



# Immune Regulation in Autoimmunity and Cancer

March 26–30, 2017 | Whistler Conference Centre | Whistler, British Columbia | Canada

## Scientific Organizers:

**David A. Hafler**, Yale University School of Medicine, USA

**Vijay K. Kuchroo**, Brigham and Women's Hospital, Harvard Medical School, USA

**Jane L. Grogan**, Genentech, Inc., USA

*While the importance of innate and adaptive immunity has been clear in the pathogenesis of human autoimmune disease resulting in a multitude of immune-based therapeutic approaches, the realization is now apparent that understanding immune evasion by cancer is central in developing curative treatments. This meeting will explore and contrast the underlying immune mechanisms resulting in autoimmunity and tumor evasion. The meeting is innovative in bringing together basic immunologists investigating mechanisms of tolerance with scientists exploring immune mechanisms of autoimmunity and cancer in both patients and experimental models. Thus, this Keystone Symposia meeting will cover the pathways in immunity and tolerance that lead to loss of immunological control, dysregulated immune responses and chronic inflammatory disease or tumor evasion. Presentations will include consideration of preclinical and clinical aspects of a diverse number of autoimmune and inflammatory diseases and cancer. Conference participants engaged in preclinical, translational and clinical research will hopefully engage in continuing conversations and collaborations which, over the long-term, will provide greater insights into the human immune response and allow us to reassess and further explore pathways that are driving autoimmune disease yet in opposition, lead to tumor evasion. Understanding checkpoints in autoimmunity and immune cell tolerance is important for delivering therapies to patients with autoimmune disease and cancer, and this meeting will provide a platform for the cross-pollination of clinical experience and experimental research. Attendees will have learned about the impact of targeted immune-based therapeutics on clinical outcome and, consequently, be able to widen their research scope accordingly.*

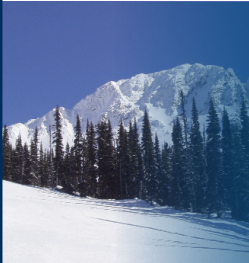
## Session Topics:

- Tissue Micro-Immune Environments in Tumors and Autoimmune Tissue Inflammation
- Basic Mechanisms of T Cell Tolerance
- Metabolic Regulation of T Cell Function in Cancer and Autoimmunity
- Effector T Cell Dysfunction: Surface Receptors in Autoimmunity vs. Cancer
- Innate Regulation of Autoimmunity and Cancer
- B Cell Regulation of Autoimmunity
- 10 Years of Discovery of Th17 Cell. From Bench to Bedside
- Systems Biology Approaches to Understanding Tolerance in Cancer and Autoimmunity

**Scholarship Application & Discounted Abstract Deadline: November 29, 2016**

**Abstract Deadline: January 10, 2017**

**Discounted Registration Deadline: January 25, 2017**



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

Upper image courtesy of: The Web site of the National Cancer Institute (<http://www.cancer.gov>).

Meeting Hashtag: #KSimmreg

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### SUNDAY, MARCH 26

#### Arrival and Registration

### MONDAY, MARCH 27

#### Welcome and Keynote Address

\*David A. Hafler, Yale University School of Medicine, USA

James P. Allison, University of Texas MD Anderson Cancer Center, USA

Cancer Immunotherapy

#### Tissue Micro-Immune Environments in Tumors and Autoimmune Tissue Inflammation

Padmanee Sharma, University of Texas MD Anderson Cancer Center, USA

*From the Clinic to the Lab: Investigating Response and Resistance Mechanisms to Immune Checkpoint Therapy*

Jennifer L. Gommerman, University of Toronto, Canada

*Compartmentalization of B Cells During CNS Inflammation*

\*Jane L. Grogan, Genentech, Inc., USA

*Immunoregulatory Roles of TIGIT and PVR-nectin Family in Tumors*

Abigail E. Overacre, University of Pittsburgh, USA

*Short Talk: Interferon-gamma drives Treg Functional Instability thereby Promoting Anti-Tumor Immunity*

#### Workshop 1: Effector T Cells

\*Thomas Korn, Technical University Munich, Germany

\*Jane L. Grogan, Genentech, Inc., USA

June-Yong Lee, New York University School of Medicine, USA

*Systemic and Local Functions of Serum Amyloid A (SAA) in Th17 Cell Pathogenicity*

Jinju Lee, Kyoto University Graduate School of Medicine, Japan

*Regulation of Th17 Expansion by PGE2-EP2/EP4 Signaling and its Clinical Implication*

Pradip Nair, Biocon Research Limited, India

*T Cell Activation and Differentiation to Th17 Cells is Modulated by a CD6 Domain 1 Antibody Itolizumab*

