

# KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

## Emerging Cellular Therapies at the Forefront of Cancer Immunotherapy (A4)

January 29-February 2, 2023 • Fairmont Banff Springs • Banff, AB, Canada

Scientific Organizers: Francesco M. Marincola, Lisa H. Butterfield, David F. Stroncek and Marcela V. Maus

Sponsored by DCVC Bio, Genmab A/S and Janssen R&D: Pharmaceutical Companies of Johnson & Johnson

Scholarship Deadline: November 1, 2022 / Abstract Deadline: November 1, 2022 / Discounted Registration Deadline: November 30, 2022

### SUNDAY, JANUARY 29

#### Arrival and Registration (4pm Start)

### MONDAY, JANUARY 30

#### Welcome and Keynote Address (8am Start)

\***Marcela V. Maus**, Harvard Medical School, USA

**Crystal L. Mackall**, Stanford University, USA

*CAR T Cells for Solid Tumors*

#### Successes and Challenges of Cancer Immunotherapies in the Clinic (9am Start)

**Nirali N. Shah**, NCI, National Institutes of Health, USA

*CAR T Cells*

**Rayne H. Rouse**, Baylor College of Medicine, USA

*Native T Cells for ACT*

\***Marcela V. Maus**, Harvard Medical School, USA

*Novel CAR T Targets*

**Aude G. Chapuis**, Fred Hutchinson Cancer Research Center, USA

*T-Cell Therapy using Engineered TCRs*

#### Workshop 1: Manufacturing Cell Therapies (2:30pm Start)

\***David F. Stroncek**, National Institutes of Health, USA

**Michael Traxlmayr**, University of Natural Resources and Life

Sciences, Austria

*Enhancing Tumor Specificity of EGFR-targeting Therapies*

**Ely Porter**, RootPath, USA

*Fully Synthetic TIL Enriched for Tumor Reactivity by Computational Prediction and High-Throughput TCR Synthesis*

**Nickolas Serniuck**, McMaster University, Canada

*Generating a Universal T-Cell Therapy Using Covalent Immune Recruiters*

**Lukas Egli**, University of Zurich, Switzerland

*Head-to-head Comparison of CD19 Directed Human CAR T and CAR NK Cells across CD28 and 4-1BB CAR Constructs*

**Andrew Frisch**, University of Pittsburgh, USA

*Improving Persistence and Efficacy of Cellular Therapies for Cancer through Glycolytic Reprogramming*

**John B. Haanen**, Netherlands Cancer Institute, Netherlands

*In Depth Analyses of TIL Infusion Products and Correlations with Outcome of the Randomised Controlled Phase 3 Trial Comparing TIL to Anti-CTLA-4 in Advanced Melanoma*

#### T-Cell Factors Affecting the Potency of Cancer Immunotherapies (5pm Start)

\***Marco Davila**, Roswell Park Comprehensive Cancer Center, USA

*Mechanisms of Resistance to CAR T Cells in Hematologic Malignancies*

**Dalia Haydar**, Children's National Hospital, USA

*Evaluating the Impact of CAR Design on the Tumor Immune Microenvironment and Anti-tumor Response in Syngeneic Glioma Model*

**Zachary Steinhart**, Gladstone-UCSF Institute of Genomic Immunology, USA

*Genome-wide CRISPR Activation and Interference Screens Discover Key Drivers of Primary Human T Cell Function*

#### Poster Session 1 (7:30pm Start)

### TUESDAY, JANUARY 31

#### Conditional Reprogramming of CAR T-Cells (8am Start)

\***Lei (Stanley) Qi**, Stanford University, USA

**Francesco M. Marincola**, Kite Pharma, USA

*Synthetic Biology Approaches to Increase Specificity and Versatility*

**Daniel J. Powell**, University of Pennsylvania, USA

*Inducible Programming of CAR T cell Function and Intrinsic Properties for Cancer Immunotherapy*

**Robbie G. Majzner**, Stanford University School of Medicine, USA

*Coopting T Cell Signaling Networks for Enhanced CAR T Cell Specificity and Efficacy*

**Leo Scheller**, EPFL, Switzerland

*Short Talk: Controlling T-cell Signaling with Engineered Caffeine-induced Nanobodies*

**Paul-Joseph P. Aspuria**, SyntheKine, USA

*Short Talk: Engineered Human IL-2/IL-2Rb Orthogonal Pairs Selectively Enhance Anti-GPC3 CAR T Cells to Drive Complete Responses in Solid Epithelial Tumor Models*

**Satoru Aoyama**, Tokyo Medical and Dental University, Japan

*Short Talk: Novel Protease-mediated Double Antigen Recognizing Chimeric Antigen Receptor (CAR) Enhances the Directionality of CAR-T cell Activity and Improves Target Cell Specificity*

**Yama Abassi**, Agilent, USA

*Real-Time Assessment of Engineered Immune Cell Potency, Persistence and Migration from Discovery to Process Development and Manufacturing*

#### Workshop 2: Equipment and Regents for Cell Therapy Problem Solving (2:30pm Start)

\***David F. Stroncek**, National Institutes of Health, USA

**Juliane Mietz**, University of Zurich, Switzerland

*A Novel Autologous Tumor Model for the Study of Cellular Immunotherapy using Humanized Mice*

**Brendan Galvin**, Arsenal Biosciences, USA

*CRISPR/Cas9-based Integration of a Large and Modular Cassette into a Safe Harbor Site to Improve CAR T Cell Therapy Efficacy and Safety*

**Samir Patel**, Nexcelom from Perkin Elmer, USA

*High-throughput Method to Analyze the Cytotoxicity of CAR T Cells in a 3D Tumor Spheroid Model using Image Cytometry*

