The recent FDA approvals of Provenge® as the first therapeutic cancer vaccine and Ipilimumab® as the first monoclonal antibody that blocks negative immune regulation are landmark achievements that highlight substantive progress in cancer immunology. These novel treatments derive from the cumulative insights of basic and translational scientists into the mechanisms of protective tumor immunity in cancer patients. Advances in genetic, cellular and biochemical technologies have dramatically increased our understanding of the pathways through which the host responds to cancer. Tumor-host interactions in the microenvironment are increasingly recognized to play a critical role in determining disease inhibition or promotion. This meeting will bring together leading cancer immunologists to discuss:

- Most recent insights into immune recognition, regulation, tumor escape and therapeutic manipulation;
- Emerging areas of cancer metabolism and material science engineering that relate to cancer immunology;
- Integration of basic and clinical aspects of tumor immunity.

The concurrent meeting on Antibodies as Drugs will underscore the increasing connections between these fields, and potentially accelerate the development of new cancer immunotherapies.

**Plenary Session Topics:**

- Tumor Targeting – From Understanding Mechanisms to New Targeting Agents (Joint)
- Tumor Microenvironment
- Engineering and Immunotherapy
- Cancer Vaccines
- Adoptive Cellular Therapy
- Metabolism and Cancer
- Immunomodulatory Antibody Therapies (Joint)
- Anti-Cancer Antibodies

**Abstract & Scholarship Deadline:** September 25, 2012  
**Late-Breaking Abstract Deadline:** October 25, 2012  
**Early Registration Deadline:** November 27, 2012

Note: Scholarships are available to students and postdoctoral fellows and require a brief application and submission of an abstract. Short talk speakers will also be selected from abstracts. Early registration saves US$150 on later fee. Information shown is subject to possible change. Please visit meeting website for the most up-to-date program information.
KEYSTONE SYMPOSIA
on Molecular and Cellular Biology

Cancer Immunology and Immunotherapy (J4)
Scientific Organizers: Glenn Dranoff, Carl H. June and Suzanne L. Topalian
Sponsored by Bayer USA Foundation and Bristol-Myers Squibb Company. Supported by an educational donation provided by Amgen.

Antibodies as Drugs (J3)
Scientific Organizers: Paul Carter and Andreas G. Plückthun
Sponsored by AbbVie Inc., Astellas Pharma Inc. and Genentech, Inc. Supported by an educational donation provided by Amgen.

SUNDAY, JANUARY 27
Arrival and Registration

Welcome and Keynote Address (J4)
*Glenn Dranoff, Novartis Institutes for BioMedical Research, USA
James P. Allison, University of Texas MD Anderson Cancer Center, USA
Checkpoint Blockade

Welcome and Keynote Address (J3)
*Paul Carter, Genentech, Inc., USA
*Andreas G. Plückthun, University of Zürich, Switzerland
Jeffrey V. Ravetch, Rockefeller University, USA
Solving the Antibody Paradox

MONDAY, JANUARY 28
Tumor Targeting - From Understanding Mechanisms to New Targeting Agents (Joint)
*Dario Neri, ETH Zürich, Switzerland
Karl Dane Witttrup, Massachusetts Institute of Technology, USA
Synergetic Antibody and Cytokine Effects in Cancer Immunotherapy
Kerry A. Chester, University College London Cancer Institute, UK
Antibody-Targeted Nanoparticles for Cancer Treatment
Erkki Ruoslahti, Sanford-Burnham Medical Research Institute, USA
Increasing Extravasation with Peptides
Anna M. Wu, University of California, Los Angeles, USA
Engineered Antibodies for Molecular Imaging of Cancer
Henry B. Lowman, CytomX, USA
Short Talk: Probody™ Therapeutics: A New Class of Proteolytically Activated Antibodies

Workshop 1: Emerging Antibody Generation Methods (J3)
*James D. Marks, University of California, San Francisco, USA
Filippa Fleetwood, Royal Institute of Technology, Sweden
Surface Display of a Single-Domain Antibody Library on Gram-Positive Bacteria
Christian Kunz, MorphoSys AG, Germany
The Role of HuCAL in the Discovery of Lead Antibodies with a Unique MoA
Audrey D. McConnell, AnaptysBio, Inc., USA
High Affinity Humanized Antibodies without Making Hybrids; Immunization Paired with Mammalian Cell Display and in vitro Somatic Hypermutaton
Amandeep K. Gakhel, Sutro Biopharma, USA
A New Method for Direct Selection of Synthetic Antibody Fragments on Cell Surface Targets from a Phage-Displayed Library

