Scientific Organizers:
Lélia Delamarre, Genentech, Inc., USA
Robert A. Seder, NIAID, National Institutes of Health, USA
Nina Bhardwaj, Icahn School of Medicine at Mount Sinai, USA
Organized in collaboration with Cancer Research UK

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

Visit www.keystonesymposia.org/19L2 for more details.
SUNDAY, JANUARY 20
Arrival and Registration

MONDAY, JANUARY 21
Welcome and Keynote Session
Glenn Dranoff, Novartis Institutes for BioMedical Research, USA
Cancer Vaccines: Overview
Ira Mellman, Genentech, Inc., USA
The Mechanistic Basis of Cancer Immunotherapy

Identification of Mutated Neoantigens
Timothy A. Chan, Memorial Sloan Kettering Cancer Center, USA
Mutations and Neoantigens in Cancer Immunotherapy
Karim U. Joos, Gritstone Oncology, USA
Driving CD8+ T Cell Responses to Mutational Neoantigens in Tumors - Harnessing Immunogenic Viral Vectors
Lélia Delamarre, Genentech, Inc., USA
Neoantigen Identification
Binbin Chen, Stanford Medical School, USA
Short Talk: MARIA: Deep Neural Network Predicting HLA Class II Antigen Presentation for Personalized Cancer Vaccines
Hubert Lam, Genocea Biosciences, USA
Short Talk: ATLAS™ Identifies Stimulatory and Inhibitory Neoantigens with Opposing Effects in a Murine Challenge Model

Funding Opportunities from Cancer Research UK

Workshop 1: Cancer Antigens and Immune Monitoring
Samuel J. Landry, Tulane University Health Sciences Center, USA
CD4+ Epitope Prediction Limited by Analysis of Antigen Conformational Flexibility
Aude-Helene Capietto, Genentech, Inc., USA
Characterization of the Immunogenic Determinants of Tumor Neoantigens Improves their Identification
Cansu Cimen Bozkus, Icahn School of Medicine at Mount Sinai, USA
Immune Checkpoint Blockade Enhances Mutated Calreticulin-Induced T Cell Immunity in Myeloproliferative Neoplasms
Russell Kent Pachynski, Washington University in St. Louis, USA
A Pilot Trial of Neoantigen DNA Vaccine in Combination with Nivolumab/Iplimumab and Prostvac in Metastatic Hormone-Sensitive Prostate Cancer
Brandon Coder, Advaxis, USA
Neoantigen Prioritization for Use in a Listeria Monocytogenes Cancer Vaccine
Ghislain Bonamy, immunoSCAPE, Singapore
Leveraging the Multi-Parametric Profiling Capacity of Mass Cytometry to Query the Specificity of Tumor-Infiltrating T-Cells

Other Cancer Antigens
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
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
Jae Hak Oh, Genentech, Inc., USA
RNA-Lipoplex Vaccine Is Presented on MHCI and MHCIi 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
Sandy Hayes, Advaxis, Inc, USA
Magnitude of Anti-PSA T Cell Response Is Associated with Antigen Spreading and Slowing in PSA and PAP Velocity in ADXS-PSA-Treated mCRPC Patients
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
KEYSTONE SYMPOSIA
on Molecular and Cellular Biology

Cancer Vaccines (L2)

January 20-24, 2019 • Fairmont Hotel Vancouver • Vancouver, British Columbia, Canada
Scientific Organizers: Lélia Delamarre, Robert A. Seder and Nina Bhardwaj
Organized in collaboration with Cancer Research UK

Sponsored by BioLegend, Inc., Genentech, Inc. and Pfizer Inc.

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

* Session Chair  † Invited but not yet accepted     Program current as of January 5, 2019. Program subject to change. Meal formats are based on meeting venue. For the most up-to-date details, visit www.keystonesymposia.org/19L2.
Antigen Presenting Cells

Karin 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. Berneman, Antwerp University Hospital, Belgium
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

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

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

Novel Cancer Vaccine Platforms II

Catherine Ju-Ying Wu, Dana-Farber Cancer Institute, USA
Building Better Personal Cancer Vaccines

Nina Bhardwaj, Icahn School of Medicine at Mt 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. Mosabheb, Duke University, USA
Short Talk: A Poliovirus-Based Recombinant Vector Activates Antigen-Presenting Cells and Primes Anti-Tumor T Cell Immunity

THURSDAY, JANUARY 24

Tumor Microenvironment and Combination Therapies

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

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

Rosmely 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

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
NKGA2 Blockade Potentiates CD8+ T-Cell Immunity Induced by Therapeutic Cancer Vaccines

Evon 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