



# FASEB

Federation of American Societies  
for Experimental Biology

**Science Research Conferences**

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## **REGULATION AND FUNCTION OF SMALL GTPases**

June 11-16, 2017

West Palm Beach, Florida

Organizers:

**Carol L. Williams**

Medical College of Wisconsin  
Milwaukee, WI, USA

**Angeliki Malliri**

Cancer Research UK Manchester Institute  
Manchester, UK

### **Sunday, June 11, 2017**

- |                   |   |
|-------------------|---|
| 4:00 PM – 9:00 PM | Conference Registration   |
| 6:00 PM – 7:00 PM | Welcome Reception   |
| 7:00 PM – 8:00 PM | Dinner  |
| 8:00 PM – 9:30 PM | <b>Plenary Session</b><br><b>Allan Balmain</b> , UCSF Helen Diller Comprehensive Cancer Center,<br>San Francisco, CA<br><i>“Target Genes and Target Cells in Mouse Models of Skin Cancer”</i> |

### **Monday, June 12, 2017**

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|--------------------|-------------------------|
| 7:30 AM – 12:30 PM | Conference Registration |
| 7:30 AM – 9:00 AM  | Breakfast               |

**9:00 AM – 12:30 PM**

**Session 1: Small GTPases in Cancer, Part I**

Chair: **John Hancock**, University of Texas Health Science Center, Houston, TX

9:00 AM – 9:15 AM

Welcome from FASEB and Organizers

9:15 AM – 9:45 AM

**Dafna Bar-Sagi**, New York University School of Medicine, NY  
*Bioenergetic Metabolism in Pancreatic Cancer*

9:45 AM – 10:15 AM

**Martin Bergo**, Karolinska Institute, Huddinge, Sweden  
*Regulation of Redox Signaling and Small GTPases in Cancer*

10:15 AM – 10:30 AM

**Robert L. Kortum**, Uniformed Services University of the Health Sciences, Bethesda, MD  
*Hierarchical Requirement for PI3K Signaling in RAS Isoform-Driven Transformation is Revealed by Sos2 Deletion*

10:30 AM – 11:00 AM

FASEB-Sponsored Coffee Break

11:00 AM – 11:30 AM

**Alan Fields**, Mayo Clinic, Jacksonville, FL  
*Oncogenic Ect2 Signaling in Lung Tumorigenesis*

11:30 AM – 12:00 PM

**Carol L. Williams**, Medical College of Wisconsin, Milwaukee, WI  
*Oncogenic Functions of SmgGDS Beyond its Regulation of Small GTPase Prenylation and Trafficking*

12:00 PM – 12:15 PM

**Jeffrey A. Frost**, University of Texas Health Science Center, Houston, TX  
*The RhoA Subfamily GEF Net1 is Required for Mammary Gland Tumorigenesis and Metastasis*

12:15 PM – 12:30 PM

**Sinisa Dovat**, Pennsylvania State University College of Medicine, Hershey, PA  
*Regulation of CDC42 Transcription by Ikaros Tumor Suppressor in B-cell Acute Lymphoblastic Leukemia*

