



At the Crossroads of Exposures, Microbiome, and the Nervous System

Agenda

September 22-23, 2021

Wednesday, September 22, 2021

- 10:00 a.m. **Welcome**
Anika Dzierlenga, Ph.D.
- 10:05 a.m. **Opening Remarks**
Gwen Collman, Ph.D.
- 10:15 a.m. **Gut Feelings: Microbiome as a Key Regulator of Brain and Behavior Across the Lifespan**
Plenary Speaker - John Cryan, Ph.D. - (Moderator: Anika Dzierlenga, Ph.D.)
- 11:00 a.m. **The Gut Brain Chemical Axis: Gut Microbiome, Genome, and Metabolome Influences**
Plenary Speaker - Rima Kaddurah-Daouk, Ph.D. - (Moderator: Laura Thomas, Ph.D.)
- 11:45 a.m. **Break**
- Noon **Session 1: The Microbiome and Windows of Susceptibility for Neurological Outcomes**
(Moderators: Vicki Sutherland, Ph.D., and Laura Thomas, Ph.D.)
- Noon **Critical Periods in the Establishment of Gut Microbiota During Infancy for Neurodevelopment**
Anita Kozyrskyj, Ph.D.
- 12:15 p.m. **The Developing Microbiome in the Critical Window of Neurodevelopment: The Gut Brain Axis and Relationship With Social and Emotional Development**
Juliette Madan, M.D.
- 12:30 p.m. **Puberty, a Vulnerable Period for Stress-Induced Changes in the Gut Microbiome: A Possible Opportunity for Probiotics**
Nafissa Ismail, Ph.D.
- 12:45 p.m. **Session 1: Question and Answer Period**
- 1:00 p.m. **Session 2: Microbiome as a Mediator in Neurodegeneration**
(Moderators: Jon Hollander, Ph.D., and Igor Shats, Ph.D.)
- 1:00 p.m. **The Microbiome as a Mediator of Environmental-Induced Susceptibility to Parkinson's Disease: Evidence and Mechanisms**
Ali Keshavarzian, M.D.
- 1:15 p.m. **In Search of Triggers and Modifiers of Parkinson's Disease in the Gut**
Haydeh Payami, Ph.D.
- 1:30 p.m. **Microbiome Contributions to Experimental Models of Amyloid Disease**
Timothy Sampson, Ph.D.
- 1:45 p.m. **Session 2: Question and Answer Period**
- 2:00 p.m. **Break**

- 2:30 p.m. **Session 3: Emerging Topics: Novel Tools and Approaches**
(Moderators: Laura Thomas, Ph.D., and Michelle Cora, D.V.M., DACVP)
- 2:30 p.m. **Neuroimaging Provides New Insights into the Infant Microbiome-Gut-Brain Axis**
Rebecca Knickmeyer, Ph.D.
- 2:45 p.m. **Session 3: Question and Answer Period**
- 3:00 p.m. **Breakout Sessions: Microbiome and Neurological Outcomes Across the Lifespan**
(Moderators: Amanda Garton; Jean Harry, Ph.D.; Jason Li, Ph.D.; Manashree Malpe; Alicia Ramsaran; Kristen Ryan, Ph.D.; Laura Thomas, Ph.D.; Paul Wade, Ph.D.; Emily Werder, Ph.D.; Shannah Witche, Ph.D.)
- (Panel Discussants: John Cryan, Ph.D.; Jessica Flannery, Ph.D.; Nafissa Ismail, Ph.D.; Rima Kaddurah-Daouk, Ph.D.; Ali Keshavarzian, M.D.; Anita Kozyrskyj, Ph.D.; Rebecca Knickmeyer, Ph.D.; Juliette Madan, M.D.; Haydeh Payami, Ph.D.; Timothy Sampson, Ph.D.)
- 4:15 p.m. **Adjourn**

