

# KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

## B Cells: Mechanisms in Immunity and Autoimmunity (E4)

June 17-21, 2018 • Maritim Hotel & International Congress Center Dresden • Dresden, Germany

Scientific Organizers: Lars Nitschke, Michael Reth, Roberta Pelanda and David M. Tarlinton

Sponsored by Genentech, Inc., MSD, and Roche

Abstract & Scholarship Deadline: February 14, 2018 / Abstract Deadline: March 14, 2018 / Discounted Registration Deadline: April 17, 2018

### SUNDAY, JUNE 17

#### Arrival and Registration

### MONDAY, JUNE 18

#### Welcome and Keynote Address

- \***Roberta Pelanda**, University of Colorado Denver, USA
- Mark J. Shlomchik**, University of Pittsburgh School of Medicine, USA  
*Germinal Centers and Memory B Cells*

#### B Cell Differentiation

- \***Lill Martensson**, University of Gothenburg, Sweden
- \***Anja Erika Hauser**, Charité-Universitätsmedizin, Germany
- Martin Turner**, Babraham Institute, UK  
*Regulation of B Cell Development by RNA Binding Proteins*
- Meinrad Busslinger**, Research Institute of Molecular Pathology, Austria  
*Suppression of Autoimmunity by the Transcription Factor Ikaros*
- Marion Pepper**, University of Washington, USA  
*Memory B Cells in Malaria Infections*
- Anselm Enders**, John Curtin School of Medical Research, Australia  
*Short Talk: Deregulation of PAX5 Causes Abnormal B Cell Lymphopoiesis and Spontaneous Precursor B Cell Lymphoma Development in Mice*
- Klaus D. Fischer**, Medical Faculty Magdeburg, Germany  
*Short Talk: The Opposing Forces of Shear Flow and Sphingosine-1-Phosphate Control Marginal Zone B Cell Shuttling*

#### Workshop 1: Signals Driving Development of Conventional and Innate B Cells

- \***Joao Pereira**, Yale University School of Medicine, USA
- \***Nicole Baumgarth**, University of California, Davis, USA
- Duane R. Wesemann**, Brigham and Women's Hospital, Harvard Medical School, USA  
*Stochastic B Cell Diversification in Germinal Centers*
- Meihong Deng**, University of Pittsburgh, USA  
*TLR9 Regulates Host Defense via Modulation of Peritoneal B1 Cell Pathobiology during Intra-Abdominal Sepsis*
- Stijn Vanhee**, Lund University, Sweden  
*B Cell Positive Selection Is Developmentally Regulated during Ontogeny by the Heterochronic Protein Lin28b*
- Wenxia Song**, University of Maryland, USA  
*BCR-Antigen Interaction Causes Wounding and Repair of the B Cell Membrane, Promoting BCR Activation*
- Sandra Eva Zehentmeier**, Yale School of Medicine, USA  
*Get Your Motor Runnin': Control of B Cell Receptor Signaling through Gai Protein-Mediated Chemoattractant Sensing*
- Carolin Ulbricht**, Charité Universitätsmedizin Berlin, Germany  
*Tracking B Cell Receptor Signaling during Germinal Center Reactions in vivo*
- Daniela Giordano**, University of Washington, USA  
*Expression of and Requirement for B Cell Activating Factor (BAFF) during West Nile Virus (WNV) and Salmonella Infection*

**Simar Pal Singh**, Erasmus MC, Netherlands  
*T Cells Shape the Immunoglobulin Repertoire of Murine Chronic Lymphocytic Leukemia while B Cell Receptor Signaling Strength Controls Age of Onset*

#### Innate Functions of B Cells

- \***Michelle A. Linterman**, Babraham Institute, UK
- \***Randall S. Davis**, University of Alabama, Birmingham, USA
- Nicole Baumgarth**, University of California, Davis, USA  
*Regulation of B-1 Cell Functions*
- Simon Fillatreau**, Institut Necker Enfants Malades, France  
*Regulatory Roles of B Cells in Autoimmune and Infectious Diseases*
- Claudia Mauri**, University College London, UK  
*How Regulatory B Cells Bridge the Innate and the Adaptive Immune Response*
- Yoontae Lee**, Pohang University of Science and Technology, South Korea  
*Short Talk: Transcriptional Regulation of B-1 and B-2 Cell Fates by Capicua*
- Marc Seifert**, University of Duisburg-Essen, Germany  
*Short Talk: Molecular and Functional Characterization of Human B-1a Cells*

