A new community of researchers is emerging that focuses on studying and developing cellular therapies for cancer and chronic infections. The field is advancing rapidly due to our deepening understanding of cell biology. New technologies permit efficient cell culture, gene transfer and genetic editing, enabling autologous and allogeneic cell therapy. With rapid development of CAR T cells, breakthrough FDA approval status and fast-tracking clinical trials, competition is fierce in the biotechnology and pharmaceutical industries. Cell therapies with stem cells and T cells are in advanced clinical development that will enable widespread use for cancer and chronic infections such as HIV. Infusions of regulatory T cells (Tregs) have the potential to benefit patients with autoimmunity and transplantation. A goal of this conference is to bring together basic and translational scientists from these fields to identify current opportunities and challenges in cell therapies. Another goal is to bridge the fields of effector T cell and Treg cell therapies. The interdisciplinary features of this meeting should facilitate new collaborations and interactions between investigators who would not normally meet.

Session Topics:
- CAR/TCR Preclinical
- Workshop 1: Perspectives from Industry and FDA: Roundtable
- Synthetic Biology
- Engineered T Cells for HIV
- CAR/TCR in the Clinic for Cancer
- Tregs as Cellular Therapeutics
- Workshop 2: Late-Breaking Talks
- Beyond T Cells: HSC, T Progenitor and IPSCs I & II
- Intersection of Genetic Editing and Cellular Therapy

Scholarship Application & Discounted Abstract Deadline: October 11, 2017
Abstract Deadline: November 9, 2017
Discounted Registration Deadline: December 13, 2017

Note: Scholarships are available for graduate students and postdoctoral fellows and are awarded based on the abstract submitted. Submitting an abstract is an excellent opportunity to gain exposure for your work. Abstracts submitted by the abstract deadline will also be considered for short talks on the program.

Meeting Hashtag: #KScelltherapy
www.keystonesymposia.org/18B6
**KEYSTONE SYMPOSIA**

**on Molecular and Cellular Biology**

**Emerging Cellular Therapies: T Cells and Beyond (B6)**

**Scientific Organizers:** Carl H. June, Marcela V. Maus and Bruce R. Blazar

**Sponsored by:** BioLegend, Inc., Editas Medicine, Gilead Sciences, Inc., Juno Therapeutics, Regeneron Pharmaceuticals, Inc., Sangamo Therapeutics, Inc. and Takeda Pharmaceutical Company Limited. This activity was supported by an educational grant from Celgene Corporation.

**Lymphocytes and their Roles in Cancer (R1)**

**Scientific Organizers:** Iannis Aifantis, Ugur Sahin and Mikala Egeblad

**February 11-15, 2018 • Keystone Resort • Keystone, Colorado, USA**

**Sponsored by:** Amgen Inc., BioLegend, Inc. and Incyte Corporation

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**SUNDAY, FEBRUARY 11**

Arrival and Registration

**MONDAY, FEBRUARY 12**

**Welcome and Keynote Address (B6)**

*Carl H. June*, University of Pennsylvania, USA

*Bruce R. Blazar*, University of Minnesota, USA

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

**Ton N. Schumacher**, Netherlands Cancer Institute, Netherlands

**T Cell Recognition in Human Cancer**

**Welcome and Keynote Address (R1)**

*Iannis Aifantis*, New York University School of Medicine, USA

**Alexander Y. Rudensky**, HHMI/Memorial Sloan Kettering Center, USA

**Regulatory T Cells and their Functions in the Tumor Microenvironment**

**CAR/TCR Preclinical (B6)**

*Carl H. June*, University of Pennsylvania, USA

**Philip D. Greenberg**, University of Washington, USA

**Making TCR-Modified T Cells Effective for Leukemia and Solid Tumors**

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

**What’s Next? Preclinical Studies Paving the Way for Future CAR T Cell Trials**

**Stanley R. Riddell**, Fred Hutchinson Cancer Research Center, University of Washington, USA

**Strategies to Improve the Efficacy of CAR T Cells in Solid Tumors**

**Reno Debets**, Erasmus MC Cancer Institute, Netherlands

**Short Talk: T Cell Receptors Equipped with ICOS Enhance T Cell Persistence and Mediate Sustainable Anti-Tumor Responses upon Adoptive T Cell Therapy**