**Garrett R. Rettig**, Integrated DNA Technologies, USA

*Large Knock-in in Primary T Cells with Optimized Cas9 HDR Methods and Design*

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**Jasdeep K. Mann**, Notch Therapeutics Inc., USA  
*MAD7-based Gene Editing Platform for Rapid and Efficient iPSC Engineering*

**Reka Geczy**, Precision NanoSystems Inc., Canada  
*Multi-Step Engineering of Gene-Edited CAR T Cells Using a Novel RNA Lipid Nanoparticle Reagent*

**Lucas Eduardo Botelho de Souza**, University of São Paulo, Brazil  
*Optimized Virus-free Manufacturing of Allogeneic CAR T Cells via CAR Targeting to the TRAC Locus using CRISPR/Cas9*

**Robin Loesch**, Horizon Discovery Ltd. Perkin Elmer Group, USA  
*Pin-point™ Technology: A Versatile Base Editing Solution for the Generation of Cell Therapies*

### Improving Expansion and Persistence Adoptive T-Cell Therapies (5pm Start)

\***Justin Eyquem**, University of California, San Francisco, USA  
*Modification of CAR Signaling Domain*

**Sine Reker Hadrup**, Technical University of Denmark, Denmark  
*Tracking and Characterizing Antigen-Specific T cells in Cancer Immunotherapy*

**Yvonne Y. Chen**, University of California, Los Angeles, USA  
*Engineering Next-Generation CAR-T Cell Therapy for Cancer*

**Nayan Jain**, Memorial Sloan Kettering Cancer Center, USA  
*Short Talk: Disruption of H3K9me3-mediated Gene Silencing Improves CAR T Cell Function*

**Gengwen Tian**, Baylor College of Medicine, USA  
*Short Talk: Harnessing CRISPR/Cas9 Mutagenesis Screening for Rational Design of Next-generation CAR-NKT Therapy against Neuroblastoma*

### Poster Session 2 (7:30pm Start)

#### WEDNESDAY, FEBRUARY 1

### Cell Trafficking and Modulating the Tumor Microenvironment (8am Start)

**Caetano Reis e Sousa**, Francis Crick Institute, UK  
*Dead Cell Recognition in Immunity to Cancer*

**Andreas Lundqvist**, Karolinska Institutet, Sweden  
*Regulation of NK Cell Activity in Solid Tumors*

\***Stephen Gottschalk**, St. Jude Children's Research Hospital, USA  
*Two Cell Therapy Vignettes: Synapse Tuning and Targeting the ECM*

**Stephen P. Schoenberger**, La Jolla Institute for Allergy and Immunology, USA  
*Evaluating the Therapeutic Potential of Natural Neoantigen-specific CD4+ T Cells*

### Career Roundtable (3pm Start)

**Lei (Stanley) Qi**, Stanford University, USA

**Erin Nevius**, Bristol-Myers Squibb, USA

**Steve Mao**, Cell Press, USA

### Engineering Improved T-Cells (5pm Start)

\***Kole T. Roybal**, University of California, San Francisco, USA  
*Towards the Development of Synthetic Immunity to Cancer*

**Wilson Wong**, Boston University, USA  
*Engineering CAR Circuits*

**Lei (Stanley) Qi**, Stanford University, USA  
*Valency-controlled Receptor for Inducible CAR T Control and Multiplexed T Cell Engineering*

**Jeroen W. van Heijst**, Neogene Therapeutics, Netherlands  
*Short Talk: Engineering TCR-edited T Cells with Enhanced Antigen Reactivity to Target Solid Cancers Expressing the TP53 R175H Driver Mutation*

**Greg Allen**, University of California San Francisco, USA  
*Short Talk: Synthetic Cytokine Circuits Drive Targeted Infiltration and Proliferation of T Cells in Immune Excluded Tumors*

### Poster Session 3 (7:30pm Start)

#### THURSDAY, FEBRUARY 2

### Novel Targets and the Role of Endogenous Antigen Presentation (8am Start)

**Catherine J. Wu**, Dana-Farber Cancer Institute, USA  
*T-Cell Therapy using Neoantigen Reactive TCRs*

\***Lisa H. Butterfield**, University of California San Francisco, USA  
*Critical Aspects of DC Metabolism*

**Michael Klichinsky**, Carisma Therapeutics, USA  
*CAR Macrophages for Solid Tumor Immunotherapy*

**Angela Zhang**, MIT, USA  
*Universal Redirection of Chimeric Antigen Receptor T Cells against Solid Tumors via Tumor Cell Membrane-inserting CAR Ligands*

**Katherine Audsley**, Telethon Kids Institute, Australia  
*Short Talk: Identifying Novel Therapeutic Targets to Improve Adoptive Cell Therapy using a Model of Flt3L-mediated Tumor Suppression*

### Allogeneic Immunotherapies (5pm Start)

**Barbra Sasu**, Allogene Therapeutics, USA  
*Engineering Allogeneic CAR T Cells to Avoid GvHD and to Prevent Immune Rejection*

**George Coukos**, University Hospital of Lausanne - CHUV, Switzerland  
*Orthogonal Cytokine Engineering Drive Synthetic T Cell Effector States*

\***David F. Stroncek**, National Institutes of Health, USA  
*Optimizing Engineered T Cell Manufacturing*

**Liam Campion**, Century Therapeutics, USA  
*Short Talk: Preclinical Characterization of CNTY-101, an Allogeneic iPSC-derived NK Product Candidate for the Treatment of B Cell Malignancies*

### Meeting Wrap-Up and Future Directions (Organizers) (6:45pm Start)

#### FRIDAY, FEBRUARY 3

### Departure