The success of immunotherapy in the treatment of cancer patients has proved the long-standing hypothesis that endogenous adaptive immune responses against the tumor can be harnessed to mediate protection by immune checkpoint blockade. This approach has shown impressive control of disease and improved survival in up to 50% of patients with certain tumors. Genetic and immune analysis of human cancers suggests that one mechanism of resistance to immune checkpoint blockade may be due to lack of tumor-specific T cells. In principle, vaccines have the potential to overcome this defect by either expanding low-level existing tumor-specific T cell responses or priming tumor-specific T cells. Recent advances in next-generation sequencing have improved our understanding of defining cancer antigens. Application of this will require vaccine delivery approaches that can induce potent and broad T cell immunity in an efficient manner for personalized therapy. This Keystone Symposia conference will highlight recent insights in the characterization of immunogenic cancer antigens, the biology and underlying mechanisms of T cell priming, and the development of novel approaches designed to expand T cell responses. Part of the meeting will also be devoted to the development of technologies to monitor T cell responses in response to immune interventions.

Plenary Session Topics:
- Identification of Mutated Neoantigens
- Workshop 1: Cancer Antigens
- Other Cancer Antigens
- Priming T Cells
- Workshop 2: Vaccine Platforms and Immune Monitoring
- Antigen-Presenting Cells
- Novel Cancer Vaccine Platforms I & II
- Tumor Microenvironment and Combination Therapies
- Workshop 3: Combination Therapies
- Immune Monitoring of T Cells

Scholarship/Discounted Abstract Deadline: Oct 2, 2018; Abstract Deadline: Oct 24, 2018; Discounted Registration Deadline: Nov 27, 2018

Visit [www.keystonesymposia.org/19L2](http://www.keystonesymposia.org/19L2) for more details.
**Welcome and Keynote Session**

* Lélia Delamarre, Genentech, Inc., USA
* Robert A. Seder, NIAID, National Institutes of Health, USA
* Nina Bhardwaj, Icahn School of Medicine at Mount Sinai, USA

**Keynote Speakers**

- **Ira Mellman**, University of Pennsylvania, USA
- **Glenn Dranoff**, Novartis Pharmaceuticals, USA
- **Nina Bhardwaj**, Icahn School of Medicine at Mount Sinai, USA
- **Robert A. Seder**, NIAID, National Institutes of Health, USA
- **Lélia Delamarre**, Genentech, Inc., USA

**Workshop 1: Cancer Antigens and Immune Monitoring**

* Karin U. Jooss, Gritstone Oncology, USA
* Samuel J. Landry, Tulane University Health Sciences Center, USA
* Aude-Helene Capietto, Genentech, Inc., USA
* Cansu Cimen Bozkus, Icahn School of Medicine at Mount Sinai, USA
* Russell Kent Pachynski, Washington University in St. Louis, USA
* Brandon Coder, Advaxis, USA
* Ghislain Bonamy, immunoSCAPE, Singapore

**Abstract & Scholarship Deadline:** October 16, 2018 / **Abstract Deadline:** October 24, 2018 / **Discounted Registration Deadline:** November 27, 2018

**Other Cancer Antigens**

* Lélia Delamarre, Genentech, Inc., USA
* Stephen B. Baylin, Johns Hopkins University School of Medicine, USA
* Immunogenicity of Transposable Elements in Cancer – Relevance to Epigenetic Therapy
* Victor H. Engelhard, University of Virginia, USA
* Post-Translationally Modified Cancer Neoantigens
* Cornelia Liu Trimble, Johns Hopkins University School of Medicine, USA
* Targeting HPV Antigens by Vaccination
* Haiyin Chen, Genentech, Inc., USA
* Short Talk: Transposable Element Expression in Tumors Is Associated with Immune Infiltrate and Increased Antigenicity

