B Cells and T Follicular Helper Cells – Controlling Long-Lived Immunity

April 23–27, 2017 | Whistler Conference Centre | Whistler, British Columbia | Canada

Scientific Organizers:
Stuart G. Tangye, Garvan Institute of Medical Research, Australia
Ignacio Sanz, Emory University, School of Medicine, USA
Hai Qi, Tsinghua University, China

B cells are fundamental for the development of long-lived immunological memory following exposure to infectious pathogens and, consequently, for the success of the vast majority of currently-available vaccines. The differentiation of B cells into the effector cells of serological memory – memory B cells and plasma cells – occurs in germinal centers. However this process critically requires a specialized subset of CD4+ T cells termed T follicular helper (Tfh) cells. The integration of signals required to generate germinal center B cells, memory and plasma cells, and Tfh cells are strictly controlled. This is to ensure the efficient selection of antigen-specific high-affinity effector cells, and to prevent the development of immune dyscrasias associated with GCs, such as autoimmunity, immune deficiency and malignancy – conditions that can develop when the complexities of lymphocyte differentiation in germinal centers are dysregulated. Despite the substantial advances that have been made in understanding the cellular, biochemical and molecular requirements for the generation of effective T-dependent B-cell responses, major questions regarding these processes remain. Answers to such questions are needed so as to be able to harness the intrinsic function of memory B cells, plasma cells and Tfh cells in order to enhance immunity in immunocompromised individuals, improve vaccine design and develop novel vaccines for infectious pathogens, as well as to attenuate humoral immune responses in the setting of autoantibody-mediated autoimmune diseases. This meeting will bring together basic and clinical immunologists to address unanswered questions and to discuss the latest cutting-edge breakthroughs in the biology of B cells and Tfh cells to facilitate development of new translational strategies of regulating their behavior in human immunopathologies.

Session Topics:
• B Cells, Infections and Vaccines
• Workshop 1: B Cell Memory and Plasma Cells
• Transcriptional Regulation of B Cells and Tfh Cells
• Tfh Programming and Flexibility
• Lymphocyte Signaling and Diseases
• Autoimmunity and Immunodeficiency – Mice and Man
• GCs, Tfh Cells and Disease
• B Cell Regulation: Intrinsic and Extrinsic Mechanisms
• Workshop 2: Molecular Regulation of the Germinal Center Response
• Germinal Center Dynamics

Scholarship Application & Discounted Abstract Deadline: December 21, 2016
Abstract Deadline: January 24, 2017
Discounted Registration Deadline: February 23, 2017

Note: Scholarships are available for graduate students and postdoctoral fellows and are awarded based on the abstract submitted.

Upper image of B cell courtesy of Blausen gallery 2014, Wikiversity Journal of Medicine, DOI:10.15347/wjm/2014.010

Meeting Hashtag: #KSbtfhcell
www.keystonesymposia.org/17D2
SUNDAY, APRIL 23
Arrival and Registration

MONDAY, APRIL 24
Welcome and Keynote Address
*Stuart G. Tangye, Garvan Institute of Medical Research, Australia
Christopher C. Goodnow, Garvan Institute of Medical Research, Australia
Actively Acquired Tolerance in the Antibody System - The Iliad and The Odyssey

B Cells, Infections and Vaccines
*HaQi, Tsinghua University, China
William Schief, IAVI and The Scripps Research Institute, USA
HIV Vaccine Strategies to Guide B Cell Maturation
Stuart G. Tangye, Garvan Institute of Medical Research, Australia
Molecular Requirements for Generating Long-Lived Humoral Immunity in Humans: Lessons from Human Genetic Diseases
Jenny L. Johnson, St. Jude Children's Research Hospital, USA
Short Talk: The Role of Germinal Centers in Generating Antibodies to Conserved Influenza Epitopes
Deepak Rao, Brigham and Women’s Hospital, USA
Short Talk: Plasticity of Circulating PD-1hi Follicular and Peripheral Helper T Cells