E-Chiaig Lee, Kymab, UK
Development of a Next-Generation in vivo mAb Discovery Platform
Hirotshi Hamana, University of Toyama, Japan
Rabbit ISSAC (Rabbit Immunospot Array Assay on a Chip) Allows for the Rapid Generation of Rabbit Monoclonal Antibodies with High Affinity
Kai Zhu, Schrodinger Inc., USA
Ab initio Structure Prediction of the Antibody Hypervariable H3 Loop

Tumor Microenvironment (J4)
*James P. Allison, University of Texas MD Anderson Cancer Center, USA
Wolf-Hervé Fridman, Cordeliers Research Centre, France
The Immune Microenvironment of Primary and Metastatic Human Tumors
Robert D. Schreiber, Washington University School of Medicine, USA
Cancer Immunoediting: Antigens, Mechanisms and Implications for Cancer Immunotherapy
Nikhil S. Joshi, Yale University School of Medicine, USA
Short Talk: Effector Regulatory T Cell Differentiation during Autochthonous Mouse Lung Adenocarcinoma Development
Drew M. Pardoll, Johns Hopkins University School of Medicine, USA
Inflammation and Cancer

Payloaded Antibodies for Cancer Treatment (J3)
*Peter D. Senter, Seattle Genetics Inc., USA
Empowered Antibodies for Cancer Therapy
Dario Neri, ETH Zürich, Switzerland
Armed Antibodies for Vascular Targeting
Paul G. Polakis, Genentech, Inc., USA
Antibody Drug Conjugates for the Treatment of Cancer
Brian J. Agnew, Thermo Fisher Scientific, USA
Short Talk: Site-Selective Antibody Labeling without Engineering: Answering Unmet Needs in Antibody Payload Conjugation

Poster Session 1

TUESDAY, JANUARY 29
Engineering and Immunotherapy (J4)
*Suzanne L. Topalian, Johns Hopkins University School of Medicine, USA
David J. Mooney, Harvard University, USA
Polymer Scaffolds for immunotherapy
Darrell J. Irvine, Massachusetts Institute of Technology, USA
Interfacing Nanoparticle Drug Carriers with Lymphocytes to Enhance Cellular Immunotherapy
Carl H. June, University of Pennsylvania, USA
Engineered T Cells for Adoptive Therapy

* Session Chair † Invited but not yet accepted    Program current as of November 28, 2018. Program subject to change. Meal formats are based on meeting venue. For the most up-to-date details, visit www.keystonesymposia.org/13J4 and www.keystonesymposia.org/13J3.
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Scientific Organizers: Paul Carter and Andreas G. Plückthun
January 27-February 1, 2013 • Fairmont Hotel Vancouver • Vancouver, British Columbia, Canada
Sponsored by AbbVie Inc., Astellas Pharma Inc. and Genentech, Inc. Supported by an educational donation provided by Amgen.


Hollie J. Jackson, Memorial Sloan Ketter Cancer Center, USA
Short Talk: Expansion and Modification of Umbilical Cord Blood T Cells with a Chimeric Antigen Receptor and IL-12
Sheena N. Smith, University of Zurich, Switzerland
Short Talk: Engineering Designer T Cell Receptors through the Use of Single-Chain T Cell Receptor Scaffolds
Laurence J. N. Cooper, ZIOPHARM Oncology, Inc., USA
Sleeping Beauty Transposition for Engineered T Cells

Antibodies in Infectious Diseases (J3)
Antonio Lanzavecchia, Institute for Research in Biomedicine, Switzerland
Human Antibodies to Infectious Disease Targets
* Dennis R. Burton, The Scripps Research Institute, USA
  Broadly Neutralizing Antibodies to Identify Vaccine Targets on HIV
Gary J. Nabel, Sanofi, USA
Broadly Neutralizing Antibodies to HIV: A Model for Prevention and Treatment of an Infectious Disease
Erica Ollmann Saphire, The Scripps Research Institute, USA
Antibodies Against the Filoviruses
George Georgiou, University of Texas at Austin, USA
Proteomic Deconvolution of the Human Serological IgG Repertoire in Vaccine Evaluation and Antibody Discovery

