

# KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

## T Cell Memory (X2)

Scientific Organizers: David B. Masopust, Ananda W. Goldrath and Marion Pepper

Sponsored by BioLegend, Inc.

## B Cell Renaissance: Epigenetics, Regulation and Immunotherapy (X1)

Scientific Organizers: Paolo Casali, Nicole Baumgarth, Meinrad Busslinger and Elizabeth Leadbetter

March 1-5, 2020 • Fairmont Banff Springs • Banff, AB, Canada

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Discounted Abstract & Scholarship Deadline: November 5, 2019 / Abstract Deadline: December 4, 2019 / Discounted Registration Deadline: January 8, 2020

### SUNDAY, MARCH 1

#### Arrival and Registration

### MONDAY, MARCH 2

#### Keynote Session (Joint)

**Max D. Cooper**, Emory University, USA  
*Evolution of B and T Cells*

**Rafi Ahmed**, Emory University School of Medicine, USA  
*Ontogeny of Immunological Memory*

#### B Cell Memory (Joint)

**Ignacio Sanz**, Emory University, School of Medicine, USA  
*Pathways of B Cell Activation in Human SLE*

**Marion Pepper**, University of Washington, USA  
*Memory B Cell Heterogeneity*

**Tomohiro Kurosaki**, WPI Immunology Frontier Research Center, Osaka University, Japan  
*Functional Characterization of Memory B Cells*

**Abhijit A. Ambegaonkar**, NIAID, National Institutes of Health, USA  
*Short Talk: Chronic Human Infectious Diseases Blind Atypical Memory B Cells to Soluble but Not Membrane-Associated Antigens*

**Youngmin Son**, Mayo Clinic, USA  
*Short Talk: Tissue-Resident CD4 T Helper Cells Co-Ordinate Local Protective B and CD8 Memory T Cell Responses*

#### Workshop 1 (X2)

**Salix Boulet**, Université de Montréal, Canada  
*Opposing Role for the Notch Signaling Pathway in CD103+ and CD103- Tissue Resident Memory CD8 T Cells*

**Yao Chen**, Medical College of Wisconsin, USA  
*BATF Epigenetically Programs Progenitor to Cytolytic CD8 T Cell Transition during Chronic Viral Infection*

**Maximilien Evrard**<sup>†</sup>, University of Melbourne, Australia  
*Sphingosine-1-Phosphate Receptor 5 (S1P5) Critically Regulates Tissue-Resident Memory T Cell Formation*

**Oliver J. Harrison**, Benaroya Research Institute, USA  
*Commensal-Specific T Cell Plasticity Promotes Rapid Tissue Adaptation to Injury*

**Matteo Iannacone**, Fondazione Centro San Raffaele, Italy  
*Spatiotemporal Dynamics and Genomic Landscape of CD8+ T Cells Undergoing Intrahepatic Priming*

**Rakshin P. Kharwadkar**, Indiana University School of Medicine, USA  
*A Single Cell Approach to Identify the Role of IL-9 in Allergic Recall Responses*

#### Workshop 1 (X1)

**Sarah F. Andrews**, National Institutes of Health, USA  
*Fifty-Year-Old Memory B Cells Shape the Response to Influenza Vaccination in Humans*

**Ashley Braddom**, University of Texas Health Science Center at San Antonio, USA  
*Atypical Memory B Cells in Malaria-Exposed People Have a Unique B Cell Receptor Repertoire*

**Masaru Kanekiyo**, NIAID, National Institutes of Health, USA  
*Identification of a Vaccine-Elicited Broadly Neutralizing Nonhuman Primate Antibody Targeting the Conserved Stem on Influenza Hemagglutinin*

**Isaraphorn Pratumchai**, The Scripps Research, USA  
*IL-27-Producing B Cells Are Key Regulators of Anti-Viral Immunity and Antibody Responses*

**David R. Glass**, Stanford University, USA  
*An Integrated Multi-Omic Single Cell Atlas to Redefine Human B Cell Memory*

**Andrea Largent**, Seattle Children's Research Institute, USA  
*Dysregulated Type 1 and Type 2 Interferon Signals Promote Humoral Autoimmunity in STAT1 Gain-of-Function Syndrome*

