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WORKSHOP ON NEUROGENETIC TOOLS: USING MOUSE MODELS TO STUDY HUMAN
NEURODEGENERATIVE DISEASE
Monday, April 30 – Friday, May 4, 2018

Course Organizers:
Mike Sasner, Ph.D., The Jackson Laboratory and
Kelly LaRue, Ph.D., The Jackson Laboratory

For more information please contact
Kelly LaRue kelly.larue@jax.org or Erin McDevitt erin.mcdevitt@jax.org

Course Goals

- Participants will be able to describe a diversity of genetic methods and models employed in the study of neuron and circuit function and neurological disease in the mouse.
- Participants will practice laboratory techniques associated with the visualization of genetically expressed markers in the mouse nervous system.
- Participants will be able to navigate bioinformatic tools and databases for neuroscientists.
- Participants will interact with leaders in the field of neurobiology.

All sessions will be in the Highseas Conference Center unless otherwise noted

Monday

Introduction to neurodegenerative disease and The Jackson Laboratory

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| 8:00 | Course overview
Mike Sasner, Ph.D., Research Scientist at The Jackson Laboratory |
| 8:30 | Model validity using CMT
Robert Burgess, Ph.D., Professor at The Jackson Laboratory |
| 9:30 | PNS Disease Models – ALS, SMARD
Gregory Cox, Ph.D., Professor at The Jackson Laboratory |
| 10:30 | Break |
| 11:00 | Models with a purpose: AD variants
Gareth Howell, Ph.D., Professor at The Jackson Laboratory |

12:00 Lunch
1:00 **Parkinson's Disease – Fox models**
Mike Sasner, Ph.D., Research Scientist at The Jackson Laboratory
2:00 End

Tuesday

Resources for neuroscience

8:30 am **Cre driver resources: tools and best practices**
Steve Murray, Ph.D., at The Jackson Laboratory
10:00 **KOMP**
Jim Denegre, Ph.D., KOMP Program Manager, The Jackson Laboratory
10:30 Break
11:00 **Advanced mouse populations**
Elissa Chesler, Ph.D., Associate Professor at The Jackson Laboratory
12:00 pm Lunch
1:00 **Mouse Phenome Database**
Molly Bogue, Ph.D., Research Scientist at The Jackson Laboratory
1:30 End

Wednesday

Genetic tools for neuron function and circuit analysis

8:30 am **GcAMP**
Loren Looger, Ph.D., Group Leader at HHMI Janelia Research campus
9:30 Break
10:00 **Optogenetics**
Loren Looger, Ph.D., Group Leader at HHMI Janelia Research campus
11:00 **Viral vectors**
Ryuta Ishimura, Ph.D., Molecular and Viral Vector Scientist at The Jackson Laboratory
12:00 pm Break
1:00 **Electrophysiology Basics**
Shawn Winter, Ph.D., Neurocircuitry Scientist at The Jackson Laboratory
Location: Education Beehive

2:30 **WORKSHOP: Tissue Clearing**
Doug Richardson, Ph.D., Director of Imaging at Harvard Center for Biological Imaging
Location: GRB Training Lab 3245

3:30 End

Thursday

Genetic analysis

8:30 am **CRISPR**
Bill Buaas, Ph.D., Associate Director of Genetic Engineering Technologies at
The Jackson Laboratory

9:30 **Computational Genomics**
Christoph Preuss, Ph.D., Associate Research Scientist at The Jackson Laboratory

10:30 Break

11:00 **Systems Genetics**
Gregory Carter, Ph.D., Associate Professor at The Jackson Laboratory

12:00 Lunch

1:00 **GeneWeaver**
Jason Bubier, Ph.D., Associate Research Scientist at The Jackson Laboratory

1:30 **Single Cell Genomics**
Paul Robson, Ph.D., Director of Single Cell Biology at The Jackson Laboratory

2:30 Break

3:00 **WORKSHOP: Single Cell Genomic Analysis**
Bill Flynn, Ph.D., Application Computational Scientist at The Jackson Laboratory

4:00 End

Friday

Development of Genetic Disease Models

8:30 am **AMP-AD Knowledge Portal**
Lara Mangravite, Ph.D., Sage Bionetworks

9:30 **Pre-clinical Imaging**
Paul Territo, Ph.D., Professor at Indiana University

- 10:30 Break
- 11:00 **The Science, Art, & Anecdotes of Behavioral Testing: Improving Reproducibility & Translation in Animal Models**
Stacey Rizzo, Ph.D., Associate Director of Mouse Neurobehavioral Phenotyping at The Jackson Laboratory
- 12:00 Lunch
- 1:00 **Pre-clinical Pharmacology – drug discovery and development**
Paul Territo, Ph.D., Professor at Indiana University and
Stacey Rizzo, Ph.D., Associate Director of Mouse Neurobehavioral Phenotyping at The Jackson Laboratory
- 3:00 End