Advances in Checkpoint Biology I: Lymphocytes (9:00 am Start) (RT3)

Antigen Targets (9:00 am Start) (RT3)

*Joseph Jae-Suk Kim,* NYU School of Medicine, USA
Short Talk: The Role of TCR Affinity in Response to Immune Checkpoint Blockade

*Paolo D A Vignali,* University of Pittsburgh School of Medicine, USA
Short Talk: Tumor Hypoxia Drives Suppressor Function in Exhausted T Cells Limiting Antitumor Immunity

Welcome and Keynote Address (8:00 am Start) (RB1)

*William H. Robinson,* Stanford University School of Medicine, USA
Session Chair
Ira Mellman, Genentech, Inc., USA
Mechanistic Basis of Cancer Immunotherapy

Cellular Interactions Critical to Effective Tumor Immunity (5:00 pm Start) (RT3)

*Mishtu Dey,* Cell Press, USA
Career Roundtable (Joint) (2:30 pm Start)
Ira Mellman, Genentech, Inc., USA
Gulbu Uzel, National Institutes of Health, USA
Alice O. Kamphorst, Icahn School of Medicine at Mount Sinai, USA
Michal Bassani-Sternberg, University Hospital of Lausanne, Ludwig Institute for Cancer Research, Switzerland


Scholarship Deadline: October 21, 2021 / Abstract Deadline: April 20, 2022 / Discounted Registration Deadline: April 7, 2022
**Zoltan Maliga**, Harvard Medical School, USA  
Short Talk: Molecular Characterization of Skin Toxicities from Immune Checkpoint Inhibitors

**Poster Session 1**

**FRIDAY, JUNE 10**

**Reprogramming the Microenvironment (8:00 am Start) (RT3)**

*Kellie N. Smith*, Johns Hopkins University School of Medicine, USA  
Session Chair

**Valerie Chew**, SingHealth, Singapore  
The microenvironments of Hepatitis B virus(HBV)-related Hepatocellular carcinoma

**Matthew H. Spitzer**, University of California, San Francisco, USA  
Talk Title to be Announced

**Stefani Spranger**, Massachusetts Institute of Technology, USA  
Not All T Cell Responses are Generated Equal: The Role of Dendritic Cells in Anti-Tumor Immunity

**Abhijeet Pataskar**, Netherlands Cancer Institute, Netherlands  
Short Talk: Exploring IFN-mediated Tryptophan Depletion for the Identification of Inducible Cancer Neo-antigens

**Aude-Helene Capietto**, Genentech, Inc., USA  
Short Talk: Neoantigen Targeted Therapy Promotes Expansion of T Follicular Helper CD4 T Cells and Induces Rejection of Established E0771 Breast Tumors in Mice

**Nicolas Cuburu**, National Cancer Institute, NIH, USA  
Short Talk: Harnessing Anti-Cytomegalovirus Immunity for Local Immunotherapy against Solid Tumors

**Anna-Sophia Wiekejmer**, ISA Therapeutics BV, Netherlands  
Short Talk: T Cell Inducing SLP Vaccine against SARS-CoV-2 for Protection of Patients with Spontaneous or Therapy-Induced B Cell Deficiencies

**Checkpoints in Autoimmunity: Genetic Insights and Innate Immunity Lineages (8:00 am Start) (RB1)**

*Ferenc A. Scheeren*, Leiden University Medical Center, Netherlands  
The Role of Glutaminyl Cyclase in Innate Immunity from Oncology to Infectious Disease

*Gulbul Uzel*, National Institutes of Health, USA  
Genetics 2—Insights from Human Checkpoint Mutations (both Autoimmunity and Immunodeficiency)

**Ben A. Youngblood**, St. Jude Children’s Research Hospital, USA  
Epigenetic Programs Regulating CD8 T Cell Responses during Immune Checkpoint Blockade

**Sarah Weiss**, Harvard University, USA  
Short Talk: Deletion of an Exhaustion-associated PD-1 Enhancer Augments CD8+ T cell Function in Chronic Viral Infection and Improves Tumor Control

