Save the Date for the 2014 Keystone Symposia meeting on:

**Developmental Pathways and Cancer: Wnt, Notch and Hedgehog**

**February 2–7, 2014**
**Fairmont Banff Springs, Banff, Alberta, Canada**

Scientific Organizers: Frederic J. de Sauvage, Mariann Bienz and Jon C. Aster

joint with the meeting on: **Stem Cells and Cancer**

The conference will:

- For the first time bring together the normally separate Wnt, Notch and Hedgehog pathway communities;
- Cover a broad range of issues critical in leveraging these pathways for therapeutics, ranging from predicting clinical efficacy in animal models to identification of predictive diagnostics and potential mechanisms of acquired resistance;
- Provide enhanced opportunities for synergistic interactions through the joint pairing with the meeting on “Stem Cells and Cancer.”

For more information and to view the full program, visit [www.keystonesymposia.org/14J7](http://www.keystonesymposia.org/14J7)
SUNDAY, FEBRUARY 2
Arrival and Registration

MONDAY, FEBRUARY 3
Signaling Mechanisms at the Cell Surface (J7)
Stefano Piccolo, University of Padua, Italy
Wnt Signaling through YAP and TAZ
Xi He, Harvard Medical School, USA
Understanding the Mechanism of Wnt/beta-Catenin Signaling
William I. Weis, Stanford University, USA
Short Talk: Structural Basis of GS3-3 Regulation by Autoinhibition and by the Wnt Receptor LR6
*Stephen C. Blacklow, Harvard Medical School, USA
A Tail of Two Sites: Structural Basis for Recognition of Notch Ligands by Mind Bomb Proteins
Jeremy F. Reiter, University of California, San Francisco, USA
Restricted Access: The Transition Zone Controls Ciliary Composition and Vertebrate Hh Signaling
Yulu Cherry Liu, University of Toronto, Canada
Short Talk: The PPFIA1-PP2A Protein Complex Regulates Kif7 Ciliary Trafficking and Hedgehog Signaling

Signaling Pathways in Stem Cells (J8)
*Elaine V. Fuchs, Rockefeller University, USA
Jürgen A. Knoblich, Institute of Molecular Biotechnology, Austria
Using Drosophila as a Model System for Tumorigenesis and Cancer Stem Cells
Nick Barker, Institute of Medical Biology, Singapore
Short Talk: Lgr5+ve Gastric Stem Cells Divide Symmetrically to Effect Epithelial Homeostasis in the Pylorus
Pantelis Rompolas, Yale University School of Medicine, USA
Short Talk: Spatial Organization within a Niche as a Determinant of Stem Cell Fate
Thea D. Tlsty, University of California, San Francisco, USA
Stochastic Cellular States Associated with Malignancy
Geoffrey M. Wahl, The Salk Institute, USA
Investigating Human Breast Cancer through the Lens of Development
E. Alejandro Sweet-Cordero, Stanford University, USA
Identification and Characterization of Tumor Propagating Cells in a Mouse Model of NSCLC

Signaling Mechanisms and Cancer (J7)
Adolfo Ferrando, Columbia University, USA
An Oncogenic Metabolic Switch Mediates Resistance to NOTCH1 Inhibition in T-ALL
Holger Gerhardt, Max Delbrück Center for Molecular Medicine, Germany
Dil4/Notch Dynamics in Vascular Branching

*Warren S. Pear, University of Pennsylvania, USA
Targeting the Notch:Myc Axis in Cancer
Madelon M. Maurice, University Medical Center Utrecht, Netherlands
Short Talk: Cancer Mutations Derail Wnt Signalling via Conformational Conversion of the Scaffold Protein Axin

Shared Signals in Stem Cells and Cancer (J8)
*Thea D. Tlsty, University of California, San Francisco, USA
Philip A. Beachy, HHMI/Stanford University, USA
The Jekyll and Hyde Nature of Hedgehog Signaling in Cancer: Insights from the Urinary Bladder
Carman Man Chung Li, Massachusetts Institute of Technology, USA
Short Talk: The Roles of Pulmonary and Gastrointestinal Developmental Programs in Regulating Lung Cancer Metastasis
Tannishta Reya, University of California, San Diego, USA
Developmental Pathways in Stem Cells and Cancer
Elaine V. Fuchs, Rockefeller University, USA
Signaling of Skin Stem Cells in Homeostasis and Cancer

