



Join Keystone Symposia  
for the 2016 conference on:

# Purinergic Signaling

January 24–28, 2016

Fairmont Hotel Vancouver | Vancouver, British Columbia | Canada

Scientific Organizers:

Joel Linden, Mark J. Smyth, Simon C. Robson and Kenneth A. Jacobson

*Joint with the conference on*

***Cancer Immunotherapy: Immunity and Immunosuppression Meet Targeted Therapies***

*This meeting will integrate rapidly emerging information about the regulation of purine release from cells (in vesicles and via channels and transporters); signaling via membrane-associated receptors (adenosine, P2X and P2Y) and extracellular metabolism (via CD73, CD39 and other ecto-enzymes); and new structural information that is facilitating drug discovery. These processes mediate tissue responses to a continual flux of signaling purines in the extracellular space that profoundly influence inflammatory diseases, tissue repair and immune function. A focus on the effects of hypoxia, metabolic stress and cytokines will fill gaps in our current knowledge of how these factors influence signaling during the evolution of acute and chronic inflammation. An understanding of how purinergic signals are dynamically regulated is needed to identify improved therapies, e.g., for cancer immunotherapy, since tumors exploit these pathways to avoid immune surveillance. The meeting will focus on the paradigm-shifting realization of dynamic purinergic regulation in the setting of disease progression.*

*Session Topics:*

- Purine Release
  - Purine Metabolism
  - Adenosine and P2Y Structure and Medicinal Chemistry
  - Drugs Targeting Adenosine Receptors
  - Cancer Immunotherapy I & II
  - Purinergic Signaling in the CNS
  - P2 Receptors
- plus four afternoon workshops*



Submitting an abstract is a great way of participating in the conference through poster presentation and possible selection for a short talk.

**Scholarship & Discounted Abstract Deadline: Sep 29, 2015**

**Abstract Deadline: Oct 29, 2015**

**Discounted Registration Deadline: Nov 24, 2015**

For additional details, visit [www.keystonesymposia.org/16J5](http://www.keystonesymposia.org/16J5).

**KEYSTONE SYMPOSIA™**  
on Molecular and Cellular Biology  
*Accelerating Life Science Discovery*

[www.keystonesymposia.org/meetings](http://www.keystonesymposia.org/meetings) | 1.800.253.0685 | 1.970.262.1230

a 501(c)(3) nonprofit educational organization

# KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

## Purinergic Signaling (J5)

Scientific Organizers: Joel Linden, Mark J. Smyth, Simon C. Robson and Kenneth A. Jacobson

Sponsored by Bayer HealthCare Pharmaceuticals and Roche

## Cancer Immunotherapy: Immunity and Immunosuppression Meet Targeted Therapies (J6)

Scientific Organizers: Barbara Seliger, Jerome Galon and Francesco M. Marincola

January 24-28, 2016 • Fairmont Hotel Vancouver • Vancouver, British Columbia, Canada

Sponsored by BioLegend, Inc., Genentech, Inc., Genmab A/S, ImmunoGen, Inc., Incyte Corporation, Infinity Pharmaceuticals, Inc., Merck & Co., Inc., Mersana Therapeutics, MorphoSys AG, Pfizer Inc., Regeneron Pharmaceuticals, Inc., Sanofi US, Shire Human Genetic Therapies and Thermo Fisher Scientific Inc.

Abstract & Scholarship Deadline: September 29, 2015 / Abstract Deadline: October 29, 2015 / Discounted Registration Deadline: November 24, 2015

### SUNDAY, JANUARY 24

#### Arrival and Registration

### MONDAY, JANUARY 25

#### Welcome, Video Greeting from Dr. Geoffrey Burnstock and Keynote Address (Joint)

- \***Barbara Seliger**, Martin Luther University, Germany
- \***Joel Linden**, La Jolla Institute for Allergy and Immunology, USA
- Simon C. Robson**, Beth Israel Deaconess Medical Center, USA  
*Purinergic Signaling and Conditioning of Inflammatory Responses in Clinical Disease*
- Robert D. Schreiber**, Washington University School of Medicine, USA  
*Personalizing Cancer Immunotherapy*