**James Scott-Browne**, La Jolla Institute, USA

**Short Talk: Transcriptional Control of CAR-T Cell Function in Solid Tumors**

**Understanding Lymphocytic Malignancy: Leukemia and Lymphoma (R1)**

*Adolfo Ferrando*, Columbia University, USA

**Louis M. Staadt**, NCI, National Institutes of Health, USA

**The MYD88-TLR9-B Cell Receptor Complex as a Target for Therapy in Aggressive Lymphomas**

**Charles G. Mullighan**, St. Jude Children’s Research Hospital, USA

**The Role of CREBBP Mutations in Drug Resistance in Acute Lymphoblastic Leukemia**

**Katia Georgopoulou**, Massachusetts General Hospital, USA

**Super-Enhancer Circuits in B Cell Development and Transformation**

**Workshop 1: Perspectives from Industry (B6)**

*Charles Sentman*, Geisel School of Medicine at Dartmouth, USA

**Amy Gilbert**, Cell Design Labs, USA

**Development of a SynNotch Combinatorial “and” Gate CAR T for Solid Tumors**

**Ian R. Hardy**, TCR2 Therapeutics, USA

**Improving CAR-T Cell Function with Small Molecule Treatment during Production**

**Kelan Hlavaty**, SQZ Biotech, USA

**Engineering T Cells Using a Microfluidic Intracellular Delivery Method for Cell Therapy**

**Robert Josef Hofmeister**, TCR2 Therapeutics, USA

**A Novel T Cell Therapy Engaging the Complete T Cell Receptor**

**Lenka Hurton**, MD Anderson Cancer Center, USA

**Rapid Production of T Cells Co-expressing CAR and Membrane-bound IL-15 Potentiates Antitumor Activity and Promotes in vivo Memory**

**Sumiti Jain**, Sangamo Therapeutics, USA

**Precise T Cell Engineering using Enhanced Zinc-finger Nucleases (ZFNs) for Highly Specific and Efficient Dual Knock-Out of Endogenous T-Cell Receptor and HLA-Class I with Site-Specific Insertion of a CD19-CAR: Implications for Allogeneic T Cell Therapy**

**Inez Johanna**, University Medical Center Utrecht, Netherlands

**Towards the Next Generation CAR T Cells with TEGs: In vivo Efficacy – Toxicity Profile in Xenografts of Primary Human AML Disease and Healthy Bone Marrow**

**Levi Rupp**, Cell Design Labs, USA

**THROTTLER T CARs: A Novel Platform for Enhanced Safety and Efficacy via Titratable Control of CAR-T Activity using an FDA-Approved Small Molecule**

**Workshop 1: Understanding and Targeting Lymphocytes in Cancer (R1)**

*Iannis Aifantis*, New York University School of Medicine, USA

**Eirini Giannakopoulou**, Radiumhospitalen, Norway

**T Cell Receptor-Mediated Targeting of Recurrent Neoantigens in Acute Myeloid Leukemia**

**Wenting Zheng**, St. Jude Children Research Hospital, USA

**PI3K Orchestration of the in vivo Persistence of Chimeric Antigen Receptor-Modified T Cells**

**Elena Montaulti**, Northwestern University, USA

**USP22 Maintains Regulatory T Cells by Stabilizing Foxp3 Protein Level and Impairs Anti-Tumor Immune Response**

**Jeffrey Ward**, Washington University School of Medicine, USA

**Remodeling of Myeloid as well as Lymphoid Compartments following Checkpoint Blockade Immunotherapy**

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* Session Chair † Invited but not yet accepted Program current as of May 19, 2019. Program subject to change. Meal formats are based on meeting venue.

For the most up-to-date details, visit [www.keystonesymposia.org/18B6](http://www.keystonesymposia.org/18B6) and [www.keystonesymposia.org/18R1](http://www.keystonesymposia.org/18R1).
KEystone Symposia
on Molecular and Cellular Biology

Emerging Cellular Therapies: T Cells and Beyond (B6)
Scientific Organizers: Carl H. June, Marcela V. Maus and Bruce R. Blazar

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Lymphocytes and their Roles in Cancer (R1)
Scientific Organizers: Iannis Aifantis, Ugur Sahin and Mikala Egeblad