TUESDAY, FEBRUARY 4
Nuclear Responses and Tumorigenesis (J7)
*Jon C. Aster, Brigham and Women’s Hospital, USA
Determinants of Notch Target Gene Activation and Notch-“Addiction” in Cancer
Raphael Kopan, University of Cincinnati College of Medicine, USA
Can We Record the Nuclear Footprints of Notch Signaling in Single Cells?
Mariani Bienz, MRC Laboratory of Molecular Biology, UK
Nuclear Wnt Signaling
Marian Waterman, University of California, Irvine, USA
A New Link Between Wnt, Warburg Metabolism, Stem Cells and Cancer
Henner F. Farin, Hubrecht Institute, Netherlands
Short Talk: Wnt3 Gradient in Intestinal Epithelial Crypts Is Formed by Proliferative Dilution of Membrane-Associated Growth Factor
Joseph Rosenbluh, Broad Institute, USA
Short Talk: Global Detailed Characterization of WNT Dependencies

Cancer Cell of Origin (J8)
*John E. Dick, Princess Margaret Cancer Centre, Canada
Robert J. Wechsler-Reya, Sanford-Burnham Medical Research Institute, USA
Stem Cells and the Origins of Medulloblastoma
Luis F. Parada, Memorial Sloan Kettering Cancer Center, USA
Genetic Mouse Models of Neural Cancer: Unique Insights and Translational Tools for Therapeutic Development

* Session Chair † Invited but not yet accepted     Program current as of May 25, 2020. Program subject to change. Meal formats are based on meeting venue. For the most up-to-date details, visit https://www.keystonesymposia.org.
KEYSTONE SYMPOSIA
on Molecular and Cellular Biology

Developmental Pathways and Cancer: Wnt, Notch and Hedgehog (J7)
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Stem Cells and Cancer (J8)
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Laetitia J. Seguin, University of California, San Diego, USA
Short Talk: beta3 Integrin/KRAS/RalB Complex Drives Tumor Stemness and Resistance to EGFR Inhibition

Menno J. Oudhoff, Biomedical Research Centre, Canada
Short Talk: Set7 at the Intersection between Hippo/Yap and Wnt/beta-Catenin Signalling in Intestinal Homeostasis, Regeneration and Cancer

Leonard I. Zon, HHMI/Boston Children's Hospital, USA
A Stem Cell Program Triggered at the Onset on Cancer

Roundtable: Preclinical Models and Early Translation (J8)
*Craig T. Jordan, University of Colorado, Anschutz Medical Campus, USA
*Tannishtha Reya, University of California, San Diego, USA
Robert S. Kerbel, Sunnybrook Research Institute, Canada
Recapitulating Postsurgical Adjutant or Metastatic Therapy in Mice as a Strategy to Improve Predicting Clinical Outcomes

Zena Werb, University of California, San Francisco, USA
Short Talk: Set7 at the Intersection between Hippo/Yap and Wnt/beta-Catenin Signalling in Intestinal Homeostasis, Regeneration and Cancer

Luis F. Parada, Memorial Sloan Kettering Cancer Center, USA
David A. Cheresh, University of California, San Diego, USA

Developmental Pathways and Tumor Initiation (J7)
*Freddy Radtke, EPFL SV ISREC UPRAD, Switzerland
Tumor Suppressive Roles of Notch in Epithelial Cells

Owen J. Sansom, Beatson Institute of Cancer Research, UK
mTORC1 Is Required Following Apo Loss

Rune C.M. Toftgard, Karolinska Institutet, Sweden
Hedgehog Signal Transduction and Cancer Initiation

Philip H. Jones, Wellcome Trust Sanger Institute / University of Cambridge, UK
Short Talk: Inhibition of Notch Signaling Confers Clonal Dominance In Esophageal Epithelium

