Cancer immunotherapy is now an established field that has led to remarkable clinical benefit for a subset of patients. However, a deeper understanding of the mechanisms of response and resistance to current immunotherapy strategies is needed to help develop new treatments that will improve the number of patients who will benefit. This meeting will explore mechanisms related to response and resistance, including novel methodologies to identify these mechanisms, and provide insights into new targets and combinatorial therapies that are being developed.

Plenary Session Topics:
- Response and Resistance Mechanisms to Cancer Immunotherapy
- Technological Advances for Dissecting Immune Responses
- Improving Anti-Tumor Immune Responses
- Engineering T Cells
- Immune Checkpoints: Basic Mechanisms and Novel Targets
- Combinatorial Immunotherapy Strategies
- Progress Report on Immune Monitoring and Clinical Trials
- The Future of Cancer Immunotherapy
SUNDAY, MARCH 10
Arrival and Registration

MONDAY, MARCH 11
Welcome and Keynote Address
*Padmanee Sharma, University of Texas MD Anderson Cancer Center, USA
Catherine Ju-Ying Wu, Dana-Farber Cancer Institute, USA
Identifying and Targeting Tumor Neoantigens

Response and Resistance Mechanisms to Cancer Immunotherapy
*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
Philip D. Greenberg, University of Washington, USA
Resistance Mechanisms to Engineered T Cell Therapies
*Robert D. Schreiber, Washington University School of Medicine, USA
The Molecular Cell Biology of Immune Control and Escape of Cancer
Yuliya Pilyayeva-Gupta, University of North Carolina at Chapel Hill, USA
Short Talk: IL-35+ B Cells Establish Immunosuppressive Network in Pancreatic Ductal Adenocarcinoma
Robert T. Manguso, Dana-Farber Cancer Institute/Harvard Medical School, USA
Short Talk: Loss of ADAR1 in Tumors Overcomes Resistance to Immune Checkpoint Blockade

Workshop 1: Engaging New Mechanisms to Improve Cancer Immunotherapy
Donald E. Staunton, Arbele Corporation, USA
Bispecific CD17/CD3 Antibodies with High Tumor Specificity, Cytotoxicity and Safety in Non-Human Primates
Krzysztof Masternak, Novimmune SA, Switzerland
CD47-Blocking Bispecific Antibodies Increase in vivo Phagocytosis of Tumor Cells and Modify the Tumor Microenvironment
Limei Shen, University of North Carolina, USA
Nano-trapping B Cell Chemoattractant CXCL13 Reduces Bregs in Tumor Microenvironment and Inhibits Desmoplastic Tumors in Murine Orthotopic Models
Adrienne H. Long, Dana-Farber Cancer Institute, USA
Inhibition of Signal Peptide Peptidase Triggers Novel Antigen Presentation on Non-Classical MHC and Sensitizes Tumors to Checkpoint Blockade
*Shruthy Suresh, University of Texas Southwestern Medical Center, USA
The Integrated Stress Response Pathway Controls PD-L1 Translation in Lung Cancer
Andrew G. Thomason, Redx Pharma, UK
Wnt Pathway Suppression with Porcupine Inhibitor RXC004 Enhances the Immune Response against Tumours

*Patrick A. Ott, Dana-Farber Cancer Institute, USA
Complex Inter-Relationship of Body Mass Index, Gender and Serum Creatinine on Survival: Exploring the Obesity Paradox in Melanoma Patients Treated with Immune Checkpoint Inhibition

Technological Advances for Dissecting Immune Responses
*Elaine R. Margis, Nationwide Children's Hospital, USA
Genomic Exploration of the Pediatric CNS Tumor Microenvironment
*Michael Angelo, Stanford University, USA
Mapping the Immune Landscape in Solid Tumors using MIBI
James P. Allison, University of Texas MD Anderson Cancer Center, USA
Immune Checkpoint Therapy: Lessons Learned and Next Steps
Jonathan Fisher, University College London, UK
Short Talk: Mass Cytometric Analysis of CAR Signaling – Single Cell Engine Diagnostics Reveals Problems and Solutions
Martin LaFleur, Harvard Medical School, USA
Short Talk: CHIME: A Chimeric CRISPR-Cas9 Delivery System for Pooled in vivo Screening of Genes in the Immune System

Poster Session 1

TUESDAY, MARCH 12
Improving Anti-Tumor Immune Responses
*Aviv Regev, Massachusetts Institute of Technology, USA
Comprehending Anti-Tumor Immune Responses through Single-Cell Studies
Elizabeth G. Trehu, Jounce Therapeutics, USA
Lessons Learned from Clinical Trials Targeting ICOS
Thomas Gajewski, University of Chicago, USA
Identifying Mechanisms to Facilitate a T Cell-Inflamed Tumor Microenvironment
*Niroshana Anandasabapathy, Weill Cornell Medicine, USA
Targeting T Cell:DC Cross Talk in the Periphery to Expand Anti-Tumor Immunity
Shannon K. Oda, Fred Hutchinson Cancer Research Center, USA
Short Talk: A Fas-4-1BB Immunomodulatory Fusion Protein Enhances Function and Metabolism of Engineered T cells and Improves Immunotherapy of Liquid and Solid Tumors