#### Purine Release (J5)

- \***Gerhard Dahl**, University of Miami, USA  
*ATP Release through Pannexon Channels.*
- Christa E. Müller**, Universität Bonn, Germany  
*Medicinal Chemistry of Purinergic Signalling*
- Leon J. DeLalio**, University of Virginia, USA  
*Short Talk: Localization of Panx1 to Caveolae Facilitates ATP Release in the Vasculature*
- Marta Radwan**, University of Bath, UK  
*Short Talk: The Mouse Pannexin1-P2X7 Receptor Interactome*
- Francesco Di Virgilio**, University of Ferrara, Italy  
*ATP: A Novel Constituent of the Tumor Microenvironment affecting Tumor Growth and Metastatic Spreading*

#### Tumor Microenvironment and Effector Cells (J6)

- \***Jerome Galon**, INSERM UMRS1138, Cordeliers Research Center, France
- Thomas Blankenstein**, Max Delbrück Center for Molecular Medicine, Germany  
*Adoptive T Cell Therapy*
- Barbara Seliger**, Martin Luther University, Germany  
*Escape of Tumors from Immune Cell Recognition by Modulating MHC Class I Antigen Processing Components*
- Fathia Mami-Chouaib**, Institut Gustave Roussy, France  
*Paradoxical Role of TGF-beta in Promoting CTL Effector Functions within Epithelial Tumor Microenvironment by Triggering CD103 Integrin Expression and Signaling*
- David C. Clever**, National Institutes of Health, USA  
*Short Talk: Inhibition of T Cell Oxygen Sensing Promotes Pulmonary Effector Responses and Limits Tumor Metastasis*

#### Workshop 1: ATP Release and Metabolism (J5)

- \***Brant Isakson**, University of Virginia, USA
- \***Gennady G. Yegutkin**, University of Turku, Finland

**Alexander S. Keller**, University of Virginia, USA  
*Expression of Pannexin Isoforms in Mouse Erythrocytes*

**Miranda E. Good**, University of Virginia, USA  
*Smooth Muscle Cell Pannexin1 can Regulate Myogenic Reactivity in Cerebral Arteries*

**Kishio Furuya**, Nagoya University, Japan  
*Stretch Induced ATP Release via Hemichannels Accelerates Wound Closure in Keratinocyte by Ca<sup>2+</sup> Influx from TRPC6*

**Juan Pablo Huidobro-Toro**, Universidad de Santiago de Chile, Chile  
*A Potassium Rich Diet Increased Mechanically Evoked ATP Release from Rat Mesenteric Endothelial Cells; Clinical Implications*

**Christian Renn**, University of Bonn, Germany  
*Comparison of ecto-5'-nucleotidase (CD73) Assays for the Identification and Characterization of Inhibitors*

**Florian Wirsdörfer**, University Hospital Essen, Germany  
*Role of CD73 and Extracellular Adenosine in Radiation-Induced Lung Fibrosis*

**Gilles Kauffenstein**, Angers University, France  
*Vascular Changes in Pseudoxanthoma Elasticum - Potential Link to Extracellular Purine Metabolism*

**Maria Serena Longhi**, Beth Israel Deaconess Medical Center, USA  
*Aberrant Regulation of CD39 Expression by Th17 Cells in Inflammatory Bowel Disease*

#### Workshop (J6)

- \***Jerome Galon**, INSERM UMRS1138, Cordeliers Research Center, France
- Matthew Coelho**, University College London - The Francis Crick Institute, UK  
*Oncogenic RAS Signaling Promotes Tumor Immuno-resistance by Stabilizing PD-L1 mRNA*
- Daniel Corey**, Stanford University, USA  
*Reverse Engineering B. Schlosser's Developmental-regulated Cell Death Programs for Cancer Immunotherapy*
- Mirjana Efreanova**, Medical University of Innsbruck, Austria  
*Modeling Immunoediting of the Tumor during Progression*
- Mirjam H.M. Heemskerk**, Leiden University Medical Center, Netherlands  
*TCR Gene Therapy Targeting the Intracellular Transcription Factor Bob1 for the Treatment of Multiple Myeloma*
- Nikhil S. Joshi**, Yale University School of Medicine, USA  
*Investigating Endogenous Anti-tumor T Cell Responses in Native Tumor Microenvironments*
- Rachel Yamin**, Hebrew University, Israel  
*Profiling of Ubiquitin Modifications in NK Cell Activation*
- Iryna Saranchova**, University of British Columbia, Canada  
*Molecular Studies on the Primary to Metastatic Transition*

# KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

## Purinergic Signaling (J5)

Scientific Organizers: Joel Linden, Mark J. Smyth, Simon C. Robson and Kenneth A. Jacobson

Sponsored by Bayer HealthCare Pharmaceuticals and Roche

## Cancer Immunotherapy: Immunity and Immunosuppression Meet Targeted Therapies (J6)

Scientific Organizers: Barbara Seliger, Jerome Galon and Francesco M. Marincola

January 24-28, 2016 • Fairmont Hotel Vancouver • Vancouver, British Columbia, Canada

Sponsored by BioLegend, Inc., Genentech, Inc., Genmab A/S, ImmunoGen, Inc., Incyte Corporation, Infinity Pharmaceuticals, Inc., Merck & Co., Inc., Mersana Therapeutics, MorphoSys AG, Pfizer Inc., Regeneron Pharmaceuticals, Inc., Sanofi US, Shire Human Genetic Therapies and Thermo Fisher Scientific Inc.

Abstract & Scholarship Deadline: September 29, 2015 / Abstract Deadline: October 29, 2015 / Discounted Registration Deadline: November 24, 2015

### Purine Metabolism (J5)

- \***Norbert Sträter**, University of Leipzig, Germany  
*Structure and Function of CD39 and CD73 in Purinergic Signalling*
- \***Elizabeth Hartland**, University of Melbourne, Australia  
*Microbial NTPDases and their role during infection*
- Ridong Chen**, APT Therapeutics, Inc., USA  
*Human Apyrase as a Paradigm-shifting Therapy for Cardiovascular Diseases with Undetectable Bleeding Risk*
- Cynthia St. Hilaire**, University of Pittsburgh, USA  
*Short Talk: In Vivo Disease Modeling Using Patient-Derived iPSCs: CD73-Deficiency Promotes Osteogenic Differentiation and Calcification*

### Immune Signature and Biomarkers (J6)

- \***Barbara Seliger**, Martin Luther University, Germany
- Jerome Galon**, INSERM UMRS1138, Cordeliers Research Center, France  
*Importance of the Immune Infiltration and Cancer Classification*
- Francesco M. Marincola**, Sidra Medical and Research Center, Qatar  
*A Panoramic View of Tumor Rejection Induced by Immune Therapy*
- Ton N. Schumacher**, Netherlands Cancer Institute, Netherlands  
*T Cell Recognition and Tumor Resistance in Human Cancer*
- Daniela Schmid**, Dana-Farber Cancer Institute, USA  
*Short Talk: T Cell-Targeted Nanoparticles for Delivery of Immunomodulatory Molecules*

### Poster Session 1

### TUESDAY, JANUARY 26

#### Adenosine and P2Y Structure and Medicinal Chemistry (J5)

- \***Mark Yeager**, University of Virginia School of Medicine, USA  
*Structural Biology of Adenosine Receptor G-Protein Complexes*
- Stefano Moro**, University of Padova, Italy  
*Short Talk: Could Adenosine Engage its Receptors with an Alternative 1:1 Stoichiometry? New Insights from Supervised Molecular Dynamics (SuMD) Simulations*
- Ruben Abagyan**, University of California, San Diego, USA  
*Modeling and Structure Based Discovery of Allosteric Modulators*
- Edward P. Amento**, Molecular Medicine Research Institute, USA  
*Short Talk: Positive Allosteric Modulation of the Adenosine A2a Receptor Alleviates PMA-Induced Acute Contact Dermatitis in Mice*
- \***Kodi S. Ravichandran**, University of Virginia, USA  
*Don't Let Death Do Us Part: Pannexin Channels in Communication between Apoptotic Cells and Phagocytes*
- \***Kenneth A. Jacobson**, NIDDK, National Institutes of Health, USA  
*Structure-Based Design of P2Y Receptor Ligands*

