

KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

Neuronal Control of Appetite (X5)

Scientific Organizers: Richard B. Simerly, J. Nicholas Betley and Stephanie E. Fulton

Sponsored by Novo Nordisk A/S

Gut-Brain Axis (X6)

Scientific Organizers: Ann Weber, Sarkis Mazmanian and Scott M. Sternson

March 20-23, 2022 • Fairmont Banff Springs • Banff, AB, Canada

Sponsored by AstraZeneca and Regeneron Pharmaceuticals, Inc.

Scholarship Deadline: November 30, 2021 / Abstract Deadline: December 7, 2021 / Discounted Registration Deadline: January 19, 2022

SUNDAY, MARCH 20

Arrival and Registration

MONDAY, MARCH 21

Welcome and Keynote Session (Joint)

David J. Anderson, California Institute of Technology, USA
Neural Mechanisms of Aggression and Defense and of Their Associated Internal States

Charles S. Zuker, HHMI, Columbia University, USA
Overview of Gut-Brain Axis and Experimental Techniques

Vagal Circuits (Joint)

Misha Ahrens, Janelia Farms, USA
Imaging of Gut-Brain Circuits in Zebrafish

Jeffrey M. Friedman, Rockefeller University, USA
Molecular Mechanisms Regulating Feeding and Body Weight

Laura Rupprecht, Duke University, USA
Short Talk: A Gut Cell for Food Reward

Workshop (X6)

Short Talks Chosen from Abstracts

Food Appeal: Neural Circuits Encoding Perception and Value (X5)

Mark L. Andermann, Beth Israel Deaconess Medical Center, USA
Estimation of Current and Future Physiological States in Insular Cortex

Dana M. Small, Yale University School of Medicine, USA
Orosensory Monitors of Food Reward

J. Nicholas Betley, University of Pennsylvania, USA
Converging Pain and Hunger Signals

Stephanie L. Borgland[†], University of Calgary, Canada
Short Talk: Obesity Induced Disinhibition of the Orbitofrontal Cortex Leads to Impairment in Goal Directed Behaviour

Jemma Reztis, Garvan Institute of Medical Research, Australia
Short Talk: Chronic Stress Inhibition of Y1 Neurons in the LHb Overrides Homeostatic Control on Feeding Behavior

Enteroendocrine Cells and Gut Hormone Signaling (X6)

Matheus de Castro Fonseca, Brazilian Biosciences National Laboratory, Brazil
Good Bug or Bad Bug: Calcium Overload and α -Synuclein Aggregation Induced by the Gut Bacterium Akkermansia Muciniphila in EECs

Holly A. Ingraham, University of California, San Francisco, USA
Enterochromaffin Cells: Detection and Transduction of Environmental, Metabolic and Homeostatic Information from the Gut Directly to the Nervous System

Diego V. Bohórquez, Duke University, USA
Transduction of a Sense from Gut to Brain

Short Talks Chosen from Abstracts

Poster Session 1

TUESDAY, MARCH 22

Food Intake and Decision-Making: Networks Promoting Food Intake in the Face of Competing Needs (X5)

Hilke Plassmann, INSEAD, France
Is the Gut-Microbiome-Brain Axis Involved in How We Make Good or Bad Choices?

Giovanni Marsicano, INSERM U1215, France
Top-down Control of Water Intake by the Endocannabinoid System

Sarah Garfinkel, University College London, UK
How Interoception Influences Affective State

Yuki Oka, California Institute of Technology, USA
Regulation of Thirst and Sodium Appetite

Laura L. Kaiser, Pennington Biomedical Research Center, USA
Short Talk: Preoptic Area Leptin Receptor (POALepr) Neurons Mediate Temperature-dependent Food Intake Adaptations via Pro-opiomelanocortin (POMC) Neurons

Mucosal Immune System (X6)

Daniel Mucida, Rockefeller University, USA
Neuro-Immune Communication in the Control of Inflammation in the Gut

Jennifer L. Gommerman, University of Toronto, Canada
Influence of Gut Mucosal Immune System on CNS Autoimmune Responses / Role in Multiple Sclerosis

Patrik Brundin, Van Andel Institute, USA
Role of Gut Inflammation in PD

Speaker to be Announced

Short Talks Chosen from Abstracts

Career Roundtable (Joint)

Diet-Induced Neuroinflammation and Metabolic Circuitry (X5)

Stephanie E. Fulton, University of Montreal, Canada
Neuroimmune Correlates of Diet-Induced Mood Deficits