**Brittany Hartwell**, Massachusetts Institute of Technology, USA  
*Engineering Vaccine Immunity Through the Use of Albumin as an Endogenous Chaperone to Promote Uptake at Mucosal Surfaces*

#### Harnessing T Cells for Cancer (X2)

**Thomas Gebhardt**, Doherty Institute for Infection and Immunity, Australia  
*Localized T Cell Control of Persisting Melanoma*

**Marcela V. Maus**, Harvard Medical School, USA  
*Role of Memory in CAR T Cells for Cancer*

**Stanley R. Riddell**, Fred Hutchinson Cancer Research Center, University of Washington, USA  
*CAR T Cells*

**Jaime L. Chao**, University of Chicago, USA  
*Short Talk: Effector T Cell Responses Unleashed by Treg Cell Ablation Promote Progression of Oral Squamous Cell Carcinoma*

**Nikhil S. Joshi**, Yale University School of Medicine, USA  
*Short Talk: Reservoir of Tumor Specific CD8 T Cells Maintains Anti-Tumor Immune Response*

#### B Cell Development (X1)

**Meinrad Busslinger**, Research Institute of Molecular Pathology, Austria  
*Role of Pax5 in Controlling Loop Extrusion and VH Gene Recombination at the Igh Locus*

**Joan Yuan**, Lund University, Sweden  
*Fate Mapping of Early Life Origin B Cells in Adult Mice*

**Frederick W. Alt**, Boston Children's Hospital, USA  
*Fundamental Roles of Chromatin Loop Extrusion in V(D)J and IgH Class Switch Recombination*

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**Mattia Lion**, Massachusetts General Hospital, USA

*Short Talk: Alterations in Chromatin at Antigen Receptor Loci Define Lineage Progression during B-Lymphopoiesis*

**Stuart G. Tangye**, Garvan Institute of Medical Research, Australia

*Short Talk: Regulation of Humoral Immunity by Cytokine-Mediated STAT Signalling – Lessons from Inborn Errors of Immunity*

### Poster Session 1

#### TUESDAY, MARCH 3

##### Migration and Resident Memory (X2)

**David B. Masopust**, University of Minnesota, USA

*Relationships Between Memory T Cell Magnitude, Quality, and Location*

**Heather D. Hickman**, NIAID, National Institutes of Health, USA

*Antiviral T Cell Biology in Lymphoid and Peripheral Tissues*

**Ulrich H. Von Andrian**, Harvard Medical School, USA

*Peripheral T Cell Immunosurveillance*

**Rachael A. Clark**, Brigham and Women's Hospital, Harvard Medical School, USA

*Human Resident Memory T Cell Biology*

**Daniel Fernández Ruiz**, University of Melbourne, Australia

*Short Talk: Harnessing Liver Trm Cell-Mediated Immunity for Efficient Protection against Malaria*

**Brian S. Sheridan**<sup>†</sup>, Stony Brook University, USA

*Short Talk: Lymph Node Priming Licenses Intestinal CD103<sup>+</sup> CD8 Tissue-Resident Memory T Cell Development*

##### Germinal Center B Cells (X1)

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

*Clonal Dynamics of the Antibody Response*

**Duane R. Wesemann**, Harvard Medical School, USA

*Germinal Center Antibody Maturation*

**Uttiya Basu**, Columbia University, USA

*Noncoding RNA Mediated Regulation of Antibody Gene Diversification*

**Hai Qi**, Tsinghua University, China

*Regulation of Germinal Center Input and Output*

**Marcus R. Clark**, University of Chicago, USA

*Short Talk: Novel Specialized Cell State and Spatial Compartments within the Germinal Center*

**Andrew J. Gunderson**, Providence Cancer Center, USA

*Short Talk: Germinal Centers in Tertiary Lymphoid Structures Distinguish Long-Term Pancreatic Cancer Survivors Associated with Neoantigen Expression and Immune Memory*