**Poster Session 1**

**TUESDAY, JANUARY 22**

**Priming T Cells**

* Sebastian Amigorena, Institut Curie, France
* Rafi Ahmed, Emory University School of Medicine, USA
* T Cell Exhaustion and PD-1 Immunotherapy
* E. John Wherry, University of Pennsylvania, USA
* The Developmental Program of Exhausted T Cells
* Pedro Romero, University of Lausanne, Switzerland
* Programming T Cell Memory for Immunotherapy of Cancer
* David B. Masopust, University of Minnesota, USA
* Repurposing Antiviral T Cells to Fight Tumors
* John P. Finnigan, Icahn School of Medicine at Mount Sinai, USA
* Short Talk: Molecular and Cellular Properties of Neoantigen-Specific CD8+ T Cells Interacting with Melanoma in situ
* Jared Klarquist, University of Colorado Denver, USA
* Short Talk: Vaccine-Elicited T Cells Expand and Function Independently of Aerobic Glycolysis: Implications for Therapeutic Cancer Vaccines

**Poster Session 2**

**Workshop 2: Vaccine Platforms**

* Karin Loré, Karolinska Institutet, Sweden
* Jaehak Oh, Genentech, Inc., USA
* RNA-Lipoplex Vaccine Is Presented on MHCII and MHCIII Molecules of Differential Dendritic Cell Subsets in Spleen
* Yanling Xiao, Netherlands Cancer Institute, Netherlands
* Antigen Cross-Presentation and T-Cell Priming Ability of Human Dendritic Cells Generated in vitro from a Newly Discovered Oligopotent Progenitor of Granulocytes, Macrophages, Osteoclasts and Dendritic Cells
* Faezzah Baharom, National Institutes of Health, USA
* Route, Dose and Agonist Potency Influence the Induction of TCF1+ Neoantigen-Specific CD8+ T Cells by Peptide-TLR7/8 Agonist Nanoparticle Vaccine
* Anna Morena D’Alise, Nouscom Srl, Italy
* Diversification of TCR Repertoire in Tumor-Infiltrating T Cells Correlates with Efficacy of Neoantigen-Based GAd Vaccine

* Session Chair  † Invited but not yet accepted
Robert Petit, Advaxis Inc., USA  
* Magnitude of Anti-PSA T Cell Response Is Associated with Antigen Spreading and Slowing in PSA and PAP Velocity

Alessia Melacarne, Humanitas University, Italy  
Antigens Released by Salmonella-Infected Tumor Cells as a Novel Vaccine Platform

Aymen Al-shamkhani, University of Southampton, UK  
The Effects of Akt/Protein Kinase B on Effector and Memory CD8 T Cell Differentiation Revealed by Single Cell RNA-Seq

**Antigen-Presenting Cells**

*Ira Mellman, Genentech, Inc., USA  
Karim Loré, Karolinska Institutet, Sweden  
Understanding Innate Immune Mechanisms Dictating Vaccine Responses

Sebastian Amigorena, Institut Curie, France  
Dendritic Cell Biology

Marc Y. Dalod, Centre National de la Recherche Scientifique, France  
Deciphering the Role of CDC1 in Anti-Tumor Immunity

Zwi N. Berman, Antwerp University Hospital, Belgium  
Short Talk: Vaccination of Cancer Patients with WT1 mRNA-Electroporated Dendritic Cells: Correlation of Clinical Effect and Overall Survival with T-Cell Response

Matthew G. Booty, SQZ Biotechnologies, USA  
Short Talk: SQZ'ing Cells to Engineer a New Generation of Cancer Vaccines

**Wednesday, January 23**

**Novel Cancer Vaccine Platforms I**

*Catherine Ju-Ying Wu, Dana-Farber Cancer Institute, USA  
David B. Weiner, Wistar Institute, USA  
DNA-Based Vaccines

John C. Bell, Ottawa Hospital Research Institute, Canada  
Virus-Based Vaccines

Ugur Sahin, BioNTech AG, Germany  
RNA-Based Vaccines

Robert A. Seder, NIAID, National Institutes of Health, USA  
Peptide-TLR 7/8 Agonist Vaccines Chemically Programmed to Enhance the Magnitude, Quality and Breadth of Neoantigen CD8 T Cell Responses

Christian J. Maine, Synthetic Genomics, USA  
Short Talk: Self-Amplifying RNA Polytope Vaccines Can Elicit Anti-Tumor T Cell Responses Against Neoantigens for Cancer Immunotherapy