Staci Bilbo, Duke University, USA
Microglial Signaling and Obesity Susceptibility

Cristina García Cáceres, LMU & Helmholtz Zentrum München GmbH, Germany
Disruption of Astrocyte-Neuron Crosstalk in Obesity

Anzela Niraula, University of Washington, USA
Short Talk: Prostaglandin PGE2 Receptor EP4 Regulates Microglial Phagocytosis and Increases Susceptibility to Diet-induced Obesity

KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

Neuronal Control of Appetite (X5)

Scientific Organizers: Richard B. Simerly, J. Nicholas Betley and Stephanie E. Fulton

Sponsored by Novo Nordisk A/S

Gut-Brain Axis (X6)

Scientific Organizers: Ann Weber, Sarkis Mazmanian and Scott M. Sternson

March 20-23, 2022 • Fairmont Banff Springs • Banff, AB, Canada

Sponsored by AstraZeneca and Regeneron Pharmaceuticals, Inc.

Scholarship Deadline: November 30, 2021 / Abstract Deadline: December 7, 2021 / Discounted Registration Deadline: January 19, 2022

Ashley E. Frakes, National Institutes of Health/ NIDDK, USA
Short Talk: Astrocytes: Cell Non-autonomous Regulators of Metabolic Homeostasis and Longevity

Signaling and the Brain (X6)

Scott M. Sternson, HHMI/University of California, San Diego, USA
Algorhythms for Appetite

Lotte Bjerre Knudsen, Novo Nordisk A/S, Denmark
GLP-1 Signaling in the Brain

Amber L. Alhadeff, Monell Chemical Senses Center, USA
Gut-Brain Influence on Motivated Behavior

Short Talks Chosen from Abstracts

Poster Session 2

WEDNESDAY, MARCH 23

Neurodevelopmental Programming of Feeding Behavior (X5)

Rachel N. Lippert[†], Neurocircuit Development and Function German Institute of Human Nutrition, Germany
Talk Title to be Announced

Marcelo O. Dietrich, Yale University, USA
Ontogeny of Feeding Behavior

Linda Rinaman, Florida State University, USA
Postnatal Plasticity of Vagal Gut-Brain Circuits

Richard B. Simerly, Vanderbilt University, USA
Developmental Neurobiology of Hypothalamic Sensory-Motor Integration

Ayden C. Gouveia, Max Planck Institute for Metabolism Research, Germany
Short Talk: Fat-related Sensory Cues in Early Life Program Central Obese Signatures and Exacerbate Obesity

Roberta Haddad-Tóvolli, IDIBAPS, Spain
Short Talk: Pregnancy Food Craving-like Episodes are Mediated by Accumbal D2R Neurons

Microbiome (X6)

Elaine Y. Hsiao, University of California, Los Angeles, USA
Microbiome Influence on Brain and Behavior

Rosa Krajmalnik-Brown, Biodesign Institute at Arizona State University, USA
Gut Microbiome in Obesity and Autism

John Cryan, University College Cork, Ireland
Interaction between Brain, Gut and Microbiome in Stress and Immune-Related Disorders

Mauro Costa-Mattioli, Baylor College of Medicine, USA
Gut Microbe Control of CNS Driven-Behavior and Brain Function

Short Talks Chosen from Abstracts

Circadian and Environmental Impacts on Metabolism (X5)

Kevin D. Hall, NIDDK, National Institutes of Health, USA
Effects of Diet Composition on Metabolism

John Stuart O'Neill, MRC Laboratory of Molecular Biology, UK
Insulin Signalling Stimulates PERIOD Synthesis to Entrain Circadian Rhythms with Feeding Time

David J. Mangelsdorf, University of Texas Southwestern Medical Center, USA

FGF21 and Alcohol: Eat and Drink, But Don't Get too Merry

Rachel Van Drunen, UTHealth, USA
Short Talk: The Rhythmic Role of the Paraventricular Hypothalamus in Diurnal Energy Balance

Therapeutic Approaches (X6)

***Ann Weber**, Kallyope, USA

Charles Conway, Washington University in St. Louis, USA
Vagal Nerve Stimulation in Depression

Sarkis K. Mazmanian, California Institute of Technology, USA
Microbiome-Based Therapeutics for Autism

Shirly Pinto, Kallyope, USA
Treatment of Metabolic Disorders

Short Talks Chosen from Abstracts

Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (X5)

Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (X6)

THURSDAY, MARCH 24

Departure