Thursday, September 23, 2021

- 10:00 a.m. **Welcome and Day 1 Report Back**
Vicki Sutherland, Ph.D.
- 10:15 a.m. **Early Impacts on the Early Microbiome and Brain: Early Findings**
Plenary Speaker - Maria Gloria Dominguez-Bello, Ph.D. (Moderator- Vicki Sutherland, Ph.D.)
- 11:00 a.m. **Session 4: The Role of Nutrition in the Microbiome-Brain Axis**
(Moderators: Michelle Cora, D.V.M., DACVP, and Anika Dzierlenga, Ph.D.)
- 11:00 a.m. **Individual Variation in Diet Response**
Lawrence David, Ph.D.
- 11:15 a.m. **Parental Dietary Fat Intake Alters Offspring Immunity in Mice via the Microbiome**
Ian Myles, M.D., MPH
- 11:30 a.m. **Dietary and Microbial Connections to Mood and Cognition**
Hannah Holscher, Ph.D., R.D.
- 11:45 p.m. **Session 4: Question and Answer Period**
- Noon **Break**
- 12:15 p.m. **Session 5: Exposures, Microbiome, and Neurological Health Outcomes**
(Moderators: Cindy Lawler, Ph.D., and Jon Hollander, Ph.D.)
- 12:15 p.m. **Pesticides, Parkinson's Disease, and the Microbiome in the California Central Valley**
Beate Ritz, M.D., Ph.D.
- 12:30 p.m. **Developmental Neurotoxicant Exposure and Host-Microbe Interactions**
Melanie Gareau, Ph.D.
- 12:45 p.m. **Combined Prenatal Environmental Exposures Impact Brain, Gut, and Microbiome Development in Mice: Implications for Neurodevelopmental Disorders**
Staci Bilbo, Ph.D.

- 1:00 p.m. **High-Throughput Approaches Can Demystify Exposure-Microbiome-Behavior Interactions**
Thomas Sharpton, Ph.D.
- 1:15 p.m. **Session 5: Question and Answer Period**
- 1:30 p.m. **Break**
- 1:45 p.m. **Breakout Sessions: Impact of Diet and Exposures**
(Moderators: Rachel Dee, Ph.D.; Rachel Frawley; Stavros Garantziotis, M.D.; Dave Goulding, Ph.D.; Heather Henry, Ph.D.; Jon Hollander, Ph.D.; Mimi Huang, Ph.D.; Peer Karmaus, Ph.D.; Cindy Lawler, Ph.D.; Manashree Malpe; Alicia Ramsaran; Igor Shats, Ph.D.; Leroy Worth, Ph.D.)

(Panel Discussants: Staci Bilbo, Ph.D.; Maria Gloria Dominguez-Bello, Ph.D.; Maude David, Ph.D.; Melanie Gareau, Ph.D.; Nafissa Ismail, Ph.D.; Rima Kaddurah-Daouk, Ph.D.; Ali Keshavarzian, Ph.D.; Rosa Krajmalnik-Brown, Ph.D.; Ian Myles, M.D., MPH; Ovokeraye Oduaran, Ph.D.; Haydeh Payami, Ph.D.; Meenakshi Rao, M.D., Ph.D.; Beate Ritz, M.D., Ph.D.; Timothy Sampson, Ph.D.; Thomas Sharpton, Ph.D.; Lawrence David, Ph.D.)
- 3:00 p.m. **Workshop Summary and Wrap-Up**
Anika Dzierlenga, Ph.D.
- 3:30 p.m. **Adjourn**

The NIEHS/NIH Microbiome and Neuroscience Workshop Committee

Anika Dzierlenga, Ph.D., Division of Extramural Research and Training
Vicki Sutherland, Ph.D., National Toxicology Program Division
Laura Thomas, Ph.D., Division of Extramural Research and Training
Michelle Cora, D.V.M., National Toxicology Program Division
Jean Harry, Ph.D., National Toxicology Program Division
Jon Hollander, Ph.D., Division of Extramural Research and Training
Cindy Lawler, Ph.D., Division of Extramural Research and Training
Igor Shats, Ph.D., Intramural Research Division