Essential Role of Transcription Factors PU.1 and IRF8 in Follicular B Cell Development and the Germinal Center Response

*Duane R. Wesemann, Brigham and Women's Hospital, Harvard Medical School, USA
Role of Environment in the Shaping of the Primary Immunoglobulin Repertoire

Maryaline Coffre, New York University School of Medicine, USA
Dicer-Dependent Non-Coding RNAs Are Essential for B Cell Development and Maturation

Memory and Plasma Cell Differentiation and Fate (X6)

*Andreas Radbruch, Deutsches Rheuma-Forschungszentrum, Berlin, Germany

Patrick C. Wilson, University of Chicago, USA
Immune Memory Shapes B Cell Responses to Influenza

David M. Allman, University of Pennsylvania, USA
Plasma Cell Subpopulations in the Bone Marrow

Mark J. Shlomchik, University of Pittsburgh School of Medicine, USA
Signaling and Selection in GC B Cells

Kim Good-Jacobson, Monash University, Australia
Short Talk: c-Myb Establishes a Transcriptional Network in Germinal Center B Cells that Controls T-beta, Class Selection and Long-Term Immunity

Predictors of Response to Vaccines (X5)

*Dennis R. Burton, The Scripps Research Institute, USA

Rafick-Pierre Sekaly, Case Western Reserve University, USA
Genetic and Epigenetic Determinants of Vaccine Responses

Tobias Kollmann, University of British Columbia, Canada
Predictors of Vaccine Responses in Children

Poster Session 2

WEDNESDAY, MARCH 25

Anti-Viral B Cell Responses (Joint)

Barton F. Haynes, Duke University Medical Center, USA
Ontogenicity of Broadly Neutralizing Antibodies during HIV-1 Infection

John R. Mascola, NIAID, National Institutes of Health, USA
Antibody Responses to HIV
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**meet the editors**

**Ian A. Wilson, The Scripps Research Institute, USA**

Broad Neutralization of Influenza Viruses

**Pia Dosenovic, Rockefeller University, USA**

Short Talk: Development of HIV-1 Broadly Neutralizing Antibodies in Human Variable Region Knock-In Mice

**Scott D. Boyd, Stanford University, USA**

Short Talk: Storage and Recall of Anti-Influenza Antibodies in Younger and Older Adults

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**Workshop 3: B Cell Pathogenesis and BCR Repertoire Session (X5)**

”Susan Moir, NIAID, National Institutes of Health, USA

”Matthieu Perreau, University Hospital of Lausanne, Switzerland

James J. Knox, University of Pennsylvania, USA

HIV Infection induces the Expansion of T-Cell Expressing B Lymphocytes

Thomas Liechti, Institute of Medical Virology, Switzerland

Expression of B Cell Subset Changes during Acute and Chronic HIV-1 Infection and Restoration upon ART Initiation

**Workshop 4: Related Diseases (X6)**

"Leonidas Stamatatos, Fred Hutchinson Cancer Research Center, USA

Characterization of Recombinant HIV-1 Envelopes that Bind Germline Forms of Broadly Neutralizing Antibodies

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**Poster Session 3**

**THURSDAY, MARCH 26**

**B Cell Immune Deficiencies (X6)**

"Anne Durandy, Institut Imagine, France

Immunoglobulin Class Switch Recombination: Deficiencies: An Update

Klaus Warnatz, University Clinic Freiburg, Germany

NF-kappaB2 that Ablates SHIV infection in Infant Rhesus macaques and Limits Establishment of Latent Viral Reservoirs

**B Cell Clonal Dynamics during Sequential Immunizations**

Frederick A. Matsen IV, Fred Hutchinson Cancer Research Center, USA

Quantifying Evolving Antibody Constraints on B Cell Affinity Maturation

**Short Talk: Storage of Anti-Influenza Antibodies in Younger and Older Adults**

Jing H. Wang, University of Colorado Anschutz Medical Campus, USA

The Imbalanced Signaling between PTEK and Phosphoinositide 3-Kinase Impairs Class Switch Recombination