**Novel Cancer Vaccine Platforms II**

*Robert A. Seder, NIAID, National Institutes of Health, USA  
Catherine Ju-Ying Wu, Dana-Farber Cancer Institute, USA  
Building Better Personal Cancer Vaccines

Nina Bhardwaj, Icahn School of Medicine at Mount Sinai, USA  
DC Targeted Vaccines

Joshua Tobias, Medical University of Vienna, Austria  
Short Talk: A Paradigm Change in Cancer Immunotherapy: Combined B Cell Epitope Peptides of Her-2/neu and Immune Checkpoint Inhibitors for Active Immunization

Mubeen M. Mosheeb, Duke University, USA  
Short Talk: A Polioivirus-Based Recombinant Vector Activates Antigen-Presenting Cells and Primes Anti-Tumor T Cell Immunity

**Thursday, January 24**

**Tumor Microenvironment and Combination Therapies**

*Nina Bhardwaj, Icahn School of Medicine at Mount Sinai, USA  
Joshua D. Brody, Icahn School of Medicine at Mount Sinai, USA  
In situ Vaccination for Cancer

Shannon J. Turley, Genentech, Inc., USA  
TGFbeta in Cancer

Thomas Gajewski, University of Chicago, USA  
Downstream Regulation at the Level of the Tumor Microenvironment

Darrell J. Irvine, Massachusetts Institute of Technology, USA  
Combination Therapies Inducing a Self-Sustaining Vaccinal Cycle

Linda Hammerich, Icahn School of Medicine at Mount Sinai, USA  
Short Talk: In situ Vaccination Improves Efficacy of PD-1 Blockade in Unresponsive Lymphoma Tumors via Induction of Antigen Cross-Presentation by Dendritic Cells

Bin Liu, University of California, Los Angeles, USA  
Short Talk: Combination of in situ Vaccination with Autologous CCL21-Modified Dendritic Cells (CCL21-DC) and Anti-PD1 for Non-Small Cell Lung Cancer (NSCLC)

**Workshop 3: Combination Therapies**

*Joshua D. Brody, Icahn School of Medicine at Mount Sinai, USA  
Selma Bekri, Icahn School of Medicine at Mount Sinai, USA  
Mechanisms of CD4 T Cell Tumor Immunity in a Preclinical Model of a Neoantigen Vaccine for Multiple Myeloma

Elham Beyranvand Nejad, Leiden University Medical Center, Netherlands  
Non-Curative Immunotherapy Drives the Development of Immune-Deserted Recurrences

Romsely Hernandez, University of Miami Miller School of Medicine, USA  
IL-2-Dependent Amplification of T Effector and Memory Responses to Promote Anti-Tumor Immunity

Zhen Zeng, University of Queensland, Australia  
The Involvement of IFN-γ and CXCR3 in the CD8+ T-Cell-Mediated Regression of Squamous Cell Carcinoma

Ramin Salehi-Rad, University of California, Los Angeles, USA  
Tumor Vaccination with CCL21-Modified Dendritic Cells (CCL21-DC) Combined with Checkpoint Blockade in Murine Models of NSCLC with Varying Mutational Load

**Immune Monitoring of T Cells**

* Session Chair † Invited but not yet accepted  
Program current as of January 12, 2019. Program subject to change. Meal formats are based on meeting venue. For the most up-to-date details, visit www.keystonesymposia.org/19L2.
Cornelis J. M. Melief, Leiden University Medical Center & ISA Pharmaceuticals BV, Netherlands
Therapeutic HPV16 Vaccination Is Effective as Monotherapy in Pre-Malignant Disease, but Requires Combination Treatment in HPV16-Induced Cancers

Sjoerd H. van der Burg, Leiden University Medical Center, Netherlands
NKG2A Blockade Potentiates CD8+ T-Cell Immunity Induced by Therapeutic Cancer Vaccines

*Evan W. Newell, Fred Hutchinson Cancer Research Center, USA
Asking T Cells About What They See in Cancer

Adria Carbo, Adaptive Biotech, USA
Short Talk: Optimization of Cancer Vaccine Development by using Multiplexed Identification of T-Cell Receptor Antigen Specificity (MIRA)

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

FRIDAY, JANUARY 25

Departure