Workshop 2: Engineered T Cells
Mauro Castellari, University of Pennsylvania, USA
A Universal Chimeric Antigen Receptor System for Switching Target Recognition by CAR T Cells
Philip S. Low, Purdue University, USA
Evaluation of a Universal CAR T Cell Technology in Murine Tumor Models
Louai Labanieh, Stanford University, USA
Controlling CAR-T Function with an FDA-Approved Small Molecule
Henri Bayle, Bellicum Pharmaceuticals, USA
Control of CAR-Natural Killer Cell Expansion and Anti-Tumor Activity with Inducible MyD88/CD40 and Small Molecules

* Session Chair  † Invited but not yet accepted  Program current as of June 6, 2019. Program subject to change. Meal formats are based on meeting venue. For the most up-to-date details, visit www.keystonesymposia.org/19C2.
Cancer Immunotherapy: Mechanistic Insights to Improve Clinical Benefit (C2)
March 10-14, 2019 • Whistler Conference Centre • Whistler, British Columbia, Canada
Scientific Organizers: Padmanee Sharma, Aviv Regev, Crystal L. Mackall and Kristen Hege

Poster Session 2

**Immune Checkpoints: Basic Mechanisms and Novel Targets**

**Tori Yamamoto**, NCI, University of Pennsylvania, USA
T Cells Engineered to Overcome Death Signaling within the Tumor Microenvironment Enhance Adoptive Cancer Immunotherapy

**Robert Josef Hofmeister**, TCR2 Therapeutics, USA
Preclinical Evaluation of TC-210, a Mesothelin-Specific T Cell Receptor (TCR) Fusion Construct (TRuC™) T Cells for the Treatment of Solid Tumors

**Beatrice Greco**, Vita-Salute San Raffaele University, Italy
Combining De-Glycosylating Agents with CAR-T Cells for Targeting Solid Tumors and Reducing Toxicity

**Melody Smith**, Memorial Sloan Kettering Cancer Center, USA
Intestinal Microbiome Analyses Identify Biomarkers for Patient Response to CAR T Cell Therapy

**Engineering T Cells**

**Crystal L. Mackall**, Stanford University, USA
Engineering Exhaustion Resistant T Cells to Enhance the Efficacy of CAR-Based Therapies

**Kristen Hege**, Celgene, USA
Clinical Development of BCMA CAR T Cells in Myeloma

**Carl H. June**, University of Pennsylvania, USA
CAR T Cell Therapies: Lessons Learned and Next Steps

**Megan Dacek**, Memorial Sloan Kettering Cancer Center, USA
Short Talk: Potentiation of Innate and Adaptive Immunity with Engineered CAR T Cells

**Evan William Weber**, Stanford University, USA
Short Talk: Transient Rest Reverses CAR T Cell Exhaustion and Augments Efficacy

**Poster Session 3**

**THURSDAY, MARCH 14**

**Progress Report on Immune Monitoring and Clinical Trials**

**Robert H. Vonderheide**, University of Pennsylvania, USA
Immunogenic Properties of Mutant KRAS

**Ton N. Schumacher**, Netherlands Cancer Institute, Netherlands
Regulation of Immune Recognition by the CD47 and PD-L1 Immune Checkpoints

**Sumit Kumar Subudhi**, MD Anderson Cancer Center, USA
Imune Checkpoint Therapies in Prostate Cancer

**Cornelia Liu Trimble**, Johns Hopkins University School of Medicine, USA
Therapeutic Vaccination for Intraepithelial Disease: Lessons Learned from HPV

**Hideho Okada**, University of California, San Francisco, USA
Short Talk: Targeting H3.3 K27M Mutation as a Shared Neoantigen in HLA-A*0201+ Patients with Diffuse Midline Gliomas – Development of a Novel Mass Cytometry-Based Monitoring of Vaccine-Reactive, Epitope-Specific CD8+ T Cell Responses

**AkiL A. Merchant**, Cedars-Sinai Medical Center, USA
Short Talk: Highly Multiplexed Imaging Mass Cytometry Reveals Immune Cell Composition and Spatial Heterogeneity in Diffuse Large B Cell Lymphoma Associated with Treatment Outcome

**Colleen Annesley**, Seattle Children’s Hospital, USA
Short Talk: Novel CD191 T-Antigen-Presenting Cells Expand CD19 CAR T Cells in vivo