### Systems Biology and Dysregulation in Cancer (J6)

- \***Francesco M. Marincola**, Sidra Medical and Research Center, Qatar
- James P. Allison**, University of Texas MD Anderson Cancer Center, USA  
*Tumor Targeting using Checkpoint Antibodies*
- Carlo M. Croce**, Ohio State University, USA  
*Causes and Consequences of microRNA Dysregulation in Cancer*
- Ofer Mandelboim**, Hebrew University, Israel  
*Importance of Bacteria in Modulating NK Cell Response against Tumors*
- Francesca Finotello**, Biocenter, Medical University of Innsbruck, Austria  
*Short Talk: Quantification of Tumor-Infiltrating Lymphocyte Subpopulations using Imaging and Sequencing Data*
- Spencer C. Wei**, University of Texas MD Anderson Cancer Center, USA  
*Short Talk: High-Dimensional Cytometry Reveals Novel T cell Populations that Arise in the Absence of CTLA-4*

### Poster Session 2

#### Workshop 2: Purinergic Receptors and Cancer (J5)

- \***Silvia Deaglio**, University of Turin, Italy
- \***Simon C. Robson**, Beth Israel Deaconess Medical Center, USA
- Sara Serra**, University of Turin and Human Genetics Foundation, Italy  
*Adenosine Signaling Mediates Hypoxic Responses in the Chronic Lymphocytic Leukemia (CLL) Microenvironment*
- Bruce Cronstein**, New York University, USA  
*Ticagrelor Inhibits Spread of Multiple Myeloma to Bone*
- Jessica Lynn Bowser**, University of Texas MD Anderson Cancer Center, USA  
*CD73 Mediates Epithelial Integrity in Endometrial Carcinoma: Is Protecting the Barrier Promoting Tumor Immunosuppression*
- Amanda S. MacLeod**, Duke University, USA  
*IL-27-Inducible ENTPD1 Suppresses Protective Skin-Resident Immunity upon UV Damage and Inhibits DNA Repair*
- Odd Lilleng Gammelgaard**, University of Southern Denmark, Denmark  
*Dual Epitope Targeting of CD73 Exhibits Potent Anti-Cancer Activity*
- Daniela Sauma**, Universidad de Chile, Chile  
*CD73-Mediated Adenosine Production Promotes Stem Cell-Like Properties in Mouse Tc17 Cells*
- Miki Kamiyama**, University of Tokyo, Japan  
*ASK1 Regulates Tumor Lung Metastasis and Platelet Functions through ADP Signaling*

# KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

## Purinergic Signaling (J5)

Scientific Organizers: Joel Linden, Mark J. Smyth, Simon C. Robson and Kenneth A. Jacobson

Sponsored by Bayer HealthCare Pharmaceuticals and Roche

## Cancer Immunotherapy: Immunity and Immunosuppression Meet Targeted Therapies (J6)

Scientific Organizers: Barbara Seliger, Jerome Galon and Francesco M. Marincola

January 24-28, 2016 • Fairmont Hotel Vancouver • Vancouver, British Columbia, Canada

Sponsored by BioLegend, Inc., Genentech, Inc., Genmab A/S, ImmunoGen, Inc., Incyte Corporation, Infinity Pharmaceuticals, Inc., Merck & Co., Inc., Mersana Therapeutics, MorphoSys AG, Pfizer Inc., Regeneron Pharmaceuticals, Inc., Sanofi US, Shire Human Genetic Therapies and Thermo Fisher Scientific Inc.

Abstract & Scholarship Deadline: September 29, 2015 / Abstract Deadline: October 29, 2015 / Discounted Registration Deadline: November 24, 2015

### Drugs Targeting Adenosine Receptors (J5)

\***Bruce Cronstein**, New York University, USA

**Tomyuki Kanda**, Kyowa Hakko Kirin Co., Ltd., Japan  
*Adenosine A2A Receptor as Therapeutic Target for Parkinson's and Neurodegeneration*

**Joel Linden**, La Jolla Institute for Allergy and Immunology, USA  
*Inhibition of Sterile Inflammation by Adenosine*

\***Pnina Fishman**, Can-Fite BioPharma Ltd., Israel  
*Utilizing the A3 Adenosine Receptor as a Target to Combat Cancer: From Lab to Labeling*