Nobuo Sakaguchi, Kumamoto University, Japan

Regulation of Selective Non-Coding RNA Species Involved in B-Cell Maturation by AID-Interacting Molecule GANP

**B Cell Pathogenesis and BCR Repertoire Session (X5)**

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Amarendra Pegu, NIAID, National Institutes of Health, USA

Efficacy of Antibody Therapy in Acute SHIV-infected Macaques

Akhaya Ramesh, Boston University School of Medicine, USA

Macaque Immunogenetics through de-novo Genome Assemblies

Veronika Schmid, University of Regensburg, Germany

Characterization of Anti-HIV-1 Envelope Antibodies Using a FACS Based High Throughput Mapping Platform

**Antibody Maturation and Class Switch (X6)**

"Taijul Islam, University of Michigan, USA

The Transcription Factor Bcl-3 Regulates Class Switching from c-Myc to IgH in Memory B Cells

Amelie J. Rowatschka, University of Freiburg, Germany

The Transcription Factor Bcl-3 Regulates Class Switching from c-Myc to IgH in Memory B Cells

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Broad Neutralization of Influenza Viruses

Thomas B. Kepler, Boston University, USA

B Cell Clonal Dynamics during Sequential Immunizations

Frederick A. Matsen IV, Fred Hutchinson Cancer Research Center, USA

Quantifying Evolving Antibody Constraints on B Cell Affinity Maturation

**Lauren M. Childs, Virginia Tech, USA**

Affinity Maturation of Cells in the Presence of Competing Antigens

**Poster Session 3**

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Lauren M. Childs, Virginia Tech, USA

Affinity Maturation of Cells in the Presence of Competing Antigens

Jason A. Vander Heiden, Yale University, USA

High-Throughput Immunoglobulin Sequencing: Insights into B Cell Trafficking Patterns in Multiple Sclerosis

**Gregory W. Schwartz, Drexel University, USA**

Conserved Amino Acid Diversity in B Cell Repertoires Connects between Selection at the Germline and Somatic Levels

**Tom MacCarthy, Stony Brook University, USA**

The Number of Overlapping AID Hotspots within Germinal Center Immunoglobulin Heavy Chain V-Regions Is Inversely Correlated with Mutation Frequency in Chronic Lymphocytic Leukemia

**Workshop 7: B Cell Related Diseases (X6)**

"Ignacio Sanz, Emory University, School of Medicine, USA

B Lymphocyte Specific Locus of Rb-4 Causes a Galph Protein Deficit and Severe Humoral Immunodeficiency

Cindy Eunhee Lee, Australian National University, Australia

Autoimmune Dominant B Cell Deficiency with Alopecia Due to a Mutation in NF-kappaB2 that Ablates SHIV infection in Infant Rhesus macaques and Limits Establishment of Latent Viral Reservoirs

Nadine Hövelmeyer, University of Mainz, Germany

The Transcription Factor Bcl-3 Regulates the Development of Marginal Zone, Germinal Center and B1 B Cells

Wanli Liu, Tsinghua University, China

Membrane Sequestration of the mlgG Cytoplasmic Tail Confers a Safety Trigger Mechanism for the Enhanced Activation of IgG-Memory B Cell

Jürgen Wienands, Georg August University of Goettingen, Germany

Ablation of SHIV Infection in Infant Rhesus macaques and Limits Establishment of Latent Viral Reservoirs

Cindy Eunhee Lee, Australian National University, Australia

Autoimmune Dominant B Cell Deficiency with Alopecia Due to a Mutation in NF-kappaB2 that Ablates SHIV infection in Infant Rhesus macaques and Limits Establishment of Latent Viral Reservoirs

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The Transcription Factor Bcl-3 Regulates the Development of Marginal Zone, Germinal Center and B1 B Cells

