SUNDAY, FEBRUARY 6
Arrival and Registration

MONDAY, FEBRUARY 7
Welcome and Keynote Address (B1)
Ira Mellman, Genentech, Inc., USA
Checkpoint and Immune Exhaustion Overview

Welcome and Keynote Address (T3)
Rafi Ahmed, Emory University School of Medicine, USA
T Cell Functional State, from Viruses to Cancer

Advances in Checkpoint Biology I: Lymphocytes (B1)
E. John Wherry, University of Pennsylvania, USA
PD 1/ PD L1 and CD8 T Effectors
Chen Dong, Tsinghua University, China
Beyond PD 1: Differential Roles for other T Cell Checkpoints (e.g. TIM 1 or TIM 3 or TIGIT)

William H. Robinson, Stanford University School of Medicine, USA
Checkpoints in B Cells

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

David Bending, University of Birmingham, UK
Short Talk: Antigen and Checkpoint Receptor Engagement Recalibrates T Cell Receptor Signal Strength

Antigen Targets (T3)

Jonathan W. Yewdell, NIAID, National Institutes of Health, USA
Identification of Viral Antigen Targets and Discovery of Novel ORFs

Michael Bassani-Sternberg, University Hospital of Lausanne, Ludwig Institute for Cancer Research, Switzerland
Mass Spectrometry and Proteogenomics Based Approaches for Antigen Detection

Maxim Artyomov, Washington University in St. Louis, USA
Computational Informatics Approaches for Prediction of Neoantigens

Thorold van Hall, Leiden University Medical Center, Netherlands
Novel Cancer Antigens in the Setting of TAP Deficiency

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

Checkpoints in Autoimmunity: Genetic Insights and Innate Immunity Lineages (B1)

Ferenc A. Scheeren, Leiden University Medical Center, Netherlands
Genetics 1—WGS/GWAS in Checkpoint Autoimmunity

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

Carla V. Rothlin, Yale University, USA
Innate Immune Checkpoints: TAMs

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

Helen J. von Richthofen, UMC Utrecht, Netherlands
Short Talk: Inhibitory Pattern Recognition Receptors as a Novel Class of Immune Regulators Recognizing Endogenous and Microbial Patterns

Cellular Interactions Critical to Effective Tumor Immunity (T3)

Jannie Borst, Leiden University, Netherlands
Role of CD4 T Cell Help, and Impact of CD27 Costimulation

Robert D. Schreiber, Washington University School of Medicine, USA
Macrophage Subpopulations in Cancer Immune Response

Nir Hacohen, Massachusetts General Hospital, USA
TCF7 Expression in CD8+ T Cells and Its Role in Cancer Immunotherapy

Miranda Yu†, McGill University, Canada
Short Talk: Characterizing the Complete Immune Landscape of Glioblastoma Using High-Parameter Spectral Flow Cytometry

Giacomo Oliveira, Dana-Farber Cancer Institute, USA
Short Talk: The Landscape of Helper and Regulatory CD4+ T cells in Human Melanoma

Poster Session 1

TUESDAY, FEBRUARY 8
Advances in Checkpoint Biology II: Immune Exhaustion and Immunometabolism (B1)

Rafi Ahmed, Emory University School of Medicine, USA
Immune Exhaustion: Functional and Molecular Definitions in Th and Teff Populations

Jeffrey C. Rathmell, Vanderbilt University, USA
Immune Metabolism in the Tumor Microenvironment and Checkpoint Function

Luke A. J. O'Neill, Trinity Biomedical Sciences Institute, Ireland
Immune Metabolism in Checkpoint Function 2: Innate

* Session Chair † Invited but not yet accepted  Program current as of December 22, 2021. Meal formats are based on meeting venue. For the most up-to-date details, visit https://www.keystonesymposia.org.
Mark E. Issa, University of Montreal - CRHMR, 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

Reprogramming the Microenvironment (T3)

Valerie Chew, SingHealth, Singapore
The Microenvironments of Hepatitis B Virus (HBV)-Related Hepatocellular Carcinoma

Jennifer Ann Wargo, University of Texas MD Anderson Cancer Center, USA
Microbiome and Cancer Immunotherapy

Garry P. Nolan, Stanford University, USA
Direct Spatial Visualization of Microenvironment Changes with Immunotherapy

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

William Hudson, Emory University, USA
Short Talk: The CD8 T Cell Landscape of Human Brain Metastases

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

Panel Discussion: New Directions in Checkpoint Biology: Major Gaps and Emerging Insights (B1)

Workshop 1: Emerging Checkpoints Insights: Basic and Animal Model Studies (B1)

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

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

Hrishi Venkatesh, University of Minnesota, USA
Nilotinib and Anti-PDL1 Combination Therapy Elicit a CD4 T Cell Response that Eliminates Leukemia and Prevents Relapse

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 FcyR (hFcyR) Mice as a Pre-clinical Model to Study Checkpoint Inhibitor-induced irAE

Elena Fuego-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

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

Checkpoints in Autoimmunity: Function and Dysfunction in Disease (B1)

Bali Pulendran, Stanford University School of Medicine, USA
Defining what Good Looks Like: Quantifying Homeostasis and Appropriate Immune Exhaustion as Treatment Goals

Laura Cappelli, Johns Hopkins University, USA
Checkpoint Dysfunction, Disease 1 (e.g. RA or MS)

Kenneth Smith, University of Cambridge, UK
Lymphocyte Exhaustion State in Autoimmune Disease X: Integrating Functional Status across Active Checkpoints

Stephanie Jo Grebinoiski, University of Pittsburgh, USA
Short Talk: Intra-islet CD8+ T Cells are Restrained by an Exhaustion Program that can be Partially Reversed in the Absence of LAG3

