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.

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 Biologics: 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, British Columbia 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 CD8α+ 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

**Tregs in Cancer Immunity**

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**

**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

**Engineering Adaptive T Cell Therapy for Efficacy in Ovarian Cancer**

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 Cytotoxicity

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

**Regulators of Immune Checkpoint Pathways in Tumors**

Riccardo Mezzadra, NKI-AvL, Netherlands

**Model for On-Target Off-Tumor CAR T Cell Cytotoxicity**

Mauro Castellarin, University of Washington, USA

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**Cancer Immunotherapy: Combinatorial Approaches**

*Robert D. Schreiber*, Washington University School of Medicine, USA

**Personalized Cancer Vaccines**

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

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Riccardo Mezzadra, NKI-AvL, Netherlands

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Cancer Immunology and Immunotherapy: Taking a Place in Mainstream Oncology (C7)
March 19-23, 2017 • Fairmont Chateau Whistler • Whistler, British Columbia, Canada
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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 Liu 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, BioNTech AG, Germany
Individualizing Cancer Treatment by mRNA Therapies
Danielle M. Talbot, Calgene, 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-Infused Versus Non-Infused Tumor Microenvironment
Evans W. Newell, Fred Hutchinson Cancer Research Center, USA
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
Cari 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 Taraseviciute, 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, Fred Hutchinson Cancer Research Center, USA
Brian Christopher Miller, Dana-Farber Cancer Institute, USA
Dissecting Mechanisms of anti-PD-1 Therapy with Massively Parallel Single-Cell RNA-sequencing
Wouter Schepers, Netherlands Cancer Institute, Netherlands
Unbiased Single-Cell TCR Analysis Reveals Inefrequent 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)