Patricia Castillo, University of Pittsburgh, USA

*Disrupted Enteric Th17 Signaling Exacerbates Autoimmune Inflammation*

Michael Waterfield, University of California, San Francisco, USA

*Characterization of a Novel Epigenetic Regulator Required for Th17 Differentiation*

Mark S. Sundrud, The Scripps Research Institute, USA

*The Xenobiotic Transporter Mdr1 Permits T Cell Adaptation to Mucosa-Associated Bile Acids in the Ileum*

Geoffrey Alexander Smith, University of California, San Francisco, USA

*IL-2RB Receptor Levels Tune T-Cell IL-2 Responses by Altering Signaling Dynamics in Different T Cell Subsets*

Peter A. Morawski, NIAID, National Institutes of Health, USA

*Brain Infiltrating CD8+ T Cells in Lupus-Prone Mice*

#### Basic Mechanisms of T Cell Tolerance

\*Jeffrey A. Bluestone, University of California, San Francisco, USA

*Treg Biology and Treatment in Autoimmune Diseases and Cancer*

David A. Hafler, Yale University School of Medicine, USA

*IFN $\gamma$  Identifies Dysfunctional Regulatory T Cells in Autoimmunity and Cancer*

Alexander Y. Rudensky, HHMI/Memorial Sloan Kettering Cancer Center, USA

*Regulatory T Cells in Cancer*

#### Poster Session 1

### TUESDAY, MARCH 28

#### Metabolic Regulation of T Cell Function in Cancer and Autoimmunity

\*Erika L. Pearce, Max Planck Institute of Immunobiology and Epigenetics, Germany

*How Metabolism Influences CD8 Cells in Cancer*

Douglas R. Green, St. Jude Children's Research Hospital, USA

*Cell Death and Resuscitation: To the Edge of Necroptosis and Back*

Jens Titze, Vanderbilt University, USA

*Rethinking Sodium Metabolism*

Tomokazu Sumida, Yale School of Medicine, USA

*Short Talk: Beta-catenin Links High Salt and Proinflammatory Signature in Treg*

Seungho Lee, Yonsei University, South Korea

*Short Talk: Exploration of Tumor Microenvironment and Metabolism using Tumor Infiltrating Lymphocytes and FDG-PET CT*

#### Workshop 2: Tregs in Autoimmunity and Cancer

\*Alexander Y. Rudensky, HHMI/Memorial Sloan Kettering Cancer Center, USA

\*Ana Carrizosa Anderson, Harvard Medical School, USA

Liliana Elisa Lucca, Yale University, USA

*PD-1 Marks Dysfunctional Regulatory T Cells in Malignant Gliomas*

Maran L. Sprouse, Baylor College of Medicine, USA

*High CD5 Expression is a Marker of Functional Regulatory T Cells in Autoimmunity*

Catherine Konopacki, Memorial Sloan Kettering Cancer Center, USA

*Foxp1 Is a Foxp3 Binding Partner that Contributes to Regulatory T Cell Stability and Function*

Allison L. Bayer, University of Miami School of Medicine, USA

*Immunomodulation Requirements for Treg Immunotherapy for Autoimmune Diabetes*

Danbee Ha, Osaka University, Japan

*ADCC-Mediated in vitro Depletion of Human Treg Cells by Anti-CTLA-4 mAb Enhances CD8+ T Cell Responses against Self/Tumor Antigens*

David Bauche, Merck, USA

*Foxp3+ Regulatory T Cells Prevent from ILC3-Driven Colitis*

Wenxian Fu, University of California, San Diego, USA

*A Tissue-Resident Macrophage Specific Coinhibitory Molecule Promotes Regulatory T Cell Differentiation and Stability*

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**Dana Catherine Gilmore**, University of Chicago, USA  
*Identification of Natural Peptide Epitopes Recognized by Regulatory T Cells*

### Effector T Cell Dysfunction: Surface Receptors in Autoimmunity vs. Cancer

\***Arlene H. Sharpe**, Harvard Medical School, USA  
*Role of Coinhibitory Receptors in Controlling Effector T Cells*

**E. John Wherry**, University of Pennsylvania, USA  
*Molecular Basis of T Cell Exhaustion: Insights for Immunotherapy*

**Ana Carrizosa Anderson**, Harvard Medical School, USA  
*T Cell Dysfunction: From Co-Inhibitory Receptors to Molecular Programs*

**Christopher E. Rudd**, University of Montreal, Canada  
*Short Talk: A Next Generation Approach using Small Molecules to Inhibit PD-1 Transcription Is as Effective as Anti-PD-1/PL1 Biologics in Immunotherapy*

