

## **2019 Wet Lab Descriptions**

### **#1 Stereotaxic Delivery in Mice**

This workshop will provide basic instruction on how to prepare a mouse for stereotaxic surgery and perform a brain injection. Participants will learn how to operate and understand a Stoelting Just for Mouse Stereotaxic Instrument how to read a Vernier scale, and how to place the mouse in the ear bars and snout clamp properly. Participants will also be instructed on how to expose the skull of the mouse and identify bregma. During the final portion of the workshop, participants will perform a brain injection; they will learn how to position the manipulator arm to specific coordinates, use a micro motor drill to prepare the skull for insertion of the Hamilton syringe needle in order to perform an injection directly into the brain of the mouse.

Time: 8 am – 11:00 am

Maximum number of participants: 8

Instructors: Richard Mills, Stoelting Co.  
Bonnie Lyons, The Jackson Laboratory  
Thomas Perekslis, The Jackson Laboratory  
Andree Lapierre, The Jackson Laboratory

### **#2 Ototox Dosing Techniques in Rats and Mice**

A variety of drugs can affect auditory and/or vestibular function. This workshop will provide guided, hands-on instruction in intra-aural dosing techniques used to evaluate the ototoxicity of compounds. Attendees will perform trans-tympanic and semicircular canal administration in rats and mice and be able to verify dose accuracy post-surgery. All will leave with an enhanced understanding of ear anatomy.

Time: 8 am – 11:00 am

Maximum number of participants allowed: 6

Instructor: Gayle Nugent, Charles River Laboratories  
Janelle Gesaman, Charles River Laboratories

### **#3 Intubation and Ventilation of Rats and Mice**

Effective outcomes in cardiothoracic surgical research in rodents are dependent upon adequate techniques for intubation and mechanical ventilation. This workshop will provide hands-on instruction on rodent intubation and use of rodent ventilators.

Time: 8 am – 11:00 am

Maximum number of participants: 8

Instructor: Brad Gien, Envigo

### **#4 Surgical Implantation of the M11 Device in Ferrets to Collect Blood Pressure, ECG, and Temperature**

Telemetry has become the gold standard of physiologic monitoring due to its ability to monitor numerous physiologic traits without the need for anesthesia or restraint. This decreases stress to the animals, increases the accuracy of the data and allows for a reduction in numbers of animals used and refinement of study design.

Telemetry is used in multiple fields of biomedical research such as basic science, discovery and safety pharmacology. Ferrets are a useful species to study various respiratory diseases and function and cardiovascular data collection is an important addition to these studies. The steps for surgical implantation of this M11 telemetry device will first be demonstrated by an expert telemetry surgeon. Attendees will then have the opportunity to work individually, under the guidance of experienced surgeons to surgically implant devices in ferrets. Each attendee will implant a functional telemetry device so the live, physiologic signals can be viewed in real time. Emphasis will be placed on proper microsurgical technique and appropriate handling of the telemetry device. Prior surgical experience is strongly recommended, but not required. Surgical loupes and light sources or a microscope will be provided.

Time: 8 am – 11:00 am

Maximum number of participants allowed: 4

Instructor(s): Heather Bogie, Data Science International  
Kim Swearingen, Data Science International  
Kathryn Nichols, Data Science International  
Kimberly Holliday-White, Data Science International

## **#5 Non-stereotaxic Targeted Delivery in Rats**

The rat is a widely used model in surgical and toxicological research due to small size and physiology similar to humans. Non-stereotaxic dosing enables the surgeon to target a number of tissues without the cost and complexity of using stereotaxic equipment. Skill is necessary to accurately and consistently dose the intended target. This workshop will provide guided, hands-on instruction in injecting the kidney, prostate, urethral sphincter, Achille's tendon, myocardium and left ventricle of the heart. Attendees will learn to utilize appropriate equipment and techniques to overcome challenges of non-stereotaxic dosing in a small animal model.

Time: 1 pm – 4:00 pm

Maximum number of participants allowed: 8

Instructor: Gayle Nugent, Charles River Laboratories  
Janelle Gesaman, Charles River Laboratories

## **# 6 Intravitreal and Subretinal Dosing in Rats**

This workshop will provide information and instruction on intravitreal and subretinal injections in rodents via a posterior trans-scleral approach. Participants will be provided with a list of necessary instruments and equipment, as well as instructional diagrams for each procedure. Direct supervision and instruction will be provided during the hands-on portion of the workshop, in which each participant will have the opportunity to perform multiple intravitreal and subretinal injections in rats. Preparation of the eye for injection, placement of the lens for visualization, and tissue and needle handling during the injection will be covered. Only rats will be utilized for the laboratory, with methods covered being directly translatable to mice with additional practice.

Time: 8 am – 11:00 am

Maximum number of participants: 6

Time: 1 pm – 4:00 pm

Maximum number of participants allowed: 6

Instructor(s): Dr. Ryan Boyd, Charles River Laboratories

## **#7 Myocardial Infarction in a Rat Model**

The induction of myocardial infarction in animal models is becoming increasingly important in research. This workshop provides an opportunity to create myocardial infarction in the rat model while receiving hands-on instruction from surgeons very experienced in this procedure.

Time: 1 pm – 4:00 pm

Maximum number of participants allowed: 8

Instructor: Brad Gien, Envigo

## **#8 Surgical Implantation of the M11 Device in Ferrets to Collect Blood Pressure, ECG, and Temperature**

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Time: 1 pm – 4:00 pm

Maximum number of participants allowed: 4

Instructor(s): Heather Bogie, Data Science International  
Kim Swearingen, Data Science International  
Kathryn Nichols, Data Science International  
Kimberly Holliday-White, Data Science International

## **2019 Dry Lab Descriptions**

### **#1 Introduction to Large Animal Stereotaxic Surgery**

This hands-on laboratory experience will introduce attendees to stereotaxic procedures and the equipment necessary to conduct stereotaxic surgery in large animal species. Canine and non-human primate skull models will be utilized to describe the basic techniques and nuances of performing stereotaxic surgical approaches commonly used in an academic or research setting. Attendees will have the opportunity to familiarize themselves with use of the stereotaxic frame and will be provided with an overview of various modalities to allow for successful targeting of common stereotaxic targets and cartography (e.g. lateral ventricle, putamen, caudate, hippocampus).

Time: Thursday, 10:30-12:00

Maximum number of participants allowed: 6

Instructor: Eric Adams, Northern Biomedical

### **#2 Reading the Brain Atlas**

Dry lab objectives

- Brain atlas
- How to read a Vernier scale and use with the brain atlas
- Different types of stereotaxic systems available. (e.g., digital, motorized, etc.)
- Required and optional tools and accessories needed for stereotaxic surgery
- Gas anesthesia options

Total time: 30-60 min

### **#3 Advanced Suturing Lab**

Details TBA