**Workshop 3: Engineering Novel Therapeutic Agents**

**Michael Schebesta**, Obsidian Therapeutics, USA
Enhancing Adoptive Cell Therapies Through Regulation of CD40L

**Tao Dong**, University of Oxford, UK
Short Talk: A Comprehensive Analysis of Key Immune Checkpoint Receptors on T Cells Indicates Mono- or Combinatorial Blockade Immunotherapy in Multiple Types of Cancer

**Combinatorial Immunotherapy Strategies**

**Sandra Demaria**, Weill Cornell Medical College, USA
Using Precision Radiotherapy to Ignite Anti-Tumor Immunity with Immunotherapy

**Juan C. Jaen**, Arcus Biosciences, Inc., USA
Targeting Immune Activation via Inhibition of the Adenosine Pathway

**Antoni Ribas**, University of California, Los Angeles, USA
Novel Combination Therapy Strategies

**Peter Goff**, University of Washington, USA
Short Talk: Newcastle Disease Virus Works Synergistically with Radiotherapy to Enhance Checkpoint Blockade and Improve Long-Term Survival in a Murine Melanoma Model

**Sarah L. Buchanan**, University of Southampton, UK
Short Talk: PD-1 Blockade and CD27 Stimulation Activate Distinct Transcriptional Programs that Synergize for CD8+ T-Cell Driven Anti-Tumor Immunity

**Poster Session 2**

**WEDNESDAY, MARCH 13**

**Immune Checkpoints: Basic Mechanisms and Novel Targets**

**Chris H. Takimoto**, Forty Seven, Inc., USA
Enhancing Antitumor Immunity by Inhibiting CD47 Signaling: An Overview of CD47 Targeting Agents in Clinical Development

**Sangeeta Goswami**, MD Anderson Cancer Center, USA
Modulation of Immune Checkpoint Therapy Responses by Immune Cell Inherent Epigenetic Machinery

**Willem W. Overwijk**, Nektar Therapeutics, USA
Intratumoral Expansion of CD8+ T cells and Depletion of Tregs after Treatment with NKTR-214, a First-In-Class, CD122-Preferential IL-2 Pathway Agonist

**Xiaoyan Michelle Zhang**, Kyn Therapeutics, USA
Kynureninase and AHR Inhibition, Novel and Differentiated Approaches Targeting IDO1/TDO2/Kynurenine Pathway and Beyond

**Martina Seiffert**, German Cancer Research Center, Germany
Short Talk: IL-10/STAT3 Signaling Overcomes Tumor-Induced Exhaustion of CD8+ T-Cells

**Dana Emerson**, Oregon Health and Science University, USA
Short Talk: ITK Inhibition Augments the Therapeutic Efficacy of anti-OX40/anti-CTLA-4 Immunotherapy via Enhanced Eomes Expression and Effector T-Cell Responses

**Poster Session 1**

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Abstract & Scholarship Deadline: November 20, 2018 / Abstract Deadline: December 5, 2018 / Discounted Registration Deadline: January 15, 2019

* Nadia Coltella, Universita’ Vita-Salute San Raffaele, Italy  
*Development of Chimeric Forms of IFN-α for Inducible in vivo Cancer Gene Therapy*

Sriram Sathyanarayanan, Codiak BioSciences, USA  
*Developing an Engineered Exosome Therapeutic Platform for Immuno-Oncology*

Chris Saxby, University of Washington, USA  
*Engineered Cytokine Receptors Support CAR T Cell Mediated Tumor Removal*

* Sara Schad, Memorial Sloan Kettering Cancer Center, USA  
*Phosphatidylserine Targeting Antibody Enhances Anti-Tumor Activity of CAR T Cell Therapy in a Mouse Melanoma Model*

Scott T. Walsh, NCI, National Institutes of Health, USA  
*Development of a Novel Interleukin-7 Hydrogel Delivery System for T cell Applications*

**The Future of Cancer Immunotherapy**

* Jennifer Ann Wargo, University of Texas MD Anderson Cancer Center, USA  
*Microbiome Targeting and Future Strategies to Improve Cancer Immunotherapy*

* Michael C. Jensen, Seattle Children’s Research Institute, USA  
*Regulating the Next Generation of Genetically Enhanced CAR T Cells*

Flavius Martin, Amgen, Inc., USA  
*Learnings from Bispecific T-Cell Engagers, from Bedside Back to the Bench*

Darren Austin Plumb, PsiOxus Therapeutics, UK  
*Short Talk: Development of an Oncolytic T-SIGN Virus, NG-641, Targeting Cancer-Associated Fibroblasts for the Treatment of Stroma-Rich Carcinomas*

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

**FRIDAY, MARCH 15**

Departure