Cancer Stem Cells (J8)
Sean J. Morrison, University of Texas Southwestern Medical Center, USA
Hematopoietic Stem Cells Require a Highly Regulated Rate of Protein Synthesis

*John E. Dick, Princess Margaret Cancer Centre, Canada
Complex Mechanisms Underlie Intra-Tumoral Heterogeneity

Robert J. Vanner, Hospital for Sick Children, Canada
Short Talk: Quiescent Therapy Resistant Sox2+ Cells Drive Hierarchical Growth and Relapse in Shh-Subgroup Medulloblastoma

Jeffrey M. Rosen, Baylor College of Medicine, USA
Wnt and Fgf Signaling in Mammary Stem Cells and Breast Cancer

Poster Session 2

WEDNESDAY, FEBRUARY 5

Stem Cells, Development and Cancer (Joint)
*Tannishtha Reya, University of California, San Diego, USA
*Frederic J. de Sauvage, Genentech, Inc., USA
Cédric Blanpain, Universite Libre de Bruxelles, Belgium
Keynote Address: Developmental Pathways Regulating Stemness in Skin Cancers

Roeland Nusse, HHMI/Stanford University, USA
Wnt Signaling and Stem Cell Control

Claire Metcalfe, Genentech, USA
Short Talk: Lgr5+ Stem Cells are Indispensable for Radiation-Induced Intestinal Regeneration

Catriona H.M. Jamieson, University of California, San Diego, USA
The Niche Specific Role of RNA Editing in Leukemia Stem Cell Generation

David A. Cheresh, University of California, San Diego, USA
Reversing Cancer Stemness and Drug Resistance

Workshop (J8)
*Lauren I. R. Ehrlich, University of Texas at Austin, USA
Ho-Chou Tu, Children's Hospital Boston, USA
The Pluripotency Factor Lin28 Promotes Colorectal Tumorigenesis and Progression

Andrew C. White, Cornell University, USA
Stem Cell Quiescence Acts as a Tumor Suppressor Mechanism in Hair Follicle Initiated Squamous Tumors

Ching-Cheng Chen, City of Hope National Medical Center, USA
Acute Myeloid Leukemia-Derived Exosomes Transform Bone Marrow Niche into Leukemic Niche

Dorhane Guezzouz, McMaster Stem Cell and Cancer Research Institute, Canada
Modeling the Human Bone Marrow HSC Niche in vivo

Martin Lackmann, Monash University, Australia
Therapeutic Targeting of EphA3 in the Tumor Microenvironment Inhibits Cancer Growth

Gerald Schwank, ETH Zurich, Switzerland
Genome Editing by CRISPR/Cas9 in Intestinal Stem Cell Organoids

Developmental Pathways in Cancer and Metastasis (J7)
*Michael D. Taylor, Hospital for Sick Children, Canada
Heterogeneity and Therapeutic Resistance Amongst the Shh Medulloblastomas

Kimberly Stegmaier, Dana-Farber Cancer Institute, USA
Targeting Mutated NOTCH1 in Cancer

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**Emerging Cancer Drug Targets in Development Pathways (J7)**

- **Joerg Huelsken**, Ecole Polytechnique Fédérale de Lausanne, Switzerland
  Targeting Tumor/Stroma Interactions to Overcome Metastasis

- **Taran S. Gujral**, Harvard Medical School, USA
  Short Talk: Wnt5-Fzd2 Signaling Drives Epithelial-Mesenchymal Transition, Tumor Progression, and Metastasis

**Cancer in Context: The Microenvironment and Metastasis (J8)**

- **Jeffrey M. Rosen**, Baylor College of Medicine, USA
  Targeting Tumor/Stroma Interactions to Overcome Metastasis

- **Zena Werb**, University of California, San Francisco, USA
  Imaging the Immune Microenvironment in Mammary Development and Cancer

- **Lauren I. R. Ehrlich**, University of Texas at Austin, USA
  Short Talk: The Tumor Microenvironment Promotes Tumorogenesis in T-ALL

- **Jing Yang**, University of California, San Diego, USA
  Epithelial-Mesenchymal Plasticity in Carcinoma Metastasis