#### Poster Session 1

### TUESDAY, JUNE 19

#### Checkpoint Control of B Cell Signaling

- \***Raul M. Torres**, University of Colorado School of Medicine, USA
- \***Victor L.J. Tybulewicz**, Francis Crick Institute, UK
- Julia Jellusova**, University of Freiburg, Germany  
*The Role of the B Cell Receptor in Regulating Metabolic Fitness*
- Michael Reth**, Albert-Ludwigs University Freiburg, Germany  
*The Nanoscale Organization of the BCR and the B Cell Membrane*
- Jürgen Wienands**, Georg August University of Goettingen, Germany  
*The Scaffolding Protein CIN85 Controls BCR Responsiveness and Subsequent Antibody Responses in Humans*
- Markus Müschen**, Beckman Research Institute, USA  
*Autoimmunity Checkpoints in B Cell Malignancies*
- Kerstin Nündel**, University of Massachusetts Medical School, USA  
*Short Talk: Divergent Roles for TLR7 and TLR9 in Modulating the NFkB Pathway in B Cells*
- Susana Minguet**, Biology III and BIOS, Germany  
*Short Talk: Caveolin-1-Dependent Nanoscale Organization of the BCR Regulates B Cell Tolerance*

#### Poster Session 2

#### Workshop 2: Germinal Centers and Humoral Immune Response

- \***Kai-Michael Toellner**, University of Birmingham Medical School, UK
- \***Hedda Wardemann**, German Cancer Research Center, Germany
- Michelle A. Mintz**, University of California, San Francisco, USA  
*The HVEM-BTLA Interaction Restrains the Germinal Center Response*

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**Floriana Cremasco**, Università Vita Salute San Raffaele, Italy  
*Autophagy-Independent Control of the Germinal Center Reaction by the Adapter SQSTM1/p62*

**Michelle A. Linterman**, Babraham Institute, UK  
*Type I Interferon Induces CXCL13-Driven B Cell Recruitment to the Lung to Enable Tertiary Germinal Centre Formation*

**Imogen Moran**, Garvan Institute of Medical Research, Australia  
*Where and How Memory Cells Are Reactivated in the Secondary Antibody Response in the Lymph Node*

**Dessi Malinova**, Francis Crick Institute, UK  
*Genome-Wide CRISPR/Cas9 Screens Identify Components of B Cell Antigen Internalization*

**Yuezhou Chen**, Brigham and Women's Hospital, USA  
*Primary Ig Repertoire Control as a Demand-Driven Process*

**Kim Good-Jacobson**, Monash University, Australia  
*Histone-Modifying Complexes Differentially Regulate B Cell Fate Decisions during Acute and Chronic Infection*

**Ian A. Cockburn**, Australian National University, Australia  
*New Approaches to Track B Cells Specific for a Major Malaria Vaccine Candidate*

### Diversification of Antibodies and Humoral Immune Response

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

\***Berit Jungnickel**, Friedrich Schiller University Jena, Germany

**Javier M. Di Noia**, Institut de Recherches Cliniques de Montreal, Canada  
*Structure-Function of AID Uncovers a Licensing Step for Antibody Gene Diversification*

**Tomohiro Kurosaki**, WPI Immunology Frontier Research Center, Osaka University, Japan  
*Fate Decision of Germinal Center B Cells*

**Daisuke Kitamura**, Tokyo University of Science, Japan  
*Regulatory Mechanisms for Memory B Cell Development and Function*

**Robert Abbott**, La Jolla Institute for Allergy and Immunology, USA  
*Short Talk: Precursor Frequency and Affinity Determine B Cell Competitive Fitness in Germinal Centers, Tested with Germline-Targeting HIV Vaccine Immunogens*

**Berit Jungnickel**, Friedrich Schiller University Jena, Germany  
*Short Talk: Regulation of AID Activity and DNA Repair during Somatic Hypermutation*

### WEDNESDAY, JUNE 20

#### Germinal Centers and B Cell Memory Formation

\***Marion Pepper**, University of Washington, USA

\***Oliver Bannard**, University of Oxford, UK

**Gabriel D. Victora**, Rockefeller University, USA  
*Clonal and Cellular Dynamics of Germinal Center Selection*

**Carola G. Vinuesa**, Australian National University, Australia  
*T Follicular Helper Cells in the Germinal Center*

**David M. Tarlinton**, Monash University, Australia  
*Germinal Center-Derived Plasma Cells*

**Shannon J. Turley**, Genentech, Inc., USA

*Fibroblastic Reticular Cells and the Maintenance of B Cell Follicles*

**Ziv Shulman**, Weizmann Institute, Israel

*Short Talk: Germinal Centers: Arrivals, Departures and the T Cell Border Control*

**Hedda Wardemann**, German Cancer Research Center, Germany  
*Short Talk: The Role of Clonal Selection Versus Affinity Maturation in the Human B Cell Response to a Repetitive Malaria Parasite Antigen*

### B Cell Metabolism and Intersection with the Microbiome

\***Ziv Shulman**, Weizmann Institute, Israel

\***Mark J. Shlomchik**, University of Pittsburgh School of Medicine, USA

**Andreas Radbruch**, Deutsches Rheuma-Forschungszentrum, Germany  
*Regulation of Intestinal TGF $\beta$  and IgA by a Distinct Microbiota*