**Linde Meyaard**, University Medical Center Utrecht, Netherlands  
Short Talk: Inhibitory Pattern Recognition Receptors as a Novel Class of Immune Regulators Recognizing Endogenous and Microbial Patterns

**Workshop (2:30 pm Start) (RT3)**

*David A. Braun*, Dana-Farber Cancer Institute, USA  
Session Chair

*Giacomo Oliveira*, Dana-Farber Cancer Institute, USA  
Session Chair

**Rosaria Chila**, IFOM, The FIRC Institute of Molecular Oncology, Italy  
Non-Canonical Neoantigens are the Largest Fraction of MHC I Peptides in Mismatch Repair Deficient Murine Colorectal Cancer

**Zachary C. Hartman**, Duke University, USA  
Vaccination Targeting Mutant ESR1 Resistance Driver Neoepitopes to Immunologically Prevent and Suppress the Emergence of ER+ Endocrine Therapy-Resistant Breast Cancer

**Alex M. Jaeger**, Moffitt Cancer Center, USA  
Deciphering the Immunopeptidome in vivo Reveals Novel Tumor Antigens

**Allison M. Kirk**, St. Jude Children's Research Hospital, USA  
Developing T Cell Immunotherapies Targeting Conserved Fusion Neoantigens in Fibrolamellar Carcinoma

**Ana Marcu**, Genentech Inc., USA  
The HLA Ligand Atlas: Defining Actionable Targets for T-Cell-Based Immunotherapy

**Mark J. McCarron**, Genentech, Inc., USA  
The Phenotype of the T Cell Response against Weak Antigens is Altered by the Presence of Strong T Cell Responses against Immunodominant Antigens

**Christian Seca**, University of Liege, Belgium  
Wobble tRNA Modification Regulates Melanoma Immune Response

**Sri Krishna**, National Cancer Institute, USA  
Impact of Neoantigen-Specific T Cell Phenotypes on Cellular Immunotherapies Targeting Metastatic Solid Tumors

**Workshop 1: Emerging Checkpoints Insights: Basic and Animal Model Studies (2:30 pm Start) (RB1)**

*Roarke A. Kamber*, Stanford University, USA  
Systematic Discovery of Mechanisms that Impede Macrophage Phagocytosis of Cancer Cells Using Inter-cellular CRISPR Screens

*Hrishi Venkatesh*, University of Minnesota, USA  
Targeted Therapy and Anti-PDL1 Checkpoint Blockade Elicit a CD4 T Cell Response that Eliminates B Cell Leukemia and Prevents Relapse
KEYSTONE SYMPOSIA
on Molecular and Cellular Biology

Cancer Neoantigens, Vaccines and Viruses - RESCHEDULED (RT3)
Scientific Organizers: Catherine J. Wu, Robert D. Schreiber and Cornelis J.M. Melief

Support by the Directors’ Fund

Advances in Checkpoints Immunology from Autoimmunity to Oncology to Infectious Diseases - RESCHEDULED (RB1)
Scientific Organizers: David M. Lee, Arlene H. Sharpe and William H. Robinson
June 8-12, 2022 • Fairmont Chateau Whistler • Whistler, BC, Canada


Scholarship Deadline: October 21, 2021 / Abstract Deadline: April 20, 2022 / Discounted Registration Deadline: April 7, 2022

**Michiel van der Vlist**, University Medical Center Utrecht, Netherlands
CD200R+ Macrophages Resolve Inflammatory Pain Through Interaction with iSec1 on Sensory Neurons

**Iryna Voloshyna**, NYU School of Medicine, USA
Humanized FcγR (hFcγR) Mice as a Pre-clinical Model to Study Checkpoint Inhibitor-induced irAEs

**Elena Fueyo-Marcos**, CNIO, Spain
Exploring the Potential of Selectively Killing PD-L1-Expressing Cells in Cancer Therapy

**Martina Damo**, Yale University, USA
Anti-PD-1 Disrupts Tolerance of Self-antigen-specific CD8 T Cells in Skin Causing Lichenoid irAEs