Cancer Vaccines (J4)
* Carl H. June, University of Pennsylvania, USA
Cornelia Liu Trimble, Johns Hopkins University School of Medicine, USA
Tissue T Cells in HPV Disease
Cornelis J. M. Melief, Leiden University Medical Center & ISA pharmaceuticals BV, Netherlands
Chemo-Immunotherapy of High Risk HPV Infections
Marijeke Griffioen, Leiden University Medical Center, Netherlands
Short Talk: Intercellular Transfer of Natural HLA Class II Ligands Is Mediated by Full Length Proteins with Abundant Cellular Expression that Are Sequestered and Secreted into Microvesicles
David H. Kirk, Jennerex, USA
Targeted Oncolytic and Immunotherapeutic Viruses: Emerging Multi-Mechanistic Biologics for Cancer

New Technologies for Generating Proteins with Novel Functions (J3)
* Andreas G. Plückthun, University of Zürich, Switzerland
David Baker, University of Washington, USA
Computational Protein Design and Protein Therapeutics
Andrew D. Ellington, University of Texas at Austin, USA
Rational Engineering of Antibodies for Affinity and Stability
Julia Shifman, Hebrew University of Jerusalem, Israel
Computational Design of Protein-Protein Interactions

Romain Rouet, University of California, Berkeley, USA
Short Talk: Stability Engineering of Human Antibody Therapeutics

Poster Session 2

WEDNESDAY, JANUARY 30
Adoptive Cellular Therapy (J4)
* Laurence Zitvogel, Institut Gustave Roussy, France
Stanley R. Riddell, Fred Hutchinson Cancer Research Center, University of Washington, USA
Chimeric Antigen Receptor Design and T Cell Subsets in Adoptive Therapy
Kazuhiro Kakimi, University of Tokyo Hospital, Japan
Short Talk: Autologous gammaladelta T Cell Transfer Therapy for the Treatment of Solid Cancer
Nicholas P. Restifo, NCI, National Institutes of Health, USA
Memory T Cells Precede Effector Cells: Why it Matters for ACT
Catherine M. Bollard, Children’s National Health System, USA
T Cell Therapies for EBV+ Lymphomas – Where Have We Come From and Where Are We Going?
Yanxia Guo, Janssen R&D, Johnson & Johnson, USA
Short Talk: Retinoic Acid-Rich Microenvironment Provides Clonal Survival Cues for Tumor and Bacteria-Specific CD8+ T Cells
Robert S. Negrin, Stanford University, USA
Immunobiology of Allogeneic Hematopoietic Cell Transplantation

Modulating the Activity of Growth Factor Receptors (J3)
* Karl Dane Wittrup, Massachusetts Institute of Technology, USA
Ermanno Gherardi, University of Pavia, Italy
Structure/Function and Therapeutic Targeting of HGF/SF and MET
Andreas G. Plückthun, University of Zürich, Switzerland
Engineering Receptor Ligands for Powerful Cellular Responses
Yosef Yarden, Weizmann Institute of Science, Israel
Antibodies to EGFR Family as Drugs
Carlos F. Barbas III, The Scripps Research Institute, USA
Multifunctional and Multi-Specific Antibodies: Single-Protein Combination Therapeutics
Klaus Koefoed, Symphogen A/S, Denmark
Short Talk: In vitro Comparison of EGFR/Her3 Targeting Antibody Mixtures and Bispecific MEHD7945A Analogue Shows More Efficacious Inhibition by Mixtures, Even Under Conditions Mimicking Cancer Resistance

Poster Session 3

Workshop: Advances in Cancer Immunology (J4)
* Wolf-Hervé Fridman, Cordeliers Research Centre, France
Sally Amos, BC Cancer Agency, Canada
Human Bilateral Breast Cancer: A Unique Opportunity to Examine Behaviors of Tumor-Infiltrating Lymphocytes
Workshop 2: Enhancing Effector Functions and Extending Half-Life (J3)

*Henry B. Lowman, CytomX, USA
Improving PK and Cholesterol Lowering by a pH-Sensitive Anti-PCS9-Antibody

Javier Chaparro-Riggers, Rinat-Pfizer Inc., USA
Improving PK and Cholesterol Lowering by a pH-Sensitive Anti-PCS9-Antibody

Jonathan Sockolosky, University of California, San Francisco, USA
Engineering FcRn-Mediated Recycling and Transcytosis in Recombinant Proteins by Short Terminal Peptide Extensions

Tomoyuki Igawa, Chugai Pharmaceutical, Japan
Engineered Antibody Fc Variant with Selectively Enhanced Fc gamma RIib Binding Over Both Fc gamma RIaR131 and Fc gamma RIaH131

Elizabeth L. Smith, University of California, Berkeley, USA
Antibody Glycoengineering with Aldehyde Tag Technology

