Cancer Immunology and Immunotherapy: Taking a Place in Mainstream Oncology

March 19–23, 2017 | Fairmont Chateau Whistler | Whistler, British Columbia | Canada

Scientific Organizers:
Robert D. Schreiber, Washington University School of Medicine, USA
James P. Allison, University of Texas MD Anderson Cancer Center, USA
Philip D. Greenberg, University of Washington, USA
Glenn Dranoff, Novartis Institutes for BioMedical Research, USA

Part of the Keystone Symposia Global Health Series, supported by the Bill & Melinda Gates Foundation

The fields of cancer immunology and immunotherapy continue to make great strides in providing both a comprehensive understanding of the basic mechanisms underlying tumor-immune system interactions and applying this knowledge to the development of effective immune-based cancer therapies. This Keystone Symposia meeting is organized to highlight recent insights into the complex roles of immune components and pathways in controlling or alternatively promoting cancer and to showcase recent uses of cancer vaccines, checkpoint blocking strategies, adoptive cell therapies and cellular engineering approaches, either as mono- or combinatorial therapies, that have resulted in durable, effective and safe therapeutic responses to an increasing number of cancer patients. Part of the meeting will also focus on new, developing technologies that are likely to expand our capacity to monitor the effects of cancer immunotherapy with a precision, refinement and at a level that has not been possible in the past.

Session Topics:
• Multimodal Approaches to Immunotherapy
• Immunosuppressive Cells in the Tumor Microenvironment
• Cancer Immunotherapy: Targeting Immune Checkpoints
• Cancer Immunotherapy: Combinatorial Approaches
• Cancer Immunotherapy: Cancer Vaccines that Work and Why
• Cancer Immunotherapy: Cellular Engineering
• Nex-Gen Technologies

Global Health Travel Award Application Deadline: October 18, 2016
Scholarship Application & Discounted Abstract Deadline: November 16, 2016
Abstract Deadline: December 19, 2016
Discounted Registration Deadline: January 18, 2017

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

Upper image of oral squamous cancer cell being attacked by two T cells courtesy of Rita Elena Senda, Duncan Comprehensive Cancer Center at Baylor College of Medicine, and NCI, NIH

Meeting Hashtag: #KScancerimm
www.keystonesymposia.org/17C7
SUNDAY, MARCH 19
Arrival and Registration

MONDAY, MARCH 20
Welcome and Keynote Session
*Robert D. Schreiber*, Washington University School of Medicine, USA
Glenn Dranoff, Novartis Institutes for BioMedical Research, USA
Mechanisms of Protective Tumor Immunity
Andreas G. Plückthun, University of Zürich, Switzerland
Future Bioinformatics: Exploiting the Opportunities for Protein Engineering

Multimodal Approaches to Immunotherapy
*James P. Allison*, University of Texas MD Anderson Cancer Center, USA
Immune Blockade in Cancer Therapy: New Insights and Opportunities
Padmanee Sharma, University of Texas MD Anderson Cancer Center, USA
From the Clinic to the Lab: Investigating Immune Responses to Immune Checkpoint Therapies
Nicholas P. Restifo, NCI, National Institutes of Health, USA
Genome-Scale CRISPR-Cas9 Screen Identifies Genes Essential for T Cell-Based Cancer Therapies

Workshop 1: Neoantigens, Vaccines and Responses
Nicholas K. Akers, Icahn School of Medicine at Mount Sinai, USA
Modeling Tumor Immuno-Dynamics to Predict Patient Survival & Immunotherapy Efficacy
Govinda Sharma, BC Cancer Agency, Canada
A Novel High-Throughput Screening Approach for the Detection of Cytotoxic T-Cell Receptor Epitopes
Sanja Stevanovic, NCI, National Institutes of Health, USA
Landscape of Immunogenic Tumor Antigens in Successful Immunotherapy of Virally-Induced Epithelial Cancer
Alice Tzeng, Cleveland Clinic Lerner College of Medicine, USA
Temporally Programmed CD8alpha+ DC Activation Enhances Combination Cancer Immunotherapy
Aileen Li, Harvard University, USA
Mesoporous Silica (MPS) Vaccine to Enhance Anti-Tumor Immunity
*Jay A. Berzofsky*, NCI, National Institutes of Health, USA
Translation of Cancer Vaccines from Mice to Human Clinical Trials