12:30 PM – 1:45 PM

Lunch and Meet the Experts Session

1:45 PM – 4:00 PM

Free Time

**4:00 PM – 6:00 PM**

**Poster Session 1**

6:00 PM – 7:00 PM

Dinner

**7:00 PM – 9:45 PM**

**Session 2: Therapeutic Targeting of Small GTPases**

Chair: **Channing Der**, University of North Carolina, Chapel Hill, NC

- 7:00 PM – 7:30 PM **Channing Der**, University of North Carolina, Chapel Hill, NC  
*Drugging Undruggable RAS for Cancer Treatment: Is MYC the Answer?*
- 7:30 PM – 8:00 PM **Alemayehu Gorfe**, University of Texas Health Science Center, Houston, TX  
*Targeting K-Ras: How Simple Concepts and Protein Motion Can Lead to Initial Drug Leads*
- 8:00 PM – 8:15 PM **Daniel Abankwa**, Åbo Akademi University, Turku, Finland  
*Do Rapalogs Inadvertently Increase Cancer Cell Stemness? – Ras Isoform-Specific Feedback Loops from the mTor-Pathway*
- 8:15 PM – 8:30 PM Break
- 8:30 PM – 9:00 PM **Julian Downward**, Francis Crick Institute, London, England  
*Searching for Novel Therapeutic Approaches to RAS Mutant Cancers*
- 9:00 PM – 9:30 PM **Paul Timpson**, Garvan Institute of Medical Research, Sydney, Australia  
*Transient Tissue Priming via ROCK Inhibition Uncouples Pancreatic Cancer Progression, Sensitivity to Chemotherapy, and Metastasis*
- 9:30 PM – 9:45 PM **John P. O'Bryan**, University of Illinois, Chicago, IL  
*Inhibition of RAS Function Through Targeting an Allosteric Regulatory Site*

## **Tuesday, June 13, 2017**

- 7:30 AM – 12:30 PM Conference Registration
- 7:30 AM – 9:00 AM Breakfast
- 9:00 AM – 12:30 PM** **Session 3: Small GTPases in Adhesion and Migration**  
Chair: **Vania Braga**, Imperial College London, London, England
- 9:00 AM – 9:30 AM **Anne Ridley**, King's College London, London, England  
*Roles of Rho GTPases in Cell Adhesion and Migration*
- 9:30 AM – 10:00 AM **Angeliki Malliri**, Cancer Research UK Manchester Institute, Manchester, England  
*Regulation of Migration by the Tiam Family of Rac GEFs*

- 10:00 AM – 10:15 AM **Johanna Lilja**, University of Turku, Turku, Finland  
*SHANK Proteins Limit Integrin Activation by Directly Interacting with Rap1 and R-Ras*
- 10:15 AM – 10:45 AM Group Photo and FASEB-Sponsored Coffee Break
- 10:45 AM – 11:15 AM **Laura Machesky**, Cancer Research UK Beatson Institute, Glasgow, Scotland  
*Actin Nucleation Driving Migration, Invasion, and Metastasis*
- 11:15 AM – 11:45 AM **Narasimhan Gautam**, Washington University, St. Louis, MO  
*Using Optogenetics to Examine RhoA and Cdc42 in Cell Migration*
- 11:45 AM – 12:15 PM **Maria Balda**, University College London, London, England  
*Multiple Roles of Small Rho GTPases in Tight Junction Functions*
- 12:15 PM – 12:30 PM **Andrew M. Chan**, The Chinese University of Hong Kong, Shatin, Hong Kong  
*R-Ras is Required for T Cell Trafficking in High Endothelial Venules and Mediates Chemokine-Induced Adhesion to Intercellular Adhesion Molecule-1*
- 12:30 PM – 1:30 PM Lunch and Meet the Experts Session
- 1:30 PM – 5:30 PM Free Time / Optional Group Activity at John D. MacArthur Beach State Park ( <http://www.macarthurbeach.org/> )
- 6:00 PM – 7:00 PM Dinner
- 7:00 PM – 9:30 PM** **Session 4: Small GTPases and their Partners in Physiological and Pathophysiological Processes**  
Chair: **Sharon Campbell**, University of North Carolina, Chapel Hill, NC
- 7:00 PM – 7:30 PM **Vania Braga**, Imperial College London, London, England  
*The Scaffolding Protein Ajuba Regulates Rac1 Activity in Epithelia via a Dual Mechanism*
- 7:30 PM – 8:00 PM **Linda Van Aelst**, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY  
*Rho Regulators in Neuronal Development and Associated Disorders*
- 8:00 PM – 8:15 PM **Ian A. Prior**, University of Liverpool, Liverpool, England  
*Endogenous Ras Isoforms Exhibit Differential and Context-Dependent Coupling to Effector Pathways*

