

# Keystone Symposia in Keystone B Cell-T Cell Interactions

Keystone Conference Center | Keystone, Colorado, USA | February 10–14, 2019

Joint with the conference on *Molecular Approaches to Vaccines and Immune Monitoring*

Scientific Organizers:

**Gabriel D. Victora**, Rockefeller University, USA

**Carola G. Vinuesa**, Australian National University, Australia

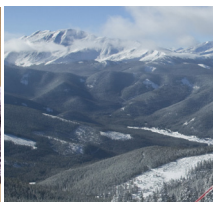
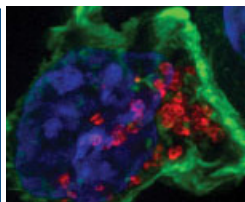
*B cell-T cell interactions underlie the maturation and production of high-affinity antibodies, and are thus key to the establishment of effective humoral immunity. While this greatly enhances our ability to fight pathogens, it can also lead to the development of allergies and autoimmune disease. Although recent years have seen a burst in our understanding of how B cell-T cell interactions drive antibody affinity maturation, a number of gaps remain, including how these interactions influence the differentiation of B cells into effector fates and how they limit the emergence of autoreactive B cell clones. Most importantly, from the vaccine standpoint, it is likely that better understanding of how T cells help shape the B cell repertoire will allow us to better control the specificity of vaccine-induced immune responses. The aims of this Keystone Symposia conference are to: 1) Present the most recent advances in the basic biology of the T cell-dependent B cell response, focusing on Tfh development and function and B cell activation and differentiation; 2) Address the gap in our understanding of the differentiation of B cells into post-activation (memory and plasma cell) fates; 3) Discuss how furthering our understanding of B-T cell interactions can inform vaccine development; and 4) Present recent findings regarding the role of T-dependent B cell response in allergy and autoimmunity.*

Plenary Session Topics:

- Tfh Biology
- Workshop 1: B Cell Biology in T-Dependent Responses
- Regulation of the GC Response
- Germinal Center Biology
- Workshop 2: Tfh/Tfr Differentiation and Function
- Workshop 3: B Cell-T Cell Interactions in Disease
- Memory Humoral Responses
- Humoral Autoimmunity and Allergic Responses
- T-Dependent B Cell Differentiation

Scholarship/Discounted Abstract Deadline: Oct 23, 2018; Abstract Deadline: Nov 7, 2018; Discounted Registration Deadline: Dec 6, 2018

Visit [www.keystonesymposia.org/19J6](http://www.keystonesymposia.org/19J6) for more details.



KEYSTONE SYMPOSIA™  
on Molecular and Cellular Biology  
Accelerating Life Science Discovery  
a 501(c)(3) nonprofit educational organization

# KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

## B Cell-T Cell Interactions (J6)

Scientific Organizers: Gabriel D. Victora and Carola G. Vinuesa

Sponsored by BioLegend, Inc.

## Molecular Approaches to Vaccines and Immune Monitoring (J5)

Scientific Organizers: Peter D. Kwong, Brandon DeKosky and Jeffrey B. Ulmer

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### SUNDAY, FEBRUARY 10

#### Arrival and Registration

### MONDAY, FEBRUARY 11

#### Welcome and Keynote Address (Joint)

**Antonio Lanzavecchia**, Institute for Research in Biomedicine, Switzerland

*The B Cell Immune Response to Infection and Vaccination*

#### Tfh Biology (J6)

**Carola G. Vinuesa**, Australian National University, Australia  
*Human Tfh Biology*

**Hai Qi**, Tsinghua University, China  
*Guidance Cues for Tfh Cells*

**Shane Crotty**, La Jolla Institute for Allergy and Immunology, USA  
*Tfh Cell and Germinal Center B Cell Responses in the Context of Vaccines*

#### Short Talk(s) Chosen from Abstracts

#### Targeting Appropriate Immune Responses for Structure-based Design (J5)

**Dennis R. Burton**, The Scripps Research Institute, USA  
*From Antibody to Vaccine*

**George Georgiou**, University of Texas at Austin, USA  
*Molecular Definition of Protective Serum Responses from Vaccination and for Immune Monitoring*

**Peter D. Kwong**, NIAID, National Institutes of Health, USA  
*Principles of Structure-Based Vaccine Design*

#### Short Talk(s) Chosen from Abstracts

#### Workshop 1: B Cell Biology in T-Dependent Responses (J6)

##### Short Talks Chosen from Abstracts

#### Workshop 1: Molecular Characteristics of Serum Responses Which Could Serve as Appropriate Templates for Vaccine Design (J5)