Immunosuppressive Cells in the Tumor Microenvironment
*Glenn Dranoff*, Novartis Institutes for BioMedical Research, USA
Alexander Y. Rudensky, HHMI/Memorial Sloan Kettering Cancer Center, USA
Tregs in Cancer Immunity
Vincenzo Bronte, University of Verona, Italy
Role of Myeloid-Derived Suppressor Cells in Tumor Immunity

Alberto Mantovani, Humanitas University, Italy
Role of Macrophages in Tumor Immunity
Garry P. Nolan, Stanford University, USA
System-Wide Order, from Disorder, at the Cancer-Immune Interface

Poster Session 1

TUESDAY, MARCH 21
Cancer Immunotherapy: Targeting Immune Checkpoints
*Ira Mellman*, Genentech, Inc., USA
PD-1/PD-L1
Riccardo Mezzadra, NKI-AvL, Netherlands
Short Talk: Identification of CMTM6 and CMTM4 as PD-L1 Protein Regulators
Andrew D. Weinberg, Earle A. Chiles Research Institute/Oregon Health & Science University, USA
OX40 Agonists: Past, Present and Future
Ana Carrizosa Anderson, Harvard Medical School, USA
Targeting Tim-3 in Cancer
Randolph J. Noelle, Dartmouth College, USA
Targeting the VISTA Pathway in Oncology
Vinidhra Mani, Harvard Medical School, USA
Short Talk: Visualizing the Mechanistic Basis of Checkpoint Blockade Therapy in Cancer

Workshop 2: Cellular Engineering and Therapy
*Stanley R. Riddell*, Fred Hutchinson Cancer Research Center, University of Washington, USA
Mauro Castellari, University of Pennsylvania, USA
A Comparison of Affinity-Tuned Her2 CARs Using a New Mouse Model for On-Target Off-Tumor CAR T Cell Cytoxicity
Ashwini Balakrishnan, Fred Hutchinson Cancer Research Institute, USA
Designed Ankyrin Repeat Proteins (DARPins) as Recognition Motifs in Chimeric Antigen Receptors
Kristin Anderson, University of Washington, USA
Engineering Adoptive T Cell Therapy for Efficacy in Ovarian Cancer
Stefanie Bailey, Medical University of South Carolina, USA
CD26high T Cells have a Natural Capacity to Migrate and Persist in Multiple Tumor Models
Natalie Ann Vandeven, University of Washington, USA
Novel Platform for Identifying Rare Antigen-Specific CD4 T Cells in Merkel Cell Carcinoma patients
Debattama Sen, Harvard Medical School, USA
The Epigenetic Landscape of T Cell Exhaustion

Cancer Immunotherapy: Combinatorial Approaches
*Robert D. Schreiber*, Washington University School of Medicine, USA
Personalized Cancer Vaccines
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Sandra Demaria, Weill Cornell Medical College, USA
Radiotherapy Needs to Go Viral to Increase Responses to Checkpoint Inhibitors
Antoni Ribas, University of California, Los Angeles, USA
Overcoming Resistance to PD-1 Blockade Therapy
Alyssa K. Kosmides, Johns Hopkins University, USA
Short Talk: Immunoswitch Particles: A New Approach to Cancer Immunotherapy

**Poster Session 2**
**WEDNESDAY, MARCH 22**

**Cancer Immunotherapy: Cancer Vaccines that Work and Why**
*Elizabeth M. Jaffee*, Johns Hopkins University, USA
Vaccine-Based Combinatorial Immunotherapy Can Convert Pancreatic Cancers into Immunologic Diseases
Cornelia L. Trimble, Johns Hopkins University School of Medicine, USA
High-Dimensional Analyses of the Mucosal Microenvironment in Precancerous, Intraepithelial Cervical HPV Disease
Catherine Ju-Ying Wu, Dana-Farber Cancer Institute, USA
Developing and Improving Personalized Neoantigen-Targeting Cancer Vaccines
Ugur Sahin, TRON – Translational Oncology, Germany
Individualizing Cancer Treatment by mRNA Therapies
Danielle M. Lussier, Washington University in St. Louis, USA
Short Talk: Subclinical Irradiation-Induced Neoantigens Enhance Immunotherapy of Cancers with Low Mutational Loads
Amanda Lulu, University of Virginia, USA
Short Talk: Pre-Existing Immune Memory in Healthy Donors to Cancer-Associated Phosphopeptides