Surjit B. Dixit, Zymeworks Inc., Canada
AlbuCORE™ – Structure-Guided Engineering and Design of a Multi-Valent Albumin Scaffold

Metabolism and Cancer (J4)

*Stanley R. Riddell, Fred Hutchinson Cancer Research Center, University of Washington, USA
Laurence Zitvogel, Institut Gustave Roussy, France
Role of Type 1 IFN and dsRNA Sensors in the T Cell-Dependent Efficacy of Chemotherapy

Vincenzo Bronte, University of Verona, Italy
Myeloid Derived Suppressor Cells

George C. Prendergast, Lankenau Institute for Medical Research, USA
IDO Pathways and Targeting

Courtney Crane, University of Washington, USA
Short Talk: Tumor Derived Lactate Dehydrogenase Drives Innate Immune Cell Crosstalk in Patients

Bispecific and Multispecific Targeting Agents (J3)

*Paul Carter, Genentech, Inc., USA
Kaspar Binz, Molecular Partners, Switzerland
Exploiting Novel Therapeutic Mechanisms Using Multi-Specific DARPin

James D. Marks, University of California, San Francisco, USA
Development and Mechanism of Action of mAb Combinations that Potently Neutralize Botulinum Neurotoxin

Lutz Jermutus, MedImmune LLC, UK
A Novel Multi-Mechanistic Monoclonal Antibody Format for Treating Pseudomonas aeruginosa Infections

Janine Schuurman, Genmab, Netherlands
Short Talk: Efficient Generation of Stable Bispecific IgG1 by Controlled Fab-Arm Exchange

David Poon, Zymeworks Inc., Canada
Short Talk: Azymetric™ Scaffold – Optimized Fc Heterodimer for Improved Purity and Stability in the Development of Bispecific Antibodies

THURSDAY, JANUARY 31

Immunomodulatory Antibody Therapies (Joint)

*George J. Weiner, University of Iowa, USA
Suzanne L. Topalian, Johns Hopkins University School of Medicine, USA
PD-1 Blockade in Cancer Therapy

Li Wang, Medical College of Wisconsin, USA
Short Talk: Targeting a Novel Immune Checkpoint Protein VISTA Alters Tumor Microenvironment and Synergizes with Cancer Vaccine to Eradicate Established Melanoma

Nils Lonberg, Bristol-Myers Squibb, USA
Development Hurdles for Immuno-Oncology Antibody Drugs

Johannes vom Berg, University of Zürich, Switzerland
Short Talk: Local Interleukin-12 in Combination with Systemic Checkpoint Blockade Leads to T-Cell Dependent Rejection of Advanced Stage Glioma

Patrick A. Baeuerle, Amgen Research (Munich) GmbH, Germany
ImmunoTherapy with BiTE® Antibodies: Lessons Learned from Blinatumomab

Bent Jakobsen, Immunocore Ltd., UK
IMCgp100: A Bispecific TCR Anti-CD3 Fusion for the Treatment of Malignant Melanoma

Anti-Cancer Antibodies (J4)

*Nils Lonberg, Bristol-Myers Squibb, USA
George J. Weiner, University of Iowa, USA
Therapeutic Mechanisms of Monoclonal Antibodies

* Session Chair † Invited but not yet accepted Program subject to change. Meal formats are based on meeting venue.
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Timo K. van den Berg, Sanquin Blood Supply, Netherlands
Short Talk: CD47-SIRPalpha Interactions Form a Barrier for Antibody-Mediated Tumor Cell Destruction by Phagocytes

Ronald P. DeMatteo, Memorial Sloan-Kettering Cancer Center, USA
Combined Immunologic and Molecular Therapy for Cancer

Glenn Dranoff, Novartis Institutes for BioMedical Research, USA
Therapy-Induced Antibody Responses

Challenges and New Opportunities with Antibody Drugs (J3)
*Kerry A. Chester, University College London Cancer Institute, UK
Ryan J. Watts, Denali Therapeutics Inc, USA
Engineering Bispecific Blood-Brain Barrier Crossing Antibodies
Leo James, MRC Laboratory of Molecular Biology, UK
Intracellular Immunity and TRIM21
Sripad Ram, University of Texas Southwestern Medical Center, USA
Short Talk: Multifocal Plane Microscopy Reveals Novel Intracellular Trafficking Pathways at the Blood-Brain Barrier with Implications to Antibody Delivery to the Brain

FRIDAY, FEBRUARY 1
Departure