Sang Kim†, MD Anderson, USA
Short Talk: Distinct Molecular and Immune Hallmarks of Inflammatory Arthritis Induced by Immune Checkpoint Inhibitor Therapy

Immune Targeting against Viral Antigens (T3)

Helen Heslop, Baylor College of Medicine, Houston Methodist Hospital and Texas Childrens, USA
Adoptive Transfer of Virus Specific T Cells

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

Speaker to be Announced

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

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Poster Session 2

WEDNESDAY, FEBRUARY 9

Immunoregulation and Immunosuppression (Joint)

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

Shannon J. Turley, Genentech, Inc., USA
Stromal Cells in Modulating Anticancer Responses

Özlem Türeci†, BioNTech, Germany
Talk Title to be Announced

David A. Hafler, Yale University School of Medicine, USA
Checkpoint Dysfunction in Autoimmune Disease

Shannon J. Turley

Workshop 2: Emerging Checkpoints Insights: Translational and Clinic Studies (B1)

Christopher Bernardo Medina, Emory University, USA
A Phosphatidylserine Metabolic Inhibitory Checkpoint During CD8 T Cell Exhaustion

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

Jonathan Wilhelm†, University of Texas Southwestern Medical Center, USA
STING Activation Overcomes Vaccine Resistance by Inhibiting MHCI M2 Macrophages

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

Ling-Yang Hao†, Janssen R&D, USA
Characterization of JNJ-67484703, a PD1 Agonist Monoclonal Antibody

Checkpoints Insights from Infectious Diseases and Environmental Triggers (B1)

Georg Lauer, Massachusetts General Hospital, USA
Checkpoint Signaling and Phenotype in Chronic Viral Infections

Mala K. Maini, University College London, UK
Beyond Classical Checkpoints in the Liver Niche

Kevan C. Herold, Yale University, USA
Checkpoint Inhibitor Autoimmunity after Withdrawal of Therapy: Continued Checkpoint Dysfunction or Evidence for Environmental Regulation?

Daniel T. McManus, Emory University, USA
Short Talk: Early Generation and Anatomical Commitment of PD-1+ Stem-like CD8 T Cells

Susan E. McClory, Children’s Hospital of Philadelphia, USA
Short Talk: Trib1 Inhibits Viral-specific T Cell Responses during Chronic Infection by Promoting Terminal Exhaustion

Vaccines in Cancer and Other Non Infectious Syndromes (T3)

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

Ugur Sahin, BioNTech AG, Germany
Individualized RNA-Based Cancer Vaccines

Catherine J. Wu, Dana-Farber Cancer Institute, USA
SLPs for Personal Neoantigen-Targeting Vaccines

Megan L. Burger, Massachusetts Institute of Technology, USA
Short Talk: Molecular Determinants of Effective Neoantigen-specific T Cell Responses Following Vaccination

Poster Session 3

THURSDAY, FEBRUARY 10

Checkpoints in Oncology—Treatment Effectiveness, Include CAR T, States of Immune Exhaustion in IO, and Combo Approaches (B1)

Charles Drake, Janssen, USA
Talk Title to be Announced

Maria E. Suarez-Almazor, University of Texas MD Anderson Cancer Center, USA
Immune-related Adverse Events with Checkpoint Inhibitors’

Arlene H. Sharpe, Harvard Medical School, USA
Using Genetics to Define Novel Combo Checkpoints

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
Diego Alvarado†, Celldex Therapeutics, USA
Short Talk: Bispecific Antibodies can Drive Synergistic Immune Activation through Simultaneous Engagement of Multiple Immune Targets

Chun Wai Wong, University of Manchester, UK
Short Talk: Inhibition of PARP14 Restores Response to Anti-PD1 Immune Checkpoint Inhibition

Novel Combinatorial Approaches (T3)
Padmanee Sharma, University of Texas MD Anderson Cancer Center, USA
Role of ICOS in Checkpoint Blocking Therapy

Nina Bhardwaj, Icahn School of Medicine at Mount Sinai, USA
Combination of Flt3L and Vaccine

Speaker to be Announced
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

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

Emerging Clinical Insights into Checkpoint Contributions to Autoimmunity (B1)
Javid Moslehi, UCSF School of Medicine, USA
1-O Checkpoint Antagonists Associated Autoimmunity: Distinct Disease Phenotypes (Similarities and Differences to Spontaneous Autoimmunity) Associated with Current Monotherapy and Combo Therapy Approaches

Alexandra-Chloé Villani, Broad Institute of MIT and Harvard, USA
New Views on 'Traditional' Autoimmune Disease Informed by Checkpoint Antagonist Therapy

David M. Lee, Janssen Pharmaceutical Companies of Johnson & Johnson, USA
Checkpoint Agonists 1 (Disease/Checkpoint)

Combination Therapy with Oncolytic Virus and Viral Delivery Systems (T3)
John C. Bell, Ottawa Hospital Research Institute, Canada
Oncolytic Viruses: Multiplex Cancer Therapeutics

Kevin Harrington, Institute of Cancer Research, UK
Physical & Pharmacological Modulation of Oncolytic Virotherapy

Klaus Früh, Oregon Health & Science University, USA
Harnessing the unique immune biology of cytomegalovirus for cancer immunotherapy

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

Panel Discussion: Targeting Checkpoints in Human Disease: Gaps for Translation and Opportunities Ahead (B1)

Closing Keynote Address (T3)
James P. Allison, University of Texas MD Anderson Cancer Center, USA
Where We Are Going as a Field

Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (B1)

Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (T3)

FRIDAY, FEBRUARY 11
Departure