**Abby E. Overacre**, University of Pittsburgh, USA
Microbiota-specific T Follicular Helper Cells Drive Tertiary Lymphoid Structure Formation and Anti-tumor Immunity in Colorectal Cancer

**Immunoregulation and Immunosuppression (Joint) (8:00 am Start)**

*Session Chair*

**Helen Heslop**, Baylor College of Medicine, Houston Methodist Hospital and Texas Children’s, USA
Adoptive Transfer of Virus Specific T Cells

**Cornelis J. M. Melief**, Leiden University Medical Center & ISA Pharmaceuticals BV, Netherlands
Vaccines Targeting HPV Antigens

**Kellie N. Smith**, Johns Hopkins University School of Medicine, USA
Discovery and Characterization of Tumor- Reactive TIL

**Derin Benerci Keskin**, Dana Farber Cancer Institute, USA
Short Talk: Reversal of Viral and Epigenetic HLA Class I Repression in Merkel Cell Carcinoma

**Michael C. Brown**, Duke University, USA
Short Talk: Intratumor Childhood Vaccine-specific CD4+ T Cell Recall Coordinates Antitumor Type I and II Immunity

**Esme van der Gracht**, ISA Therapeutics, Netherlands
Remote Presentation: Short Talk: A Third Vaccination with a Single T Cell Epitope Protects against Lethal SARS-CoV-2 Infection

**Advances in Checkpoint Biology II: Immune Exhaustion and Immunometabolism (5pm Start) (RB1)**

*Session Chair*

**Rafi Ahmed**, Emory University School of Medicine, USA
TGF-beta Regulates the Quiescence and Differentiation of PD-1+ TCF-1+ Stem-like CD8 T Cells during Chronic Infection

**Weiping Zou**, University of Michigan, USA
Metabolic Impact on Cancer Immunity and Immunotherapy

**Christopher E. Rudd**, University of Montreal, Canada
Short Talk: Glycogen Synthase Kinase (GSK-3) Inhibition Generates CD8 Super-armed Killers in its Synergy with PD-1/PDL1 Blockade in Tumor Immunity

**Sabelo M. Lukhele**, University Health Network, Canada
Short Talk: IRF2-mediated Inhibition of Interferon Signaling Drives CD8 T Cell Exhaustion to Prevent Long-term Cancer Control

**Andrew Frisch**, University of Pittsburgh, USA
Short Talk: Redirecting Glucose Flux During In Vitro Expansion Improves the In Vivo Performance of Adoptive T Cell Therapies for Cancer

**Panel Discussion: New Directions in Checkpoint Biology: Major Gaps and Emerging Insights (6:45 pm Start) (RB1)**

*Arlene H. Sharpe*, Harvard Medical School, USA
Session Chair

**Weiping Zou**, University of Michigan, USA
Jennifer Guerrero, Brigham and Women's Hospital, USA
David A. Hafler, Yale University School of Medicine, USA
Bali Pulendran, Stanford University School of Medicine, USA
Ira Mellman, Genentech, Inc., USA

**Poster Session 2**

**SUNDAY, JUNE 12**

**Immunoregulation and Immunosuppression (Joint) (8:00 am Start)**

*Session Chair*

**Thomas Gajewski**, University of Chicago, USA
The Tumor Microenvironment and Immunotherapy Efficacy

**Hussein Sultan**, Washington University School of Medicine, USA
Unexpected Complexity of Neoantigen Specific Synthetic Long Peptide Cancer Vaccines: Potential for Induction of Tumor Specific Immunosuppressive CD4+ T cells

**Jennifer Guerrero**, Brigham and Women’s Hospital, USA
Elucidating Macrophage Diversity to Uncover Novel Anti-cancer Therapeutic Strategies

**David A. Hafler**, Yale University School of Medicine, USA
Transcriptional Mechanism of FoxP3+ Treg Dysfunction in Human Autoimmune Disease

**Jessica Stark**, Stanford University, USA
Short Talk: Antibody-lectin Bispecifics for Glyco-immune Checkpoint Blockade

**Andreas Wieland**, Ohio State University, USA
Short Talk: Defining HPV-Specific B Cell Responses in Patients with Head and Neck Cancer