**Mark P. Roberto**, Icahn School of Medicine at Mount Sinai, USA

*Short Talk: FoxO1 Pioneers Germinal Center B Cell Chromatin Landscapes*

##### Workshop 2 (X2)

**Justin Spanier**, University of Minnesota, USA

*XCR1<sup>+</sup> Dendritic Cells Are Necessary for the Formation of Tolerant CD4 T Cells Induced by Chemically-Fixed Antigen-Coupled Splenocytes*

**Claire E. Depew**, University of California, Davis, USA

*The Role and Formation of Tissue Resident Memory in Protection against Systemic Salmonella Infection*

**Carmen Gerlach**, Karolinska Institutet, Sweden

*CX3CR1 Expression Levels Defining Human CD8 T Cell Subsets*

**Taylor Heim**, Oregon Health and Sciences University, USA

*The Chemokine Receptor CXCR6 Promotes Tissue Resident Memory Formation by Facilitating Antigen Recognition in Diverse Non-Lymphoid Tissues*

**Min-Seok Rha**, Korea Advanced Institute of Science & Technology, South Korea

*Human Liver CD69<sup>+</sup>CD103<sup>+</sup>CD8<sup>+</sup> T Cells Are Terminally Differentiated Memory Cells Regulated by HIF-2 $\alpha$*

**Tim Hand**, University of Pittsburgh, USA

*Microbiota-Induced Regulatory T Cells Induce a Localized Block In Intestinal CD4 T Cell Responses to Oral Vaccination*

##### Chronic Infection (X2)

**Elna I. Zuniga**, University of California, San Diego, USA

*T Cell Adaptations during Chronic Viral Infection*

**E. John Wherry**, University of Pennsylvania, USA

*T Cell Diversity and Plasticity in the Face of Persistent Antigen*

**Dietmar Zehn**, Technical University of Munich, Germany

*Regulation of T Cell Exhaustion*

**Daniel T. Utzschneider**, Doherty Institute for Infection and Immunity, Australia

*Short Talk: Early Precursor T Cells Propagate and Establish T Cell Exhaustion in Chronic Infection*

**Sara Van Den Berg**, National Institute of Public Health and Environment, Netherlands

*Short Talk: T Cell Longevity in CMV-Infection: Unique Insights from In Vivo Deuterium Labelling in Humans*

##### Epigenetic and (Post) Transcriptional Control of B Cell Differentiation (X1)

**Katia Georgopoulos**, Massachusetts General Hospital, USA

*Epigenetics of B Lymphocyte Specification*

**Jacqueline E. Payton**, Washington University, USA

*Mechanisms of Dysregulated Enhancer Activity in B Cell Cancers*

**Paolo Casali**, University of Texas Long School of Medicine, USA

*HDACs and HDAC Inhibitors as Epigenetic Modulators of the Antibody Response*

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**Jeremy M. Boss**, Emory University, USA

*Short Talk: Antibody Secreting Cell Destiny Emerges during the Initial Stages of B Cell Activation*

**Chris Scharer**, Emory University, USA

*Short Talk: Epigenetic Priming Accelerates Memory B Cell Reactivation*

### Poster Session 2

#### WEDNESDAY, MARCH 4

##### Memory T Cell Longevity and Maintenance (X2)

**Stephen C. Jameson**, University of Minnesota Medical School, USA  
*Requirements for Establishment and Maintenance of Resident Memory CD8<sup>+</sup> T Cells*

**Ananda W. Goldrath**, University of California, San Diego, USA  
*Transcriptional Regulation of T Cell Memory*

**John T. Harty**, University of Iowa, USA  
*Memory CD8 T Cell Immunity to Liver-Stage Malaria*

**Susan M. Kaech**, The Salk Institute, USA  
*Programming T Cell Durability*

**Luigia Pace**, Italian Institute for Genomic Medicine, Italy  
*Short Talk: Epigenetic and Transcriptional Control during CD8<sup>+</sup> T Cell Fate Commitment*

**Emma Teixeira**, University of Missouri, USA  
*Short Talk: NFκB Signaling Differentially Regulates Tissue Resident Memory Generation and Maintenance*

