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

Short Talks Chosen from Abstracts

Antigen Targets (T3)
Jonathan W. Yewdell, NIAID, National Institutes of Health, USA
Identification of Viral Antigen Targets and Discovery of Novel ORFs
Michal 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 Informatic Approaches for Prediction of Neoantigens
Thorwald van Hall, Leiden University Medical Center, Netherlands
Novel Cancer Antigens in the Setting of TAP Deficiency

Short Talks Chosen from Abstracts

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

Miriam Merad, Mount Sinai School of Medicine, USA
Myeloid Cell Checkpoints

Short Talk(s) Chosen from Abstracts

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

Short Talks Chosen from Abstracts

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

Short Talk(s) Chosen from Abstracts

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

Short Talks Chosen from Abstracts

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

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

Short Talks Chosen from Abstracts

* Session Chair † Invited but not yet accepted     Program current as of September 20, 2021. Meal formats are based on meeting venue.
For the most up-to-date details, visit https://www.keystonesymposia.org.
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*

**Short Talks Chosen from Abstracts**

**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*

**Eric Vivier**, Aix Marseille University and Innate Pharma, France
*Unleashing Anti-Viral and Anti-Tumor Responses with NK Cell-Targeting Therapy*

**Short Talks Chosen from Abstracts**

**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*

**Jane L. Grogan**, Graphite Bio, USA
*Beyond PD-1: Differential Roles for other Checkpoints*

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

**Short Talks Chosen from Abstracts**

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

**Short Talks Chosen from Abstracts**

**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?*

**Short Talks Chosen from Abstracts**

**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*

**Short Talks Chosen from Abstracts**

**THURSDAY, FEBRUARY 10**

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

**W. Nicholas Haining**, Merck Research Laboratories, USA
*Determinates of Treatment Effectiveness*

**Maria E. Suarez-Almazor**, University of Texas MD Anderson Cancer Center, USA
*Oncology Adverse Events Treatments*

**Crystal L. Mackall**, Stanford University, USA
*Checkpoints in CAR-T Therapies*

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

**Short Talk(s) Chosen from Abstracts**

**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*

**Irving L. Weissman**, Stanford University, USA
*Normal and Neoplastic Stem Cells*

**Short Talks Chosen from Abstracts**

**Emerging Clinical Insights into Checkpoint Contributions to Autoimmunity (B1)**

**Javid Moslehi**, Vanderbilt University Medical Center, USA
*I-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
Alan J. Korman, Vir Biotechnology, Inc., USA
Virus as an Antigen Delivery System

Short Talks Chosen from Abstracts

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