* Session Chair † Invited but not yet accepted  Program current as of November 9, 2022. Meal formats are based on meeting venue.
For the most up-to-date details, visit https://www.keystonesymposia.org.
**Workshop 2: Emerging Checkpoints Insights: Translational and Clinical Studies (3:00 pm Start) (RB1)**

*Kate Carbone*, Genentech, Inc., USA  
Surveillance of in situ Tumor Arrays Reveals Early Environmental Control of Cancer Immunity

*Zhi Liang Chu*, Crossignal Therapeutics, Inc., USA  
TMER1: A Treg Cell Expressed, Hippo-YAP Regulating GPCR as a Novel Target for Cancer Immunotherapy

*Jenna Lynn Collier*, Harvard University, USA  
PD-1 Blockade Drives T Cell Transcriptional States in NOD Mice that are Comparable to T Cells in NOD Mice with Spontaneous Autoimmune Diabetes

**David R. Glass**, Fred Hutchinson Cancer Research Center, USA  
Multi-omic Analysis of Cutaneous T Cell Lymphomas Reveals Broad Changes in Cellular Immunity Induced by Mono- and Combination Anti-PD-1 Immunotherapy

*Aakashdip Singh*, UMC Utrecht, Netherlands  
Cancer Immunotherapy by NC410, a LAIR-2 Fc Protein Blocking Human LAIR-collagen Interaction

**Checkpoints in Autoimmunity: Function and Dysfunction in Disease (5:00 pm Start) (RB1)**

*Bali Pulendran*, Stanford University School of Medicine, USA  
Systems Biological Analysis of Immunity to COVID-19 Infection and Vaccination

*Eoin McKinney*, Cambridge University, UK  
Lymphocyte Exhaustion State in Autoimmune Disease X: Integrating Functional Status across Active Checkpoints

**David M. Lee**, Janssen Pharmaceutical Companies of Johnson & Johnson, USA  
Co-inhibitory Modulators In Autoimmunity: The Complex Path From Concept to Therapeutic Candidates

*Chris Paluch*, MiroBio Ltd, UK  
Short Talk: A BTLA Agonist Antibody for the Treatment of Autoimmune Disease

*Yang Zhao*, Janssen Immunology Discovery, USA  
Short Talk: VISTA is a Checkpoint Receptor Target for Autoimmune Diseases

**Combination Therapy with Oncolytic Virus and Viral Delivery Systems (5:00 pm Start) (RT3)**

*Jennifer Guerriero*, Brigham and Women's Hospital, USA  
Session Chair

**Matthias Gromeier**, Duke University School of Medicine, USA  
Cancer Immunotherapy through Endogenous Type-I IFN Dominant Signaling in Dendritic Cells

**Klaus Früh**, Oregon Health & Science University, USA  
Harnessing the Unique Immune Biology of Cytomegalovirus for Cancer Immunotherapy

*E. Antonio Chiocca*, Brigham and Women's Hospital, USA  
Clinical Trials of Oncolytic Virus- and Gene-based Immunotherapy: Human Evidence of Changes in the Tumor Immune Microenvironment

*Kristin DePeaux*, University of Pittsburgh, USA  
Short Talk: Overcoming Microenvironmental Resistance to Oncolytic Virus Immunotherapy with Virus-encoded Delivery of a Potent TGFß Inhibitor

*Emma Wagner*, University of Cambridge, UK  
Short Talk: Role of Innate Immune DNA Sensing in Response to Oncolytic Virus Therapy

**Poster Session 3**

**SUNDAY, JUNE 12**

**Vaccines in Cancer and Other Non Infectious Syndromes (8:00 am Start) (RT3)**

*Cornelis J. M. Melief*, Leiden University Medical Center & ISA Pharmaceuticals BV, Netherlands  
Session Chair

*Gerald P. Linette*, University of Pennsylvania, USA  
Dendritic-Based Targeting of Tumor Neoantigens