**Carmen Corciulo**<sup>†</sup>, New York University Medical Center, USA  
*Short Talk: Adenosine A2A Receptor, But Not A2B Receptor, Deletion Leads to Development of Osteoarthritis (OA) in Mice and Administration of a Liposomal Suspension of Adenosine Prevents/Treats Osteoarthritis in Rats*

### Cancer Immunotherapy: Adoptive T Cell Transfer and Cell Therapy (J6)

\***Thomas Blankenstein**, Max Delbrück Center for Molecular Medicine, Germany

**Nicholas P. Restifo**, NCI, National Institutes of Health, USA  
*Curative Immunotherapy Using CAR- and TCR-Based T Cells*

**Gerold Schuler**, University Hospital of Erlangen, Germany  
*Monocyte-Derived Dendritic Cells as Vaccines: Beyond Simple Induction of T Cells*

**Ronald Levy**, Stanford University, USA  
*Targeting the Immune System while Targeting the Cancer Customized vs. Off-the-Shelf Therapies*

**Karl-Johan Malmberg**, Radiumhospitalet, Norway  
*Short Talk: Critical Role of CD2 Co-Stimulation in Adaptive NK Cell Responses Revealed in NKG2C-Deficient Humans*

### WEDNESDAY, JANUARY 27

#### Cancer Immunotherapy I (J5)

\***Joel Linden**, La Jolla Institute for Allergy and Immunology, USA

**Gennady G. Yegutkin**, University of Turku, Finland  
*Cellular Purine Homeostasis as a Complex and Coordinated Network Controlling Tumor Invasion and Migration*

**John Stagg**, University of Montréal, Canada  
*CD73-mediated Adenosine Signaling in Human Cancers*

\***Michail Sitkovsky**, Northeastern University, USA  
*Conceptually Novel "Anti-Hypoxia-A2A-Adenosinergic" Checkpoint Inhibitors to Improve Immunotherapies and Chemotherapies of Cancer*

**Caglar Cekic**, Bilkent University, Turkey  
*Adenosine Regulation of Myeloid Cells in Solid Tumors*

**Erik Wennerberg**, Weill Cornell Medical College, USA

*Short Talk: Adenosine Regulates Radiation Therapy-Induced Anti-Tumor Immunity*

**Arabella Young**, QIMR Berghofer Medical Research Institute, Australia

*Short Talk: Co-inhibition of Adenosine Generation and Signaling Improves Anti-Tumour Immune Responses*

#### Immune Suppression and the Role of Paracrine Factors in Modulating Immune Suppression (J6)

\***Rolf Kiessling**, Karolinska Institute, Sweden

**Sandra Demaria**, Weill Cornell Medical College, USA  
*Harnessing Radiotherapy to Overcome Tumor Resistance to Immunotherapy*

**Joel Le Maoult**, Institut Universitaire d'Hématologie, France  
*Role of HLA-G in Human Tumors*

**Sjoerd H. van der Burg**, Leiden University Medical Center, Netherlands  
*HLA-E in Cancer: From Immune Escape to Therapeutic Target?*

**Erik Thiele Orberg**, Johns Hopkins School of Medicine, USA  
*Short Talk: The Myeloid Immune Signature of Enterotoxigenic Bacteroides fragilis-induced Murine Colon Tumorigenesis*

**Byron Kwan**, Massachusetts Institute of Technology, USA  
*Short Talk: Integrin-targeted Combination Immunotherapy Improves Survival in a Broad Spectrum of Tumor Types*

#### Cancer Immunotherapy II (J5)

\***John Stagg**, University of Montréal, Canada

**Kris F. Sachsenmeier**, MedImmune LLC, USA  
*MEDI9447: Targeting CD73 in the Tumor Microenvironment*

**Phillip K. Darcy**, Peter MacCallum Cancer Centre, Australia  
*Enhancing Adoptive Cellular Therapy by Targeting Tumor-Induced Immunosuppression*

\***Mark J. Smyth**, QIMR Berghofer Medical Research Institute, Australia  
*Strategies for Combination Cancer Immunotherapies that Target Adenosine*