- 8:15 PM – 8:30 PM Break
- 8:30 PM – 9:00 PM **Karen Cichowski**, Brigham and Women's Hospital, Harvard Medical School, Boston, MA  
*RasGAPs as Tumor Suppressors*
- 9:00 PM – 9:15 PM **Claire M. Wells**, Kings College London, London, England  
*Cdc42 Expression is Dependent on RhoU Palmitoylation in a Background of FASN Depletion*
- 9:15 PM – 9:30 PM **Sonja Vermeren**, University of Edinburgh, Scotland  
*Immune Complex-Induced PI3K-Cdc42-Pak-Mek-Erk Signaling Promotes Apoptosis of Human Neutrophils*

**Wednesday, June 14, 2017**

- 7:30 AM – 12:15 PM Conference Registration
- 7:30 AM – 9:00 AM Breakfast
- 9:00 AM – 12:15 PM** **Session 5: Spatio-Temporal Control of Signaling and Small GTPases**  
Chair: **Jonathan Chernoff**, Fox Chase Cancer Center, Philadelphia, PA
- 9:00 AM – 9:30 AM **Orrin Stone**, University of North Carolina, Chapel Hill, NC  
*Biosensors and Optogenetics for Rho GTPase Pathways in Living Cells*
- 9:30 AM – 10:00 AM **Marino Zerial**, Max Planck Institute, Dresden, Germany  
*Molecular Specificity and Mechanics in Membrane Tethering and Fusion*
- 10:00 AM – 10:15 AM **Jan H. Reiling**, BioMed X Innovation Center, Heidelberg, Germany  
*Cell Survival and Protein Secretion Associated with Golgi Integrity Controlled by ARF GTPases in Response to Golgi Stress-Inducing Agents*
- 10:15 AM – 10:45 AM FASEB-Sponsored Coffee Break
- 10:45 AM – 11:15 AM **Mark Philips**, New York University School of Medicine, NY  
*Hexokinase on the Outer Mitochondrial Membrane is an Effector for KRAS4A*

11:15 AM – 11:30 AM	<b>Dharini van der Hoeven</b> , University of Texas Health Science Center, Houston, TX <i>Ceramide-Sphingomyelin Balance is an Important Regulator of K-Ras Function</i>
11:30 AM – 11:45 AM	<b>Xiaowei Gong</b> , Karolinska Institutet, Huddinge, Sweden <i>RhoB Endosomal Recycling through KIF13A Governs Membrane Blebbing and Amoeboid Cell Migration</i>
11:45 AM – 12:15 PM	Business Meeting
12:15 PM – 1:30 PM	Lunch and Meet the Experts Session
1:30 PM – 2:30 PM	Career Development Workshop; Afternoon Mentoring Session 1 <i>Strategies for publication: quantity and quality</i>
2:30 PM – 4:00 PM	Free Time
<b><u>4:00 PM – 6:00 PM</u></b>	<b>Poster Session 2</b>
6:00 PM – 7:00 PM	Dinner
<b><u>7:00 PM – 9:15 PM</u></b>	<b>Session 6: Compartmentalized Signaling by Small GTPases</b> Chair: <b>Jacqueline Cherfils</b> , CNRS-Ecole Normale Supérieure, Paris-Saclay, France
7:00 PM – 7:30 PM	<b>John Hancock</b> , University of Texas Health Science Center, Houston, TX <i>The K-Ras Plasma Membrane Anchor Encodes a Highly Specific Capacity for Lipid Sorting</i>
7:30 PM – 8:00 PM	<b>Rick Cerione</b> , Cornell University, Ithaca, NY <i>The Emergence of Some Interesting Outcomes of Rho GTPase-Signaling</i>
8:00 PM – 8:15 PM	<b>Nicole Fehrenbacher</b> , New York University School of Medicine, NY <i>The G-Protein Coupled Receptor GPR31 Promotes Membrane Association of K-Ras</i>
8:15 PM – 8:30 PM	Break
8:30 PM – 9:00 PM	<b>Kimberley Tolia</b> , Baylor College of Medicine, Houston, TX <i>Rho GTPase Signaling Controlling Neuronal Development and Plasticity</i>