Workshop 1: B Cell Memory and Plasma Cells
*Kathryn A. Pape, University of Minnesota, USA
*Robert C. Rickert, Pfizer Inc., USA
Kerstin Narr, University of Basel, Switzerland
Interferon-Driven Deletion of Antiviral B Cells at the Onset of Chronic Infection
Daniel Lingwood, Harvard Medical School, USA
DC-Dependent Control Over the Initiation of Humoral Immunity
Mary M. Tomayko, Yale University School of Medicine, USA
B Cell Memory Formation Requires Bone Morphogenetic Protein Receptor Ia
Deborah L. Burnett, Garvan Institute of Medical Research, Australia
Somatic Hypermutation Serves Two Independent Functions: Antibody Maturation Away from Binding Self and towards Binding Foreign
Joshua F. Koenig, McMaster University, Canada
Long-Lived Memory B Cells Maintain Th2 Humoral Immunity for a Lifetime
Sandra Nielsen, Stanford University, USA
Human Immune Responses to Controlled Necator Americanus (Hookworm) Infection
Deepta Bhattacharya, Washington University School of Medicine, USA
Metabolic Control of Plasma Cell Lifespan and Antibody Secretion
Nicolas Hipp, University of Rennes1, France
T Cell Help Mediated by IL-2 Orchestrates BACH2 Downregulation that Allows Plasma Cell Differentiation

Transcriptional Regulation of B Cells and Tfh Cells
*Betty Diamond, Feinstein Institute for Medical Research, USA
Stephen L. Nutt, Walter and Eliza Hall Institute, Australia
The Regulation of Gene Expression in B Cells
Amy Weinmann, University of Alabama at Birmingham, USA
Molecular Regulators of CD4 T Cell Differentiation
Jason Weinstein, Rutgers New Jersey Medical School, USA
Short Talk: The Transcriptional Regulators STAT4 and T-bet Cooperate in Follicular Helper T Cells to Fine-Tune the Viral Specific Humoral Response
Ari M. Melnick, Weill Cornell Medical College, USA
Epigenetic Switches Controlling the Germinal Center Reaction

Poster Session 1

TUESDAY, APRIL 25
Tfh Programming and Flexibility
*Ignacio Sanz, Emory University, School of Medicine, USA
Hai Qi, Tsinghua University, China
Germlinal Center T-B Communications
Shane Crotty, La Jolla Institute for Allergy and Immunology, USA
Tfh Differentiation and B Cell Responses in the Context of Vaccines and Infections
Elissa K. Deenick, Garvan Institute of Medical Research, Australia
Short Talk: Over Activation of PI3K Causes Defects in B-Cell Development and Differentiation
Silvia Preite, National Institutes of Health, USA
Short Talk: Dissecting the Role of Phosphatidylinositol 3-Kinase (PI3K) δ in the Germinal Center Reaction through a Mouse Model of Hyperactivated PIK3CD
Hideki Ueno, Icahn School of Medicine at Mount Sinai, USA
Circulating Tfh1 Cells in Influenza Vaccination
Dirk Baumjohann, Ludwig-Maximilians-University Munich, Germany
Short Talk: MicroRNAs are Essential for the Maintenance of Tfh Cell Identity and Germinal Centers
Luis Graça, iMM-Instituto de Medicina Molecular, Portugal
Short Talk: T Follicular Helper (Tfh) and T Follicular Regulatory (Tfr) Cells Have Different TCR-Specificity

Lymphocyte Signaling and Diseases
*Robert Brink, Garvan Institute of Medical Research, Australia
David J. Rawlings, University of Washington, Seattle Children's Hospital Research Institute, USA
Signaling Defects Causing Immune Dysregulation
Gail A. Bishop, University of Iowa, USA
TRAF3 Inhibits B Cell Survival and Differentiation via Multiple Mechanisms
Robert C. Rickert, Pfizer Inc., USA
Metabolic Checkpoints and the B Cell Life Cycle
Christopher D. C. Allen, University of California, San Francisco, USA
Short Talk: IgE Responses Are Regulated by Constitutive Activity of the IgE B Cell Receptor

Poster Session 2

WEDNESDAY, APRIL 26

Autoimmunity and Immunodeficiency - Mice and Man
*David M. Tarlinton, Monash University, Australia
Robert Brink, Garvan Institute of Medical Research, Australia
Circumvention of Normal Antigenic Controls by Rogue Germinal Center B Cells
Qiang Pan-Hammarsköt, Karolinska Institutet, Sweden
DNA Repair Defects and Primary Immunodeficiency
David M. Tarlinton, Monash University, Australia
Guiding B Cells In and Out of Germinal Centers: Many Are Called but Few Are Chosen
Alessandra Pernis, Weill Cornell Medicine, USA
Short Talk: Regulation of CD11c+ Tbet+ B Cells in Systemic Autoimmunity
Corey Tan, University of California, San Francisco, USA
Short Talk: Nur77 Expression Marks Autoreactive B Cells in vivo and Enforces Tolerance
Mark J. Shlomchik, University of Pittsburgh School of Medicine, USA
Unexpected Roles of Dendritic Cells in Regulating Extrafollicular (EF) Plasmablast Responses

