

# KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

## Somatosensation: From Detection to Perception (J8)

Scientific Organizers: Alexander Chesler, Sarah Ross and Daniel O'Connor

Supported by the Directors' Fund

## Pain: Aligning the Target (J7)

Scientific Organizers: Laura M. Bohn, William K. Schmidt and Allan I. Basbaum

February 2-5, 2020 • Keystone Resort • Keystone, CO, USA

Supported by the Directors' Fund

Abstract & Scholarship Deadline: October 17, 2019 / Abstract Deadline: November 22, 2019 / Discounted Registration Deadline: December 4, 2019

### SUNDAY, FEBRUARY 2

#### Arrival and Registration

### MONDAY, FEBRUARY 3

#### Welcome and Keynote Address (J7)

**Irene Tracey**, University of Oxford, UK  
*Brain Imaging of Acute and Chronic Human Pain: From Cause to Perception*

#### Molecules and Cells for Touch, Temperature and Pain (J8)

**Ardem Patapoutian**, The Scripps Research, USA  
*Molecules for Touch*

**Diana Bautista**, University of California, Berkeley, USA  
*Signaling Mechanisms for Mechanosensation and Itch*

**Ellen A. Lumpkin**, Columbia University, USA  
*The Epithelial and Neural Connections Mediating Touch*

**David Julius**, University of California, San Francisco, USA  
*Ion Channels for Temperature and Pain Sensation*

#### Short Talks Chosen from Abstracts

#### Learning from Our Patients (J7)

**Christin Veasley**, Chronic Pain Research Alliance, USA  
*A Patient's Perspective on the Critical Need to Align the Target*

**Lauren Charlotte Heathcote**, Stanford University, USA  
*Pain and Somatic Sensation as Bodily Threat*

**Chas Bountra**, University of Oxford, UK  
*Using Epigenetics to Discover New Pain Targets*

#### Short Talks Chosen from Abstracts

#### NCCIH and BRAIN Funding Opportunities for Circuits Studies (J8)

**Karen K. David**, NINDS, National Institutes of Health, USA

**Merav Sabri**, NCCIH, National Institutes of Health, USA

#### Workshop (J8)

#### Short Talks Chosen from Abstracts

#### Workshop

#### Short Talks Chosen from Abstracts

#### Spinal Cord (J8)

**Patrik Ernfors**, Karolinska Institutet, Sweden  
*The Cellular Basis for Somatosensation and Pain*

**Rebecca Seal**, University of Pittsburgh, USA  
*Cross Species Analysis of the Molecular and Cellular Organization of the Mammalian Dorsal Horn: Functional Implications and Future Directions*

**David D. Ginty**, HHMI/Harvard Medical School, USA  
*Mechanosensory neuron subtypes and the central representation of touch*

#### Short Talks Chosen from Abstracts

#### Developing More Informative Pain Models (J7)

**Allan I. Basbaum**, University of California, San Francisco, USA  
*Preclinical Brain Imaging of Pain Processing and its Regulation*

**Jose Moron-Concepcion**, Washington University School of Medicine, USA

*Dissecting the Neural Circuits Driving Pain-Induced Negative Affect*

**Annemieke Kavelaars**, University of Texas MD Anderson Cancer Center, USA

*Fibroblasts Control Vascular Permeability, Leukocyte Infiltration and Chronic Pain*

#### Short Talks Chosen from Abstracts

#### Poster Session 1

### TUESDAY, FEBRUARY 4

#### Subcortical Circuits (J8)

**Sarah Ross**, University of Pittsburgh, USA  
*Neural Circuits for Itch*

**Alexander Chesler**, National Institutes of Health, USA  
*Cells and Circuits for Touch and Pain*

**Yarimar Carrasquillo**, National Institutes of Health, USA  
*Dialing Pain Up and Down in the Amygdala*

**Fan Wang**, Duke University Medical Center, USA  
*What do the whiskers tell the brain?*

#### Short Talks Chosen from Abstracts

#### New Tech for Managing Pain (J7)

**Robert W. Gereau**, Washington University Pain Center, USA  
*Optogenetic Silencing of Nociceptors*

**Cheryl L. Stucky**<sup>†</sup>, Medical College of Wisconsin, USA  
*Optogenetic Inhibition of CGRP $\alpha$  Sensory Neurons Reveals Their Distinct Roles in Neuropathic and Incisional Pain*