##### B Cells and Immune Regulation (X1)

**Andrea Cerutti**, Mount Sinai School of Medicine, USA  
*Innate B Cells*

**Nicole Baumgarth**, University of California, Davis, USA  
*B-1 Cells and the Regulation of Natural Antibody Production*

**Lars Nitschke**, University of Erlangen, Germany  
*Siglec-G Controls the Severity of B-Cell Chronic Lymphocytic Leukemia*

**Facundo D. Batista**, Ragon Institute of MGH, MIT and Harvard, USA  
*T-B Cell Interactions*

**Gary Winslow**, SUNY Upstate Medical University, USA  
*Short Talk: Developing T-Bet<sup>+</sup> B Cells Require Both IL-21 and IFN-γ from TFH1 Cells*

**Ryosuke Hiwa**, University of California, San Francisco, USA  
*Short Talk: Negative Regulation of B Cell Responses by Nr4a1 and Nr4a3*

##### CD4 T Cell Memory (X2)

**Donna L. Farber**, Columbia University Medical Center, USA  
*Distribution of Human Memory CD4 T Cell Subsets*

**Daniel L. Barber**, NIAID, National Institutes of Health, USA  
*CD4 T Cell-Mediated Control of Tuberculosis*

**Marc K. Jenkins**, University of Minnesota Medical School, USA  
*Ontogeny and Maintenance of CD4<sup>+</sup> Memory T Cell Subsets*

**Lin-Xi Li**, University of Arkansas for Medical Sciences, USA  
*Short Talk: Memory CD4 T Cells in Chlamydia Female Reproductive Tract Infection*

**Thomas Ciucci**, NCI, National Institutes of Health, USA  
*Short Talk: Non-Redundant Antagonism of Memory CD4<sup>+</sup> T Cell Differentiation by Bcl6 and Blimp1*

##### B Cells in Adipose, Thymus, Mucosa, and Digestive Mucosae (X1)

**Haochu Huang**, Genentech, Inc., USA  
*Thymic B Cells and T Cell Tolerance*

**Elizabeth A. Leadbetter**, University of Texas Long School of Medicine, USA  
*T-bet<sup>+</sup> B Cells Exacerbate Metabolic Disorder in Obesity*

**Andrea Reboldi**, University of Massachusetts Medical School, USA  
*Cholesterol Metabolism in Gut Mucosal B Cell Responses*

**Sébastien This<sup>†</sup>**, Centre International de Recherche en Infectiologie, France  
*Short Talk: Avβ8 Integrin-Expression by BATF3-Dependent Dendritic Cells Facilitates IgA Responses to Rotavirus*

**Milena Bogunovic**, UMass Medical School, USA  
*Short Talk: Intestinal IgA Response to Infection from the Macrophage Perspective*

### Poster Session 3

#### THURSDAY, MARCH 5

##### New Vaccine Concepts (X2)

**Carola G. Vinuesa**, Australian National University, Australia  
*Regulation of Human B Cell Responses by Follicular Regulatory T Cells*

**Robert A. Seder**, NIAID, National Institutes of Health, USA  
*Vaccines Against HIV, Malaria, TB, and Cancer*

**Antonio Lanzavecchia**, Institute for Research in Biomedicine, Switzerland  
*Antibody Evolution and Clonal Selection*

**Louis J. Picker**, Oregon Health & Science University, USA  
*CMV-Vectored Vaccination*

**Katharine E. Block**, University of Minnesota, USA  
*Short Talk: Memory T Cells Do Not Protect Against Heterologous Influenza Infection in "Dirty" Mice with Physiologically Transmitted Murine Microbes*

**Klaas P.J.M. Van Gisbergen**, Sanquin Research, Netherlands  
*Tissue-Resident Memory CD8<sup>+</sup> T Cells Shape Secondary T Cell Responses*

**Laura Su**, University of Pennsylvania, USA  
*Short Talk: Longitudinal CD4<sup>+</sup> T Cell Analyses Reveal Defining Features of Pre-Vaccine State That Influence Post-Vaccination Response*

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## B Cell Activation in Immunity and Autoimmunity (X1)



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**Claudia Mauri**, University College London, UK  
*Getting to the "Bottom" of Arthritis: A Role for Regulatory B Cells in the Gut*