Wanli Liu, Tsinghua University, China

Membrane Sequestration of the mlgG Cytoplasmic Tail Confers a Safety Trigger Mechanism for the Enhanced Activation of IgG-Memory B Cell
Hands-on Computer Session on Los Alamos Immunology Database (X5)

Workshop 5: Affinity Maturation and Class Switch (X6)

*Kim Good-Jacobson, Monash University, Australia
*Garnett H. Keelsoe, Duke University and Medical Center, USA
Alexander D. Gittin, Rockefeller University, USA
Clonal Selection in the Germline Center by Regulated Proliferation and Hypermutation
Stephen P. Methot, Institut de Recherches Cliniques de Montreal, Canada
Consecutive Interactions with HSP90 and eEF1A1 Underlie a Functional Maturation and Storage Pathway of AID in the Cytoplasm
Heping Xu, Cincinnati Children’s Hospital Medical Center, USA
Regulation of Bifurcating B Cell Responses by IRF4 and IRF8-Mediated Reciprocal Feedback
Zhiyong Yang, University of California, San Francisco, USA
Plasma Cell Differentiation Driven by Antigen-Independent Signaling Activity of the IgE B Cell Receptor

Workshop 4: Ab Based Therapy for Prevention and for Cure (X5)

Richard A. Koup, NIAID, National Institutes of Health, USA
M. Juliana McElrath, Fred Hutchinson Cancer Research Center, USA
Sara Fernandez-Martinez, NIAID, National Institutes of Health, USA

Workshop 5: B/T Cell Interactions (X5)

Rajagopal Murugan, German Cancer Research Institute, Germany
HIV Vaccine Clinical Development (X5)

HIV Functional Cure

*Session Chair †Invited but not yet accepted  Program current as of March 31, 2018. Program subject to change. Meal formats are based on meeting venue. For the most up-to-date details, visit www.keystonesymposia.org/15X6 and www.keystonesymposia.org/15X5.
Follicular CD8 T Cells Have Superior Cytolytic Capacity and Mediate a Redirected Killing of HIV-Infected Cells by Bispecific Antibodies

M. Anthony Moody, Duke University Medical Center, USA

Elevated Prevalence of Autoantibodies in HIV-Infected Individuals with Plasma Broadly Reactive Neutralizing Antibodies (bnAbs) Compared to Infected Individuals Lacking Plasma bnAbs

Ariel Halper-Stromberg, Rockefeller University, USA

Targeting the HIV-1 Reservoir in Humanized Mice Using Broadly Neutralizing Antibodies and Viral Inducers

Workshop 6: System Immunology and Modeling (X6)

*Sarah Cobe, University of Chicago, USA

*Uri Hershberg, Drexel University, USA

Brandon DeKosky, University of Kansas, USA

Paired VH:VL Analysis of Naive B-Cell Repertoires and Comparison to Antigen-Experienced B-Cell Repertoires in Healthy Human Donors

USA Persistent Loss and Dysregulation of Marginal Zone B-Cells after SHIVSF162P4 Challenge Despite Control of Viremia

Colin Havenar-Daughton, La Jolla Institute of Allergy and Immunology, USA

T Follicular Helper Cell and Germinal Center B Cell Responses to HIV gp140 Protein + TLR-Encapsulated Nanoparticle Immunization in Rhesus macaques

Joyce K. Hu, La Jolla Institute of Allergy and Immunology, USA

Characterization of Antibody and Tfh Cell Responses after BG505 SOSIP.664 Trimer Immunizations in Mice

Yin Xu, University of New South Wales, Australia

HIV Entry into T Follicular Helper (Tfh) Cells May Be Associated with CCR5+ Pre-Tfh Cells in Lymph Nodes

and/or Eradication (X5)

*Giuseppe Pantaleo, Centre Hospitalier Universitaire Vaudois, Switzerland

Persephone Borrow, University of Oxford, UK

Relationship between CD4+ T Cell Subsets and the Neutralization Breadth of the Antibody Response Generated during HIV-1 Infection