### Poster Session 2

#### WEDNESDAY, MARCH 29

##### Innate Regulation of Autoimmunity and Cancer

**Nina Bhardwaj**, Icahn School of Medicine at Mount Sinai, USA  
*Role of Dendritic Cells and NK Cells in Mediating Anti-Tumor Responses*

**Federica Sallusto**, University of Italian Switzerland, Switzerland  
*Autoreactive T Cells in Narcoleptic Patients*

\***Carla V. Rothlin**, Yale University, USA  
*Innate Immune Checkpoints in Anti-Tumor Immunity*

**Mark J. Smyth**, QIMR Berghofer Medical Research Institute, Australia  
*Barriers to NK Cell Control of Cancer*

**Keiji Hirota**, Institute for Frontier Life and Medical Sciences, Kyoto University, Japan  
*Short Talk: An Inflammatory Cellular Network of Autoimmune Th17 Cells, GM-CSF-Producing ILCs and Synoviocytes in the Development of Autoimmune Arthritis*

##### Workshop 3: T Cell Tolerance, Exhaustion and Dysfunction in Autoimmunity and Cancer

\***Kenneth Smith**, University of Cambridge, UK

**Rachel S. Friedman**, National Jewish Health and University of Colorado, Denver, USA  
*MerTK Mediates T Cell Tolerance in the Pancreatic Islets during Type 1 Diabetes*

**Yemsratch T. Akalu**, Yale University School of Medicine, USA  
*An eMERging Target in Cancer Immunotherapy*

**Rachael Bashford-Rogers**, University of Cambridge, UK  
*Using High-Throughput Sequencing to Reveal Insights into the Relationship between B-Cell Repertoire, Phenotype and Function in Health, Cancer and Autoimmune Disease*

**David M. Sansom**, University College London Medical School, UK  
*CTLA-4 Mutations from Patients with Immune Dysregulation Syndromes Inform our Understanding of CTLA-4 Function*

**Jennifer Lori Blanchfield**, Emory University, USA  
*MOG-Specific Tolerance Mechanisms Limit Autoimmune Demyelinating Disease following Bacterial Delivery of MOG Epitope*

**John R. Sedy**, Sanford Burnham Prebys Medical Discovery Institute, USA

*Cancer Mutations Targeting TNFRSF14 alter Microenvironment Checkpoint Interactions to Limit Tumor Clearance by Cytotoxic Cells*

**Greg M. Delgoffe**, University of Pittsburgh, USA  
*Defects in Mitochondrial Biogenesis and Oxidative Function Underlie Tumor-Infiltrating T Dysfunction*

### B Cell Regulation of Autoimmunity

\***Antonio Lanzavecchia**, Institute for Research in Biomedicine, Switzerland  
*Mechanisms of Antibody Diversification*

**Kenneth Smith**, University of Cambridge, UK  
*Predicting and Explaining the Future: A New Biology of Clinical Outcome in Autoimmunity?*

**Alicia Gonzalez-Martin**, The Scripps Research Institute, USA  
*Short Talk: MicroRNA Control of B Cell Tolerance and Autoimmunity*

**Bonnie Huang**, NHGRI, National Institutes of Health, USA  
*Short Talk: Dissecting T Follicular Helper Cell Development in vivo using CRISPR*

### Poster Session 3

#### THURSDAY, MARCH 30

##### Ten Years of Discovery of Th17 Cells: From Bench to Bedside

\***Vijay K. Kuchroo**, Brigham and Women's Hospital, Harvard Medical School, USA  
*Transcriptional Networks in Development of Th17 Cells*

**Dan R. Littman**, HHMI/New York University School of Medicine, USA  
*Th17 Cells in the Gut Homeostasis*

**Thomas Korn**, Technical University Munich, Germany  
*Trans-presentation of IL-6 by Dendritic Cells - A Novel Mode of IL-6 Signaling – Is Required for the Priming of Pathogenic TH17 Cells in vivo*

**Daniel J. Cua**, Merck Research Laboratories, USA  
*The IL-23-Th17 Immune Axis: From Mechanisms to Therapeutic Testing*

**Dhaval Kumar D. Patel**, Inflazome, Switzerland  
*Therapeutic Targeting of Th17 Cells in Autoimmune Diseases*

##### Systems Biology Approaches to Understanding Tolerance in Cancer and Autoimmunity

\***Frank Oliver Nestle**, Sanofi, USA  
*Deciphering the Rules of Engagement of Tissue Immunity*

**Alex Marson**, University of California, San Francisco, USA  
*Decoding T Cell Circuitry*

**Meromit Singer**, Broad Institute, USA  
*Short Talk: Identification and Validation of a Gene Module Specific for T Cell Dysfunction in Tumor via Population and Single-Cell Transcriptomics*

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

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**FRIDAY, MARCH 31**

**Departure**