##### Short Talks Chosen from Abstracts

#### Regulation of the GC Response (J6)

**Andre Ballesteros-Tato**, University of Alabama at Birmingham, USA  
*Regulation of IL-2 Responses in the GC*

**Michelle A. Linterman**, Babraham Institute, UK  
*Ageing and the Germinal Centre Response*

**Di Yu**, Australian National University, Australia  
*Follicular Cytotoxic T Cells: Friends or Foes?*

#### Short Talk(s) Chosen from Abstracts

#### Clinical Results from Structure-based Vaccines (J5)

**Sumana Chandramouli**, GSK Vaccines, USA  
*From Pentamer Structure to HCMV Vaccine*

**Amy S. Espeseth**, Merck & Co., Inc., USA  
*mRNA Vaccines Expressing Forms of RSV-F Protein are Immunogenic and Protective in Preclinical Models of Respiratory Syncytial Virus Infection*

**Barney S. Graham**, NIAID, National Institutes of Health, USA  
*Clinical Results from the Prefusion-Stabilized RSV F (DS-Cav1) Subunit Vaccine*

#### Short Talk(s) Chosen from Abstracts

#### Poster Session 1

### TUESDAY, FEBRUARY 12

#### Keynote Address (Joint)

**Michel C. Nussenzweig**, HHMI/Rockefeller University, USA  
*Antibody Responses and Antibodies*

#### Germinal Center Biology (J6)

**Gabriel D. Victora**, Rockefeller University, USA  
*Clonal Dynamics of the Antibody Response*

**Jason G. Cyster**, HHMI/University of California, San Francisco, USA  
*Guidance Cues in the B Cell Response*

**Tomohiro Kurosaki**, WPI Immunology Frontier Research Center, Osaka University, Japan  
*Memory Cell Differentiation in the Germinal Center*

#### Short Talk(s) Chosen from Abstracts

#### B Cell Ontogenies as Vaccine Templates (J5)

**Lynn Morris**, National Institute for Communicable Diseases, South Africa  
*V2-directed vaccine-like antibodies from HIV-1 infection mediate ADCC and block  $\alpha 4\beta 7$  interactions*

**William Schief**, IAVI and The Scripps Research Institute, USA  
*Germline-Targeting Vaccine Design*

**Frederick W. Alt**, Boston Children's Hospital, USA  
*Mouse Models for Lineage-Based Vaccines*

#### Short Talk(s) Chosen from Abstracts

#### Workshop 2: Tfh/Tfr Differentiation and Function (J6)

##### Short Talks Chosen from Abstracts

#### Workshop 2: Antibody Isolation and B Cell Sequencing (J5)

##### Short Talks Chosen from Abstracts

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### Programming T Cells to Help B Cells (J6)

**Federica Sallusto**, Università della Svizzera Italiana & ETH Zurich, Switzerland

*Antigen-Specific Tfh Cells in Humans*

**Casey T. Weaver**, University of Alabama at Birmingham, USA  
*Programming the Early Bifurcation of Tfh and Non-Tfh Effector Responses*

**Philippa C. Marrack**, HHMI/National Jewish Health, USA  
*Tfh Memory*

Short Talk(s) Chosen from Abstracts

### Tackling Difficult Pathogens with Antibody-Based Vaccine Design (J5)

**Ian A. Wilson**, The Scripps Research Institute, USA  
*Towards a Universal Influenza Virus Vaccine: Is it Better to Target the HA Head or Stem?*

**Sarah F. Andrews**, National Institutes of Health, USA  
*Identifying Common Antibody Lineages to Evaluate Clinical Responses to Influenza Vaccination*

**Erica Ollmann Saphire**, The Scripps Research Institute, USA  
*Vaccine Design from a Prefusion-Stabilized Lassa Virus Trimer Structure*

Short Talk(s) Chosen from Abstracts

### Poster Session 2

### WEDNESDAY, FEBRUARY 13

#### Keynote Session (Joint)

**Facundo D. Batista**, Ragon Institute of MGH, MIT and Harvard, USA  
*Importance of B Cell-T Cell Interactions in Mouse Vaccine Models*

**Hedda Wardemann**, German Cancer Research Center, Germany  
*Development and Clonal Evolution of Human Memory B Cell Antibody Responses*

### B Cell Responses in Infectious Disease (J6)

**Patrick C. Wilson**, University of Chicago, USA  
*The B Cell Response to Influenza and Vaccination*

**Frances E. Lund**, University of Alabama at Birmingham, USA  
*T Cell Dependent Memory B Cell Responses in Influenza Infection and Vaccination*