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SkiKashima, Kyoto University, Japan
WT1-Specific Cytotoxic T Lymphocytes Regenerated from T Cell-Derived IPS Cells Exert Therapeutic Effect in Xenograft Model of Renal Cell Carcinoma

Chris Nicolai, University of California, Berkeley, USA
Mechanisms of MHC-Deficient Tumor Clearance using STING Agonists

Julie A. Rytlewski, Adaptive Biotechnologies, USA
History of Prior Immunotherapy Changes Relationship between Tumor Mutations and TIL Repertoire

Angela Vasaturo, INSERM, UMRS 1138, France
Unraveling the Immune Contexture of Pre-Invasive Lesions of the Lung by Multispectral Imaging

Synthetic Biology (B6)
*Crystal L. Mackall, Stanford University, USA
Chemically Engineering T Cells Therapies

Darrell J. Irvine, Massachusetts Institute of Technology, USA
Optimizing Synthetic Biology Tools for T Cell Therapies

Wendell A. Lim, University of California, San Francisco, USA
Controllable CAR-T Cell Therapy

Travis Young, California Institute for Biomedical Research, USA
Short Talk: COVERT T Cells: Engineering T Cells to Interrogate Intracellular Antigens

Patrick Ho, University of California, Los Angeles, USA
Short Talk: Tumor-Reactive CD8+ TSCM-Like T Cells by ex vivo Akt-Inhibition

Therapeutic Targeting of Lymphocytic Malignancy (R1)
*Charles G. Mullighan, St. Jude Children's Research Hospital, USA
Epigenetic Mechanisms in T-Cell Acute Lymphoblastic Leukemia

Adolfo Ferrando, Columbia University, USA
Targeting Stress Responses in Acute Lymphoblastic Leukemia

Iannis Aifantis, New York University School of Medicine, USA
Escape Hatches for Immunotherapies Targeting B-Cell Differentiation Antigens

Jacques G. M. Ghysdael, Institut Curie, France
Short Talk: Triggering the Tcr Developmental Checkpoint Activates a Therapeutically Targetable Anti-Leukemic Pathway in T-Cell Acute Lymphoblastic Leukemia

Poster Session 1

TUESDAY, FEBRUARY 13

Engineered T Cells for Viruses (B6)
*Philip D. Greenberg, University of Washington, USA
Catherine M. Bollard, Children's National Health System, USA
Developing HIV-Specific T Cell Therapies: Lessons from EBV

Sponsored by Amgen Inc., BioLegend, Inc. and Incyte Corporation

For the most up-to-date details, visit www.keystonesymposia.org/18B6 and www.keystonesymposia.org/18R1.
**Lymphocytes as Elements of the Tumor Microenvironment (R1)**

*Katia Georgopoulos*, Massachusetts General Hospital, USA

David H. Raulet, University of California, Berkeley, USA

**Natural Killer Cell Activation and Inhibition: Potential for Cancer Therapy**

Michael Khodadoust, Stanford University, USA

**T Cell Recognition of Lymphoma Immunoglobulin**

Mikala Egeblad, Cold Spring Harbor Laboratory, USA

**Visualization of the Switch from Immune Control to Immune Escape**

Annelise Snyder, University of Washington, USA

**Short Talk: Anti-tumor Effects of Inflammatory Necroptosis Within the Tumor Microenvironment**

**Poster Session 2**

**WEDNESDAY, FEBRUARY 14**

**Tregs as Cellular Therapeutics (B6)**

*James L. Riley*, University of Pennsylvania, USA

Bruce R. Blazar, University of Minnesota, USA

**Vimentin Restrains Regulatory T-cell Suppression of Graft-versus-Host Disease**

Jeffrey A. Bluestone, University of California, San Francisco, USA

**Manipulating Tregs to Control Tolerance in Autoimmunity and Cancer**

Megan K. Levings, University of British Columbia, Canada

**HLA-A2 Directed CAR Tregs**

David Klatzmann, Sorbonne University Medical School, France

**IL-2 for Treg-Based Immunotherapies: In (and Out)**

Angela C. Boroughs, Massachusetts General Hospital/Harvard University, USA

**Short Talk: 4-1BB Co-Stimulation Inhibits CAR Treg Suppressive Function**

Elmar Jaeckel, Hannover Medical School, Germany

**Short Talk: Operational Tolerance in Allotransplantation by Use of Regulatory T Cells with a MHIC-Specific Chimeric Antigen Receptor**