**Inflammation and the Tumor Microenvironment**
*Michael Karin*, University of California, San Diego, USA
Immune Regulation of Liver Cancer: Chronic Hepatitis Promotes HCC Development by Dismantling Cancer Immunosurveillance
Shannon J. Turley, Genentech, Inc., USA
Leukocyte Function and Positioning in Diverse Stromal Niches
Thomas Gajewski, University of Chicago, USA
Tumor-Intrinsic Mediators of T Cell-Inflamed Versus Non-Inflamed Tumor Microenvironment
Evon W. Newell, Singapore Immunology Network, Singapore, Singapore
Short Talk: Deep Profiling of Human Hepatocellular Carcinoma Immune Infiltrates: Involvement of CD103+ Resident Memory-Like T and NK Cells

**Poster Session 3**
**THURSDAY, MARCH 23**

**Cancer Immunotherapy: Cellular Engineering**
*Philip D. Greenberg*, University of Washington, USA
Adaptive T Cell Therapy with TCR-Engineered T Cells
Michel Sadelain, Memorial Sloan Kettering Cancer Center, USA
Targeting CARs to the TRAC Locus Enhances T Cell Potency

**Carli H. June**, University of Pennsylvania, USA
CAR-T Therapy of ALL
**Stanley R. Riddell**, Fred Hutchinson Cancer Research Center, University of Washington, USA
CAR-T Cells for Hematopoietic and Solid Tumors
**Agne Tarasaviciute**, Seattle Children's Research Institute, USA
Short Talk: A Non-Human Primate Model That Recapitulates B Cell-directed Chimeric Antigen Receptor (CAR) T cell-mediated Cytokine Release Syndrome (CRS) and Neurologic Toxicity
**Daniel T. Harris**, University of Illinois, USA
Short Talk: A Comparison of T Cell Sensitivity using TCR and CAR Constructs with the Same pepMHC Binding Domain

**Poster Session 4**
**FRIDAY, MARCH 24**

**Workshop 3: A Deeper Dive into Cancer Immunotherapy**
*Evan W. Newell*, Singapore Immunology Network, Singapore, Singapore
Brian Christopher Miller, Dana-Farber Cancer Institute, USA
Dissecting Mechanisms of anti-PD-1 Therapy with Massively Parallel Single-Cell RNA-Seqencing
**Wouter Scheper**, Netherlands Cancer Institute, Netherlands
Unbiased Single-Cell TCR Analysis Reveals Infrequent Tumor-Reactivity Among T Cells Infiltrating Human Cancers
**Spencer C. Wei**, University of Texas MD Anderson Cancer Center, USA
Distinct Cellular Mechanisms Mediate Anti-CTLA-4 and Anti-PD-1 Checkpoint Blockade
**Yonit Lavin**, Mount Sinai School of Medicine, USA
High Dimensional Analysis of Untreated Early Lung Cancer Lesions Reveals Novel Myeloid Immune Responses to Tumor
**Ken-Edwin Aryee**, University of Massachusetts Medical School, USA
Humanized Mouse: A Model for Understanding Tumor-Immune System Interactions
**Aya Ludin Tal**, Harvard University, USA
The Zebrafish as a Model for T Cell Recruitment to Melanoma

**Nex-Gen Technologies**
**Darrell J. Irvine**, Massachusetts Institute of Technology, USA
Combining Lymph Node Targeting Cancer Vaccines with Systemic Immunotherapy to Recruit an Innate and Adaptive Attack Against Established Tumors
*Lisa M. Coussens*, Oregon Health & Science University, USA
Monitoring Inflammation in Cancer by Multi-Plex in situ Imaging
**Jim R. Heath**, California Institute of Technology, USA
Micro- and Nanotechnologies for Personalizing Cancer Immunotherapy

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