Short Talk(s) Chosen from Abstracts

### Immune Monitoring of B Cell Responses (J5)

**Michael Joseph Mina**, Brigham and Women's Hospital, USA  
*Reading the Record of Immunity: Profiling the Anti-Virome Antibody Repertoire with Phage Display and Deep Neural Networks*

**Margaret Ellen Ackerman**, Dartmouth College, USA

*Measuring and Mining Serum Antibody Responses to Understand Protection from Infection*

Short Talk(s) Chosen from Abstracts

### Workshop 3: B Cell-T Cell Interactions in Disease (J6)

Short Talks Chosen from Abstracts

### Workshop 3: Molecular Approaches to Probe the Elicited Vaccine Response (J5)

Short Talks Chosen from Abstracts

### Memory Humoral Responses (J6)

**Marc K. Jenkins**, University of Minnesota Medical School, USA  
*Memory T and B Cell Responses*

**Mark J. Shlomchik**, University of Pittsburgh School of Medicine, USA  
*Memory B Cell Subsets*

**Marion Pepper**, University of Washington, USA  
*Memory B Cells in Plasmodium Infection*

Short Talk(s) Chosen from Abstracts

### Optimizing Vaccine Responses (J5)

**Neil P. King**, University of Washington, USA  
*Atomic-Level Design to Increase the Magnitude of B Cell Responses*

**Günther Staffler**, AFFiRiS AG, Austria  
*Towards a Heart Attack Vaccine: PCSK9 as a Immunogen*

**Jaap Goudsmit**, Harvard T.H. Chan School of Public Health, USA  
*New Vaccines against Alzheimer's*

Short Talk(s) Chosen from Abstracts

### Poster Session 3

### THURSDAY, FEBRUARY 14

### Humoral Autoimmunity and Allergic Responses (J6)

**Rachel Ettinger**, Viela Bio, USA  
*VIB4920, a Novel CD40L Antagonist, Decreased Disease Activity and Improved Biomarkers of Immune Activation in a Phase 1b, Proof-of-Concept Study in Rheumatoid Arthritis*

**Michael C. Carroll**, Boston Children's Hospital, Harvard Medical School, USA  
*Epitope Spreading in Autoimmune Germinal Centers*

**Maria A. Curotto de Lafaille**, NYU School of Medicine, USA  
*Biology of IgE Affinity Maturation*

**Christopher C. Goodnow**, Garvan Institute of Medical Research, Australia  
*Redemption of Self-Reactive B Cells in the Germinal Center*

Short Talk(s) Chosen from Abstracts

### Vaccines: Better, Faster, and Less Expensive! (J5)

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**Rino Rappuoli**, GlaxoSmithKline Vaccines, Italy

*Developing Vaccines against Pandemics and for the Developing World*

**Laura M. Walker**, Adimab, USA

*Rapid Antibody Identification to Speed Pandemic Responses*

**Brandon DeKosky**, University of Kansas, USA

*Paired Heavy-Light Chain Sequencing and Display to Optimize Immune Readout from Vaccination and for Immune Monitoring*

**Julie Ledgerwood**, NIAID, National Institutes of Health, USA

*Immune Monitoring to Increase the Likelihood of Phase 2 Success*

**Short Talk(s) Chosen from Abstracts**

### Workshop 4: Molecular Approaches for Rapid Identification/Optimization of Target Antigens (J5)

**Short Talks Chosen from Abstracts**

### T-Dependent B Cell Differentiation (J6)

**Klaus Rajewsky**, Max Delbrück Center for Molecular Medicine, Germany

*Transcriptional Programming of GC B Cell Differentiation*

**Meinrad Busslinger**, Research Institute of Molecular Pathology, Austria

*Ikaros Prevents Autoimmunity by Promoting Anergy Induction and Restraining Toll-like Receptor Signaling in B cells*

**Robert Brink**, Garvan Institute of Medical Research, Australia

*Constant Region-Based Selection in the Germinal Center Reaction*

**Short Talk Chosen from Abstracts**

### Reducing Vaccine Risks and Costs (J5)

**Jeffrey B. Ulmer**, GSK Vaccines, USA

*Molecular Approaches to Streamlining Vaccine Discovery and Development*

**Katalin Karikó**, BioNTech RNA Pharmaceuticals, Germany

*Advantages of an mRNA Vaccine Approach*

**Gary J. Nabel**, Sanofi, USA

*How Appropriate Choice of a Human Antibody Template Reduces Vaccine Development Risks*

**Short Talk Chosen from Abstracts**

### Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (J6)

### Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (J5)

## FRIDAY, FEBRUARY 15

Departure