- **Manuel Valiente**, Memorial Sloan-Kettering Cancer Center, USA
  Short Talk: Serpins Promote Cancer Cell Survival and Vascular Cooption in Brain Metastasis

- **Carla F. Kim**, Boston Children’s Hospital, USA
  Microenvironmental Regulation of Lung Stem Cell Differentiation

**Posters Session 3**

**THURSDAY, FEBRUARY 6**

**Emerging Cancer Drug Targets in Development Pathways (J7)**

- **Weilan Ye**, Genentech, Inc., USA
  The Nnorin-Mediated Canonical Wnt Signaling Pathway Regulates Vascular Integrity

- **Feng Cong**, Novartis Institutes for BioMedical Research, USA
  Control of Wnt Signaling by Ubiquitin and Tankyrase

- **Babita Madan**, DUKE-NUS Graduate Medical School, Singapore
  Short Talk: Novel Porcn Inhibitors Are Safe and Effective in the Treatment of Wnt-Dependent Cancers

- **Bradley E. Bernstein**, Massachusetts General Hospital, USA
  Reprogramming the Tumor-Propagating Potential of Glioblastoma Stem-Like Cells

- **Austin Gurney**, OncoMed Pharmaceuticals, Inc., USA
  Targeting Stem Cell Pathways in Cancer

- **Raoul C.D.S. Coombes**, Imperial College London, UK
  Short Talk: Antibodies to Nicastrin inhibit Invasion and Metastasis in Models of Breast Cancer

**New Regulatory Pathways in Cancer (J8)**

- **Zena Werb**, University of California, San Francisco, USA
  Models of Breast Cancer

- **Antonie Friebel**, Nexxinn GmbH, Germany
  Short Talk: Drugging the Undruggables - Cell-Permeable Peptide Antagonists Targeting the Wnt Signaling Pathway

- **Peter Chu**, Eclipse BioInnovations, USA
  Short Talk: Therapeutic Targeting of Cancer Stem Cells with BNC101, a Functional Anti-LGR5 Monoclonal Antibody

**Special Lecture: Keynote Address (Joint)**

- **Irving L. Weissman**, Stanford University, USA
  Reversing Cancer Stemness and Drug Resistance

**Targeting Developmental Pathways: Clinical Experience (J7)**

- **Gavin O. Thurston**, Regeneron Pharmaceuticals Inc., USA
  Blockade of Dll4-Notch Signaling in Tumor Angiogenesis

- **Jean Y. Tang**, Stanford University School of Medicine, USA
  Hedgehog Pathway Inhibitor Clinical Trials

- **Frederic J. de Sauvage**, Genentech, Inc., USA
  Innate and Acquired Resistance to Hedgehog Pathway Inhibitors

**Targeting Cancer Stem Cells: Trials and Translation (J8)**

- **Vishva M. Dixit**, Genentech, Inc., USA
  Leukemia Stem Cells

- **Craig T. Jordan**, University of Colorado, Anschutz Medical Campus, USA
  Targeting Metabolic Properties to More Effectively Eradicate Leukemia Stem Cells

- **Annette Friebe**, Nexxinn GmbH, Germany
  Short Talk: Drugging the Undruggables - Cell-Permeable Peptide Antagonists Targeting the Wnt Signaling Pathway

- **Alexander Aramendia**, Agensys, Inc, USA
  Short Talk: Generation STAT3 Antisense Oligonucleotide STAT3rx/AZD9150 Gli Transcriptional Activity

- **Daniel S. Pereira**, Agensys, Inc, USA
  Short Talk: Hedgehog Pathway Inhibitor Clinical Trials

**Discounted Abstract & Scholarship Deadline: October 11, 2013 / Abstract Deadline: November 6, 2013 / Discounted Registration Deadline: December 3, 2013**

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Jeremy Naftali Rich, Cleveland Clinic, USA  
Partners in Crime: Tumor Stem Cells and the Tumor Microenvironment

Michael F. Clarke, Stanford University, USA  
Regulation of Normal and Cancer Stem Cell Self Renewal and Senescence by USP16

FRIDAY, FEBRUARY 7

Departure