**Joseph E. Craft**, Yale University, USA  
*The Role of Tfh Cells in B-Cell Selection*

**Nicola L. Harris**, Monash University, Australia  
*B Cell-Stomach Cell Interactions Drive Lymphoid Remodeling and Are Required for Efficient Adaptive Immune Responses against Intestinal Helminths*

**Lieselotte S.M. Kreuk**, University of California, Berkeley, USA  
*Short Talk: B Cell Receptor and Toll-Like Receptor Signaling Integrate to Control B1-Derived Anti-Commensal IgM, IgG, and IgA*

**Romain Ballet**, Stanford University, USA  
*Short Talk: CD22 Positively Controls  $\alpha$ 4 $\beta$ 7-Dependent B Cell Homing to the Peyer's Patches*

### Poster Session 3

### THURSDAY, JUNE 21

#### B Cell Tolerance and Autoimmunity

\***Julie Zikherman**, University of California, San Francisco, USA

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

**Roberta Pelanda**, University of Colorado Denver, USA  
*Dual Antibody B Cells in Lupus, Mice and Humans*

**Takeshi Tsubata**, Tokyo Medical and Dental University, Japan  
*The Inhibitory B Cell Co-Receptor CD72 Regulates Tolerance to Self Nucleic Acids Crucial for Development of Systemic Lupus Erythematosus*

**Julie Zikherman**, University of California, San Francisco, USA  
*Regulation of B Cell Tolerance by Nur77*

**Lars Nitschke**, University of Erlangen, Germany  
*CD22 and Siglec-G Are Inhibitory Receptors on B Cells and Prevent Autoimmunity*

**Jeremy F. Brooks**, University of Queensland, Australia  
*Short Talk: Characterizing Self-Reactive B Cell Responses in a Polyclonal Repertoire*

**Joanne H. Reed**, Garvan Institute of Medical Research, Australia  
*Short Talk: Single Cell Analysis of Self-Reactive B Cells in Autoimmune Disease*

### Workshop 3: Autoimmunity

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\***John C. Cambier**, University of Colorado, USA

\***Simon Fillatreau**, Institut Necker Enfants Malades, France

**Betsy J. Barnes**, Feinstein Institute for Medical Research, USA  
*Targeting IRF5 Hyper-Activation in SLE B Cells Inhibits Disease Onset and Severity*

**Chih-Yeh Chen**, Regensburg Center for Interventional Immunology, Germany

*Bone Marrow Aire-Expressing Plasma Cells Ectopically Express Tissue-Restricted Self-Antigens and Drive Peripheral Tolerance by Inducing Autoreactive Regulatory T Cells*

**Amanda E. Agazio**, University of Colorado Anschutz Medical Campus, USA

*The Contribution of Anergic B Cells to Protective Immunity*

**Carlos Castrillon**, Institut Pasteur, France  
*A Novel Technology to Follow Antibody Affinity Maturation during Autoimmunity*

**Roza I. Nurieva**, MD Anderson Cancer Center, USA  
*Role of E3 Ubiquitin Ligase GRAIL in B Cell Activation and Tolerance*

**Zia Rahman**, Penn State Hershey Medical College, USA  
*Crosstalk between TLR7 and IFN $\gamma$  Signaling via STAT1 in B Cells Controls Spontaneous Germinal Center and Autoimmune Responses*

**Jamie van Langelaar**, Erasmus University Medical Center, Netherlands  
*Human T-bet<sup>+</sup> B Cells: Induction and Effector Functions from a Multiple Sclerosis Perspective*

**Yang Yang**, Stanford University School of Medicine, USA  
*Expression of CTLA4 in B-1 B Cells Acts as A Key Regulating Mechanism in Maintaining the Immune Homeostasis*

### B Cells in Autoimmune Diseases and Targeting Strategies

\***David M. Tarlinton**, Monash University, Australia

\***Roberta Pelanda**, University of Colorado Denver, USA

**Reinhard E. Voll**, University Freiburg, Germany  
*Targeting Plasma Cells in Systemic Lupus by Proteasome Inhibitors: From Mice to Men*

**Deborah L. Burnett**, Garvan Institute of Medical Research, Australia  
*Short Talk: Antibodies Cross-Reacting with Self and Foreign Proteins Evolve on Consistent Trajectories to Shed Self-Binding, then Enhance Foreign-Binding*

**John C. Cambier**, University of Colorado, USA  
*Loss of Anergy in Human Autoimmunity; Underlying Mechanisms*

**Nicholas Sanderson**, University of Basel, Switzerland  
*Short Talk: High Dimensional Characterization of Cell Phenotypes, Soluble Signaling Molecules and Antibodies in the Cerebrospinal Fluid of Patients with Multiple Sclerosis*

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

#### FRIDAY, JUNE 22

#### Departure