Workshop on Phenotyping Mouse Models of Human Lung Disease
October 4-8, 2021

Monday, October 4th, 2021:  *The Mouse and How We Use It*

8:00am  **Welcome**
Wayne Mitzner, Ph.D., John Hopkins Bloomberg School of Public Health

8:15am  **Mouse Models of Lung Disease**
Wayne Mitzner, Ph.D., John Hopkins Bloomberg School of Public Health

9:15am  **Break**

9:30am  **Normal Mouse Cytology and the Role of Immune Cells in Mouse Models of Lung Disease**
Michael Borchers, Ph.D., Univ of Cincinnati

10:30am  **Introduction to Mouse Ventilation Systems**
Lennart K.A. Lundblad, Ph.D., Meakins-Christie Labs, McGill University

11:30am  **Lunch**

12:30pm  **Mouse Husbandry, Breeding and Genetic Quality Control**
Krista Geister, Ph.D., The Jackson Laboratory

1:30pm  **Travel to GRB Training Lab**

1:45pm  **Hands-on Mouse Techniques: Handling, Restraint & IP Injection**
Kristin Cough, B.S., The Jackson Laboratory

3:15pm  **Sampling Techniques: Cardiac Puncture, Mandibular Blood Collection & Bone Marrow Collection**
Michael Borchers, Ph.D., University of Cincinnati
Jennifer Corrigan, M.S., The Jackson Laboratory
Kristin Cough, B.S., The Jackson Laboratory
Jeffrey Loube, B.S., John Hopkins Bloomberg School of Public Health

4:30pm  **Blood Smears**  
Michael Borchers, Ph.D., University of Cincinnati

5:00pm  Travel to Highseas

6:00pm  Dinner

7:00pm  **Participant Presentations** (Bring a 10 min PowerPoint presentation of your work.)

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**Tuesday, October 5th, 2021:  Assessment of Mouse Lung Function**

8:00am  **Foundations of Lung Function and Assessment with Forced Oscillation**  
Lennart K.A. Lundblad, Ph.D., Meakins-Christie Labs, McGill University

9:00am  **Lung Volumes, Pressure-Volume Curves, and Lung Diffusing Capacity**  
Wayne Mitzner, Ph.D., John Hopkins Bloomberg School of Public Health

9:45am  **Break**

10:00am  **Mouse Lung Intubation**  
Wayne Mitzner, Ph.D., John Hopkins Bloomberg School of Public Health

10:15am  **Introduction to the Flexivent**  
Annette Robichaud, Ph.D., Isabelle Aiken, M.S., and Nicholas Heath, M.S., SCIREQ Scientific Respiratory Equipment Inc.

11:30am  **Lunch**

12:30  Travel to GRB Training Lab

12:45pm  **Tracheostomy**  
Jeffrey Loube, B.S., John Hopkins Bloomberg School of Public Health  
Wayne Mitzner, Ph.D., John Hopkins Bloomberg School of Public Health

1:45pm  **Concurrent Rotating Labs**
  -  **Flexivent: Tracheostomy and Pressure Volume Curves** (½ of class, 2 hrs)  
    Annette Robichaud, Ph.D., Isabelle Aiken, M.S., and Nicholas Heath, M.S., SCIREQ Scientific Respiratory Equipment Inc.  
    Lennart K.A. Lundblad, Ph.D., Meakins-Christie Labs, McGill University
  -  **Sampling Techniques Continued: Lavage & Cover Slipping** (1/2 of class, 2 hrs)  
    Michael Borchers, Ph.D., Univ of Cincinnati

3:30pm  **Rotate Concurrent Labs**
5:15pm  Travel to Highseas
6:00pm  Dinner
7:00pm  Participant Presentations (Bring a 10 min PowerPoint presentation of your work.)

Wednesday, October 6th, 2021:  *Generating and Analyzing Pulmonary Mouse Models*

8:00am  **Introduction to the Light Microscope and Optimizing Image Acquisition**
       Douglas Taatjes, Ph.D., The University of Vermont

9:00am  **Pathology of Mouse Models of Lung Disease**
       Cory Brayton, D.V.M., ACVP, John Hopkins University School of Medicine

10:00am  **Break**

10:15am  **Harvest & Fixation Techniques**
       Wayne Mitzner, Ph.D., John Hopkins Bloomberg School of Public Health

10:45am  **Introduction to Morphometry/Stereology and Sampling as Applied to the Lung**
       Christian Mühlfeld, Ph.D., Hannover Medical School

11:45am  **Lunch**

12:45pm  Travel to GRB Training Lab

1:00pm  **Concurrent Rotating Labs**
   - **FlexiVent Dose Response Curves** (½ of class, 1.5 hrs)
      Annette Robichaud, Ph.D., Isabelle Aiken, M.S., and Nicholas Heath, M.S.,
      SCIREQ Scientific Respiratory Equipment Inc.
      Lennart K.A. Lundblad, Ph.D., Meakins-Christie Labs, McGill University
   - **Intubation & Lung Volume Measurement** (¼ of class, 45 min then switch to Lung
      Harvest & Fixation)
      Wayne Mitzner, Ph.D., John Hopkins Bloomberg School of Public Health
   - **Lung Harvest & Fixation** (¼ of class, 45 min then switch to Intubation &
      Measuring Lung Volume)
      Christian Mühlfeld, Ph.D., Hannover Medical School

2:30pm  **Rotate Concurrent Labs**

4:00pm  **Slide Review** (Bring your questions and fixed slides for analysis)
       **Note: Do NOT bring fresh tissue to The Jackson Laboratory!**
       Cory Brayton, D.V.M., ACVP, John Hopkins University School of Medicine
       Douglas Taatjes, Ph.D., The University of Vermont
Thursday, October 7th, 2021: Quantitative Lung Imaging

8:00am  Considerations for Image Presentation and Imaging Ethics  
Douglas Taatjes, Ph.D., The University of Vermont

9:00am  Practical Exercise in Lung Stereology I: Volume Estimation  
Christian Mühlfeld, Ph.D., Hannover Medical School

10:00am  Break

10:15am  Practical Exercise in Lung Stereology II: Surface Area Estimation  
Christian Mühlfeld, Ph.D., Hannover Medical School

11:15 am  Humanized Mice and Patient Derived Xenografts (PDX)  
Brian Soper, Ph.D., The Jackson Laboratory

12:30 pm  Lunch  (Highseas dining room)

Friday, October 8th, 2021

Departures