**Karen Wagner**, EicOsis, USA  
*A Novel Target for Analgesia: Small Molecule Inhibition of the Soluble Epoxide Hydrolase*

**Sunyoung Kim**, Helixmith Co., Ltd., South Korea  
*New Concept Regenerative Medicine for Neuropathic Pain Using Plasmid DNA Encoding Human Hepatocyte Growth Factor (HGF), Engensis<sup>®</sup> (VM202): Scientific Basis and Results from Clinical Studies*

#### Short Talks Chosen from Abstracts

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### Panel Discussion: Inclusivity and Diversity in the Field: What Works and How to Do Better (J8)

#### NIH HEAL Initiative and Efforts (J7)

**Amir Tamiz**, National Institute of Neurological Disorders and Stroke, USA

#### Internal States (J8)

**Richard D. Palmiter**, HHMI/University of Washington, USA  
*Parabrachial CGRP-Expressing Neurons Establish and Maintain Threat Memories*

**Jan Siemens**, University of Heidelberg, Germany  
*Deep Brain vs. Ambient Temperature Detection: Who Has the Say in Thermoregulation?*

**Yuki Oka**, California Institute of Technology, USA  
*Neural Mechanisms of Body Fluid Regulation*

#### Short Talks Chosen from Abstracts

#### New Approaches to Modulating Known Targets (J7)

**Wendy L. Imlach**, Monash University, Australia  
*Targeting Spinal Inhibitory Signalling in Neuropathic Pain*

**Laura M. Bohn**, The Scripps Research Institute, USA  
*Using Biased Agonism to Refine Pain Therapeutics*

**Venetia Zachariou**, Icahn School of Medicine at Mount Sinai, USA  
*The "Complex" Role of RGS Proteins in Chronic Pain and Opioid Analgesia*

#### Short Talks Chosen from Abstracts

#### Poster Session 2

### WEDNESDAY, FEBRUARY 5

#### Somatosensory Cortex (J8)

**Carl CH Petersen**, École Polytechnique Fédérale de Lausanne, Switzerland  
*Neural Circuits for Goal-Directed Sensorimotor Transformation*

**Soohyun Lee**, NIMH, National Institutes of Health, USA  
*Functional Connectivity of Diverse Long-Range Inputs to the Primary Somatosensory Cortex*

**Daniel O'Connor**, Johns Hopkins University, USA  
*Neural Circuit Dynamics Underlying Touch Perception*

**James Poulet**, Max-Delbrück-Centrum für Molekulare Medizin, Germany  
*Cortical Circuits of Thermal Perception*

#### Short Talks Chosen from Abstracts

#### New Targets (J7)

**Nikita Gamper**, University of Leeds, UK  
*GABAergic Signaling within Dorsal Root Ganglia*

**Gregory Scherrer**, University of North Carolina at Chapel Hill, USA  
*Neural Circuits and Therapeutics for Pain Unpleasantness*

**Daniela Salvemini**, Saint Louis University, USA  
*Adenosine Receptors Modulating Neuropathic Pain*

**Arthur Christopoulos**, Monash University, Australia  
*Allosteric GPCR Modulators In Pain States: Sculpting Structure To Tune Function*

#### Short Talks Chosen from Abstracts

#### Cortical Processes for Somatosensation (J8)

**Michael Brecht**, Bernstein Center for Computational Neuroscience, Germany  
*Tickling, Self-touch and Mirroring*

**Sliman J. Bensmaia**, University of Chicago, USA  
*The Neural Basis of Touch and Proprioception in Non-Human Primates*

#### Short Talk Chosen from Abstracts

#### Cannabis for Managing Pain? (J7)

**Aron H. Lichtman**, Virginia Commonwealth University, USA  
*Talk Title to be Announced*

**Andrea Hohmann**, Indiana University, USA  
*CB2 Cannabinoid Receptor as a Therapeutic Target*

**David Shurtleff**, NCCIH, National Institutes of Health, USA  
*Natural Products for the Treatment of Chronic Pain*

#### Short Talks Chosen from Abstracts

#### Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (J8)

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### THURSDAY, FEBRUARY 6

#### Departure