**Ari M. Melnick**, Weill Cornell Medical College, USA  
*Epigenetic Control of the Germinal Center Reaction and Lymphomagenesis*

**Alessandra Pernis**, Weill Cornell Medicine, USA  
*ABC Cell Generation and Transcriptional Makeup*

**Mikael C. I. Karlsson**, Karolinska Institutet, Sweden  
*Neutrophil and NKT Cell Regulation of Autoreactive B Cell Responses*

**Deborah L. Burnett**, Garvan Institute of Medical Research, Australia  
*Short Talk: Investigating B Cell Selection and Mutation to Antigens Mimicking Self*

**Mélanie Rogier**, IGBMC, France  
*Short Talk: Fam72a Recruits UNG2 to AID-Generated Uracils in DNA during CSR*

**Irene Chernova**, Yale University, USA  
*Short Talk: Enhanced Na-K-ATPase Expression Mediates B cell Survival in Lupus Kidneys*

**Anthony Lau**, Garvan Institute of Medical Research, Australia  
*Short Talk: Activated PI3K $\delta$  Breaks Multiple B Cell Tolerance Checkpoints, Resulting Autoantibody Production*

**Minakshi Rana**, Feinstein Institutes For Medical Research, USA  
*Short Talk: Vagus Nerve Activity Modulates B-Cell Mediated T Cell-Dependent Humoral Response in Sepsis-Survivors*

### Panel Discussion: T Cell Nomenclature (X2)

### Workshop 2 (X1)

**Wenzhi Song**, Yale University, USA  
*Development of CD11c-Expressing Inflammatory B Cells Is Dependent upon Help Delivered by T Follicular Helper Cells Outside of Germinal Centers*

**Fahd Al Qureshah**, University of Washington, USA  
*Distinct Function for Activated PI3K $\delta$  in B Cells vs. T Cells during the Germinal Center Response*

**Rachel Cederberg**, BC Cancer Research Centre, Canada  
*B-1 Cells Secrete "Natural" Tumor-Specific Antibodies and Restrict Lung Metastasis*

**Sara Erlan Sagadiev**, Seattle Children's Research Institute, USA  
*Non-Canonical Autophagy and Regulation of B Cell Responses*

**Andrea Di Pietro**, Monash University, Australia  
*The Epigenetic Regulation of B Cells Mediated by Polycomb Repressive Complexes during Acute and Chronic Infections*

**Daisy H. Luff**, Francis Crick Institute, UK  
*Elucidating Novel Pathways of BAFF-Receptor Signalling for B Cell Survival*

### Molecular Regulation of T Cell Memory (X2)

**Ben A. Youngblood**, St. Jude Children's Research Hospital, USA  
*Maintenance of Memory T Cell Acquired Gene Expression Programs*

**Andrea Schietinger**, Memorial Sloan Kettering Cancer Center, USA  
*Regulating Exhaustion in Anti-Cancer T Cells*

**Pamela L. Schwartzberg**, NIAID, NHGRI, National Institutes of Health, USA  
*Talk Title to be Announced*

**Stephen J. Turner**, Monash University, Australia  
*Short Talk: Dynamic Changes in 3D Spatial Chromatin Organization Underpin Virus Specific Killer T Cell Differentiation*

### Harnessing B Cells for Cancer Immunotherapy (X1)

**Jayanta Chaudhuri**, Memorial Sloan Kettering Cancer Center, USA  
*Regulating DNA Double Strand Break Formation During Immunoglobulin Class Switch Recombination*

**Riccardo Dalla-Favera**, Columbia University, USA  
*B Cell Activation and Neoplastic Transformation*

**Shannon J. Turley**, Genentech, Inc., USA  
*Stromal Cells Direct Lymphoid Architecture and Immune Cell Homeostasis*

**Yuliya Pylayeva-Gupta**, University of North Carolina at Chapel Hill, USA  
*Short Talk: B Cells Establish Immunosuppressive Network in Pancreatic Ductal Adenocarcinoma*

### Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (X2)

### Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (X1)

### FRIDAY, MARCH 6

### Departure