*Jan David Beck*, BioNTech SE, Germany  
Combining RNA-encoded Interleukin-2 with Antibodies Overcomes Resistance in MHC Class I-deficient Cancer

*E. Antonio Chiocca*, Brigham and Women's Hospital, USA  
Short Talk: Antigen Dominance Hierarchies Shape Anti-tumor T Cell Phenotypes and Immunotherapy Response

*Ann-Jay Tong*, Genentech, Inc., USA  
Short Talk: Molecular Determinants of Effective Neoantigen-specific T Cell Responses Following Vaccination

*Anna Morena D'Alise*, Nouscom Srl, Italy  
Short Talk: Viral Vectored Vaccines Targeting Tumor Neoantigens Elicit Potent and Effective Anti-tumor Immune Response

*Najja Arshad*, Yale University, USA  
Short Talk: Discovery of Immunogenic, Tumor-Associated Peptides Presented by Major Histocompatibility Complex Class I in a Myeloproliferative Neoplasm Cell Line

*David A. Braun*, Dana-Farber Cancer Institute, USA  
Short Talk: A Personalized Neoantigen Vaccination Incorporating Locally Delivered Ipilimumab Induces Tumor-specific Immunity in Renal Cell Carcinoma

**Checkpoints in Oncology—Treatment Effectiveness, Include CAR T, States of Immune Exhaustion in IO, and Combo Approaches (8:00 am Start) (RB1)**
KEYSTONE SYMPOSIA
on Molecular and Cellular Biology

Cancer Neoantigens, Vaccines and Viruses - RESCHEDULED (RT3)
Scientific Organizers: Catherine J. Wu, Robert D. Schreiber and Cornelis J.M. Melief
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For the most up-to-date details, visit https://www.keystonesymposia.org.
Remote Presentation: Immune-related Adverse Events with Checkpoint Inhibitors

Charles G. Drake, Janssen, USA

Talk Title to be Announced

Defining Regulators of Immunity to Infections and Tumors using in vivo CRISPR Screens

Alex C. McPherson, University of Pittsburgh, USA

Short Talk: Exploring the Mechanisms of how Commensal Bacteria Colonize Gut-distal Melanoma Tumors and Impact Immune Checkpoint Inhibitor Efficacy

Chun Wai Wong, University of Manchester, UK

Short Talk: Inhibition of PARP14 Restores Response to Anti-PD1 Immune Checkpoint Inhibition

Novel Combinatorial Approaches (5:00 pm Start) (RT3)

Gerald P. Linette, University of Pennsylvania, USA

Session Chair

David E. Avigan, Beth Israel Deaconess Medical Center, USA

Integrating a Personalized Cancer Vaccine with Cellular Immunotherapy

Ravi Uppaluri, BWH, USA

Neoadjuvant PD1 Therapy

Brooke Huisman, MIT, USA

Short Talk: Characterizing the Peptide Repertoire of HLA-E and Natural Killer Cell Receptors via Yeast Display

Marcus Bosenberg, Yale University, USA

Short Talk: Epigenetic Regulation of Endogenous Retroelement Expression Modulates Anti-cancer Immune Responses

Christianne Groeneveldt, Leiden University Medical Center, Netherlands

Short Talk: Repurposing Reovirus-specific T Cells as Antitumor Effector Cells

Checkpoints Insights from Infectious Diseases and Environmental Triggers (5:00 pm Start) (RB1)

Georg Lauer, Massachusetts General Hospital, USA

Checkpoint Signaling and Phenotype in Chronic Viral Infections

Alice O. Kamphorst, Icahn School of Medicine at Mount Sinai, USA

Strength of CD28 Costimulation Directs Self-Renewal and Differentiation of TCF-1+ PD-1+ CD8 T Cells

Susan E. McClory, University of Pennsylvania/CHOP, USA

Short Talk: Trib1 Inhibits Viral-specific T Cell Responses during Chronic Infection by Promoting Terminal Exhaustion

Panel Discussion: Targeting Checkpoints in Human Disease: Gaps for Translation and Opportunities Ahead (6:00 pm Start) (RB1)