GCs, Tfh Cells and Disease
*Kim Good-Jacobson, Monash University, Australia
Laura Pasqualucci, Columbia University, USA
Genetic-Driven Epigenetic Dysregulation in B Cell Non-Hodgkin Lymphoma
Karim Tarte, Université de Rennes 1 - U917 Inserm, France
GC-B-Cell Malignancies and the Tumor Microenvironment
Stephanie C. Eisenbarth, Yale University, USA
Short Talk: Dock8 Deficiency Reveals the Role of Dendritic Cell Subsets in Tfh Cell Priming
Marcus R. Clark, University of Chicago, USA
Quantifying adaptive cell networks in human inflammation

Poster Session 3

THURSDAY, APRIL 27

B Cell Regulation: Intrinsic and Extrinsic Mechanisms
*Gail A. Bishop, University of Iowa, USA
Peter Sage, Harvard Medical School, USA
T Follicular Regulatory Cells and Regulation of Humoral Immunity
Ignacio Sanz, Emory University, School of Medicine, USA
A New Effector B Cell Pathway with Defective Negative Regulation of TLR7 Signaling in Human SLE
Betty Diamond, Feinstein Institute for Medical Research, USA
B Cell-Mediated Autoimmunity and Therapeutics

Kathryn A. Pape, University of Minnesota, USA
Short Talk: A Single Heavy Chain Variable Segment Determines the Size, Quality, and Longevity of the Memory B Cell Response to a Protein Antigen
Patrick C. Wilson, University of Chicago, USA
Identification of Influenza-Induced Precursors for Long-Lived Plasma Cells in Humans
Jenna Guthmiller, University of Oklahoma Health Sciences Center, USA
Short Talk: B Cell-Intrinsic and -Extrinsic IL-10 Signaling Promotes Germinal Center B Cell Responses and Protective Anti-Plasmodium Humoral Immunity

Workshop 2: Molecular Regulation of the Germinal Center Response
*Elissa K. Deenick, Garvan Institute of Medical Research, Australia
*Christopher D. C. Allen, University of California, San Francisco, USA
Roza I. Nurieva, University of Texas MD Anderson Cancer Center, USA
STAT1 Is Required for Tfh Lineage Maintenance through Regulation of IL-21 Expression
Amanda Mener, Emory University, USA
Complement Serves as a Switch between CD4 Independent and Dependent Antibody Responses
Mark Andrew Noviski, University of California, San Francisco, USA
Differential Responsiveness of IgM and IgD to Self-Antigens
Kira V. Rubtsova, Eli Lilly and Company, USA
T-Bet Expression in B Cells Drives Lupus-Like Autoimmunity and the Formation of Spontaneous Germinal Centers
Ankur Saini, Cincinnati Children's Hospital Medical Center, USA
Convergent Genomic Actions of NFATs and IRF4,8 in Activated B Lymphocytes
Chris Scharer, Emory University, USA
Ezh2 Is Required for the Division-Specific Epigenetic Programming of Plasma Cell Differentiation
Mridu Acharya, Benaroya Research Institute, USA
Alpha(v) Integrins Engage Autophagy Proteins to Regulate Toll-Like Receptor Signaling in B Cells
David Glass, Stanford University, USA
Comprehensive Single Cell Phenotyping of Human B Cells Reveals Broad Heterogeneity within Previously Defined Compartments

Germinal Center Dynamics
*Shane Crotty, La Jolla Institute for Allergy and Immunology, USA
Tri Giang Phan, Garvan Institute of Medical Research, Australia
Optimal Search Strategies for B Cell Encounter with Antigen and T Cell Help in Primary and Secondary Antibody Responses
Kim Good-Jacobson, Monash University, Australia
Transcriptional and Epigenetic Regulation of B Cell Differentiation

* Session Chair † Invited but not yet accepted Program current as of October 2, 2019. Program subject to change. Meal formats are based on meeting venue. For the most up-to-date details, visit www.keystonesymposia.org/17D2.
Jonatan Ersching, Rockefeller University, USA
Short Talk: Germinal Center Selection and Affinity Maturation Require Dynamic Regulation of mTORC1

Jason G. Cyster, HHMI/University of California, San Francisco, USA
Guidance Cues for T-Dependent B Cell Activation and Differentiation

FRIDAY, APRIL 28
Departure