9:00 PM – 9:15 PM **Mélanie Laurin**, Rockefeller University, New York, NY  
*An In Vivo RNAi Screen Uncovers RhoGTPase Signaling Networks as Key Drivers of Hair Follicle Morphogenesis*

**Thursday, June 15, 2017**

7:30 AM – 11:45 AM Conference Registration

7:30 AM – 9:00 AM Breakfast

**9:00 AM – 11:45 AM** **Session 7: Structural Modes of Regulation of Small GTPases**  
Chair: **Mark Philips**, New York University School of Medicine, NY

9:00 AM – 9:30 AM **Jacqueline Cherfils**, CNRS-Ecole Normale Supérieure, Paris-Saclay, France  
*Allosteric Regulation of GEFs as a Target for Inhibition*

9:30 AM – 9:45 AM **Dhirendra Simanshu**, Frederick National Laboratory for Cancer Research, Frederick, MD  
*Structures of Full-Length KRAS4b in Complex with PDEd Provide Atomic Details of the Hypervariable Region*

9:45 AM – 10:00 AM **Shufen Cao**, Case Western Reserve University, Cleveland, OH  
*Signaling Phospholipids Regulate the Membrane Association of Ras GTPases: Study by NMR, Computational Modeling, Biophysical Assays and Cell Experiments*

10:00 AM – 10:30 AM FASEB-Sponsored Coffee Break

10:30 AM – 11:00 AM **Darerca Owen**, Cambridge University, Cambridge, England  
*Inhibition of Small G Protein Signaling Using Stabilized Peptides*

11:00 AM – 11:30 AM



WWCR sponsored talk:

**Xose Bustelo**, University of Salamanca, Spain  
*Bivalent Roles of Vav Family Exchange Factors in Tumorigenesis*

11:30 AM – 11:45 AM

**Carla Mattos**, Northeastern University, Boston, MA  
*Raf Promotes Dimerization of the Ras G-Domain*

11:45 AM – 1:30 PM

Lunch and Meet the Experts Session

1:30 PM – 2:30 PM	Career Development Workshop; Afternoon Mentoring Session 2 <i>Strategies for writing competitive grant applications</i>
<b><u>3:00 PM – 5:30 PM</u></b>	<b>Session 8: Small GTPases in Cancer, Part II</b> Chair: <b>Carol L. Williams</b> , Medical College of Wisconsin, Milwaukee, WI
3:00 PM – 3:30 PM	<b>Adrienne Cox</b> , University of North Carolina, Chapel Hill, NC <i>Beyond RAF-MEK-ERK: Identifying KRAS Functions and Targetable Effector Pathways in Pancreatic Cancer</i>
3:30 PM – 4:00 PM	<b>Jonathan Chernoff</b> , Fox Chase Cancer Center, Philadelphia, PA <i>Suppression of RAC1P29S-Driven Malignant Melanoma by Group A PAK Inhibitors</i>
4:00 PM – 4:15 PM	<b>Rafael Garcia-Mata</b> , University of Toledo, Toledo, OH <i>Regulation of Invadopodia Disassembly by RhoG</i>
4:15 PM – 4:30 PM	Break
4:30 PM – 5:00 PM	<b>Sharon Campbell</b> , University of North Carolina, Chapel Hill, NC <i>Redox Regulation of Small GTPases: Therapeutic Opportunities</i>
5:00 PM – 5:15 PM	<b>Timothy D Martin</b> , Harvard University Medical School, Boston, MA <i>Identifying KRAS Synthetic Lethal Relationships through CRISPR/Cas9-Mediated Genome Engineering and Genetic Screening</i>
5:15 PM – 5:30 PM	Conference Summary
5:30 PM – 7:00 PM	Dinner
<b><u>Friday, June 16, 2017</u></b>	
7:30 AM – 9:00 AM	Breakfast
7:30 AM – 9:00 AM	Departures