**Dora Hammerl**, La Jolla Institute, USA  
*Short Talk: Intratumoral Injection of Microparticles Containing the A2A Receptor Antagonist SCH58261 Slow Tumor Growth and Metastasis More Effectively than Systemic Drug Administration*

#### Novel Immunotherapeutic Approaches and Antibody Therapies (J6)

\***Michele Maio**, University Hospital of Siena, Italy

**Gregory Lawrence Beatty**, University of Pennsylvania, USA  
*Activating Innate and Adaptive Immunity by CD40 Agonists*

**Nils Lonberg**, Bristol-Myers Squibb, USA  
*Immune Checkpoints and Combination Therapy*

# KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

## Purinergic Signaling (J5)

Scientific Organizers: Joel Linden, Mark J. Smyth, Simon C. Robson and Kenneth A. Jacobson

Sponsored by Bayer HealthCare Pharmaceuticals and Roche

## Cancer Immunotherapy: Immunity and Immunosuppression Meet Targeted Therapies (J6)

Scientific Organizers: Barbara Seliger, Jerome Galon and Francesco M. Marincola

January 24-28, 2016 • Fairmont Hotel Vancouver • Vancouver, British Columbia, Canada

Sponsored by BioLegend, Inc., Genentech, Inc., Genmab A/S, ImmunoGen, Inc., Incyte Corporation, Infinity Pharmaceuticals, Inc., Merck & Co., Inc., Mersana Therapeutics, MorphoSys AG, Pfizer Inc., Regeneron Pharmaceuticals, Inc., Sanofi US, Shire Human Genetic Therapies and Thermo Fisher Scientific Inc.

Abstract & Scholarship Deadline: September 29, 2015 / Abstract Deadline: October 29, 2015 / Discounted Registration Deadline: November 24, 2015

**Susanne Steggerda**, Calithera Biosciences, Inc., USA  
*Short Talk: Arginase Inhibitor CB-1158 is a Novel Immuno-Oncology Agent that Targets Tumor-Infiltrating Suppressive Myeloid Cells*

### Poster Session 3

#### THURSDAY, JANUARY 28

##### Purinergic Signaling in the CNS (J5)

\***Kazuhide Inoue**, Kyushu University, Japan  
*Purinergic Regulation of Microglia in Neuropathic Pain*

\***Maria P. Abbracchio**, University of Milan, Italy  
*Purinergic Regulation of Oligodendrocyte Precursor Cells and Myelination*

**Masahiro Mishina**, Nippon Medical School, Japan  
*Brain Imaging of Adenosine Receptors*

**Francisco J. Quintana**, Harvard Medical School, USA  
*Control of Autoimmune Inflammation by CD39 (ENTPD1)*

**Mallikarjunarao Ganesana**, University of Virginia, USA  
*Short Talk: Increase of Transient Adenosine Release Frequency from Ischemic Brain*

**Catia Lambertucci**, University of Camerino, Italy  
*Short Talk: Partial Agonists of A1 Adenosine Receptors as Neuroprotective Agents*

##### Immune Escape Mechanisms by Immune Suppressive Cells/Factors (J6)

**Thomas Gajewski**, University of Chicago, USA  
*Molecular Mechanisms of the T Cell-Inflamed Tumor Microenvironment: Implications for Immunotherapy*

**Rolf Kiessling**, Karolinska Institute, Sweden  
*Counteracting Tumor-Induced Immune Suppression by Checkpoint Blockade and Inhibitors of CSF-R1*

**David H. Munn**, Georgia Regents University, USA  
*IDO, PTEN and Activated Tregs in the Tumor Microenvironment*

**Robert Leone**, Johns Hopkins University School of Medicine, USA  
*Role of Metabolic Changes on the Immune Response*

**Robbert M. Spaapen**, Sanquin Research, Netherlands  
*Short Talk: Intramolecular MHC Class I Regulation Affects Functional Antigen Presentation*

**Anushka Dongre**, Whitehead Institute for Biomedical Research, USA  
*Short Talk: Understanding the Contribution of the Epithelial to Mesenchymal Transition (EMT) to Immuno-suppression in Breast Carcinomas*