**Emerging Technologies: Visualization and Dissection of the Tumor Microenvironment (R1)**

*Mikala Egeblad*, Cold Spring Harbor Laboratory, USA

Dana Pe'er, Memorial Sloan Kettering Cancer Center, USA

**A Single Cell Approach to Understanding the Tumor Microenvironment**

Matthew F. Krummel, University of California, San Francisco, USA

**Imaging a World beyond Checkpoints: Innate Partners for Lymphocytes in Cancer**

**Jerome Galon**, INSERM UMR138, Cordeliers Research Center, France

**Immunoscore as a Stronger Predictor of Patient Survival in Colorectal Cancer**

Michael Goldberg, Dana-Farber Cancer Institute, USA

**Enhancing Cancer Immunotherapy through Immuno-engineering**

**Workshop 2: Cell Engineering (B6)**

*Martin Pule*, University College London, UK

Zinaida Good, Stanford University, USA

**Guiding T-Lymphocyte Differentiation in Cancer Immunotherapy Applications**

Rachel C. Lynn, Lyell Biotech, USA

**Disrupting the Balance: Engineering AP1 to Overcome CAR T Cell Exhaustion**

Shannon K. Oda, Fred Hutchinson Cancer Research Center, USA

**Cheating Death: A Fas-4-1BB Immunomodulatory Fusion Protein Obviates a Death Signal to Enhance T Cell Function and Adoptive Therapy Targeting Leukemia and Solid Tumors**

William Lemieux, University of Montréal, Canada

**Efficient Transduction of Nk Cells Method Resulting in a Robust and Sustained Transgene Expression for Immunotherapy**

Masataka Suzuki, Baylor College of Medicine, USA

**Adenovirotherapy Delivering Cytokine and Checkpoint Inhibitor Augments Chimeric Antigen Receptor T-Cell against Metastatic Head and Neck Cancer**

Tori Yamamoto, NCI, University of Pennsylvania, USA

**Cell Intrinsic Fas Signaling Inhibition to Improve Therapeutic Efficacy of T Cells**

Nicholas F. Kuhn, Memorial Sloan Kettering Cancer Center, USA

**Design of a Systemic Antitumor Response with CD40L-modified CAR T Cells**

Joy (Yushu) Xie, Massachusetts Institute of Technology, USA

**Engineering Single Domain Antibody-Based Chimeric Antigen Receptor T Cells for Treatment of Solid Tumors**

**Beyond T Cells: HSC, T Progenitor and iPSCs I (B6)**

*Juan Carlos Zúñiga-Pflücker*, Sunnybrook Research Institute, Canada

Martin Pule, University College London, UK

**New Designs in Synthetic T Cells**

Jeffrey S. Miller, University of Minnesota, USA

**Novel Ways to Activate and Target NK Cells to Treat Cancer**

Linda T. Vo, University of California, San Francisco, USA

**T Cell Engineering from Human Pluripotent Stem Cells**
Emerging Concepts in the Development of Tumor Vaccines (R1)

*Dimitris Skokos*, Regeneron Pharmaceuticals, USA

**Ugur Sahin**, BioNTech AG, Germany

**Cornelis J. M. Melief**, Leiden University Medical Center & ISA Pharmaceuticals BV, Netherlands

**Johanna Olweus**, University of Oslo, Norway

**Samarth Hegde**, Washington University School of Medicine, USA

**Sjoerd H. van der Burg**, Leiden University Medical Center, Netherlands

**Juliya Pylayeva-Gupta**, University of North Carolina at Chapel Hill, USA

**Carl H. June**, University of Pennsylvania, USA

**Iannis Aifantis**, New York University School of Medicine, USA

**Iannis Aifantis**, New York University School of Medicine, USA

**Ashley M. Laughney**, Memorial Sloan Kettering Cancer Center, USA

**David G. DeNardo**, Washington University Medical School, USA

**Dimitris Skokos**, Regeneron Pharmaceuticals, USA

**Michael A. Curran**, University of Texas MD Anderson Cancer Center, USA

**Mickey Atwal**, Cold Spring Harbor Laboratory, USA

**Rahul Satija**, New York Genome Center, USA

**Iannis Aifantis**, New York University School of Medicine, USA

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