##### Workshop 3: P2 Purinergic Receptors as Drug Targets (J5)

\***Kenneth A. Jacobson**, NIDDK, National Institutes of Health, USA

\***Christa E. Müller**, Universität Bonn, Germany

**Aranzazu M. Mediero**, New York University School of Medicine, USA  
*Ticagrelor Regulates Osteoblast and Osteoclast Function and Promotes Bone Formation in Vivo via an Adenosine Dependent Mechanism*

**Guido Beldi**, University of Bern, Switzerland  
*P2X1 Regulated IL-22 Secretion by Innate Lymphoid Cells is Required for Efficient Liver Regeneration*

**Stephanie Weinhausen**, University of Bonn, Germany  
*Binding Site of the Allosteric P2X4 Receptor Modulator Ivermectin*

**Ronald Sluyter**, University of Wollongong, Australia  
*P2X7 Receptor Activation Mediates Amyotrophic Lateral Sclerosis-Associated Mutant Superoxide Dismutase 1 Release from Murine Motor Neurons*

**Friedrich Koch-Nolte**, University Medical Center Hamburg-Eppendorf, Germany  
*Nanobodies That Block Gating of the P2X7 ion Channel Ameliorate Inflammation*

**Alicia Mathers**, University of Pittsburgh, USA  
*Signaling Through the P2X7 Receptor Induces an Acute Psoriasis-Like Inflammatory Response in the Skin*

**Mabrouka Salem**, Laval University, Canada  
*P2Y6 Receptor Deletion Exacerbates Intestinal Inflammation Through Th17 Recruitment*

**Angela Schulz**, University Leipzig, Medical Faculty, Germany  
*P2Y14 Influences Insulin Secretion*

##### P2 Receptors (J5)

\***Friedrich Koch-Nolte**, University Medical Center Hamburg-Eppendorf, Germany

\***Rosaria Volpini**, Università degli Studi di Camerino, Italy  
*P2 Receptor Ligands: Overview and Updates*

**Marco Cattaneo**, Università degli Studi di Milano, Italy  
*P2Y12 Receptors: Structure and Function*

**Mufeng Li**, NINDS, National Institutes of Health, USA  
*Structure and Gating Mechanisms of ATP Activated P2X Receptor Channels*

##### Targeted Therapies and Combination Therapies (J6)

\***Barbara Seliger**, Martin Luther University, Germany

**Adrian Bot**, Kite Pharma, Inc., USA  
*Optimizing the Translation of Genetically Programmed T Cells to Safe and Potent Therapies*

**Leisha A. Emens**, Johns Hopkins School of Medicine, USA

\***Kenneth A. Jacobson**, NIDDK, National Institutes of Health, USA

Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (J6)

FRIDAY, JANUARY 29

Departure

# KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

## Purinergic Signaling (J5)

Scientific Organizers: Joel Linden, Mark J. Smyth, Simon C. Robson and Kenneth A. Jacobson

Sponsored by Bayer HealthCare Pharmaceuticals and Roche

## Cancer Immunotherapy: Immunity and Immunosuppression Meet Targeted Therapies (J6)

Scientific Organizers: Barbara Seliger, Jerome Galon and Francesco M. Marincola

January 24-28, 2016 • Fairmont Hotel Vancouver • Vancouver, British Columbia, Canada

Sponsored by BioLegend, Inc., Genentech, Inc., Genmab A/S, ImmunoGen, Inc., Incyte Corporation, Infinity Pharmaceuticals, Inc., Merck & Co., Inc., Mersana Therapeutics, MorphoSys AG, Pfizer Inc., Regeneron Pharmaceuticals, Inc., Sanofi US, Shire Human Genetic Therapies and Thermo Fisher Scientific Inc.

Abstract & Scholarship Deadline: September 29, 2015 / Abstract Deadline: October 29, 2015 / Discounted Registration Deadline: November 24, 2015

SON

*Enhancing Cancer Vaccine Activity with  
Tumor-Specific Monoclonal Antibodies*

**Michele Maio**, University Hospital of Siena, Italy  
*Sequential Therapy of Checkpoint Inhibitors with  
Targeted Therapies*

**Meeting Wrap-Up: Outcomes and Future Directions  
(J5)**