



Introduction to Anesthesia of the Laboratory Rodent (RA)

Hands-on Laboratory

This lab includes:

- **Overview of Effects of Anesthesia on Rodents**
 - Discussion of the effects of anesthesia on the physiology of rodents (i.e. what to expect in an anesthetized rodent).
- **Review of the Planes of Anesthesia**
 - Discussion of the planes of anesthesia and how to recognize the different stages by observing and testing the reflexes of the animal. Emphasis will be placed on determining the correct stage of anesthesia in which surgery can occur.
- **Overview Of Monitoring and Supportive Care of Anesthetized Rodents**
 - Discussion and demonstration of the types of monitoring and supportive care anesthetized rodents require in order to maintain stable physiology.
 - Discussion of the various types of monitoring and supportive equipment available for rodents
- **Overview of Isoflurane anesthesia**
 - Discussion of the pros and cons of isoflurane anesthesia and its effects on the physiology of the animal
 - Discussion of safe handling of isoflurane and prevention of exposure to waste anesthetic gases
 - Introduction to an isoflurane vaporizer and how it functions (including some trouble shooting of the most common problems)
- **Demonstration of the safe operation of an isoflurane vaporizer to anesthetize a rodent**
 - Trainers will demonstrate how to safely use an isoflurane vaporizer to anesthetize a rodent while safely scavenging waste anesthetic gases and how to maintain and adjust the anesthetic depth
 - Trouble-shooting of an isoflurane vaporizer (by following the flow of the gases) will be discussed.
- **Hands on use of isoflurane vaporizer, monitoring and supportive care of anesthetized rodents**



- Students will ensure that an isoflurane vaporizer is set up properly, fill the vaporizer using a key fill adaptor and safely anesthetize a rodent using isoflurane (while safely scavenging waste anesthetic gases).
- The student will monitor their animal for loss of reflexes, determine if and when the animal has become surgically anesthetized, provide supportive care, and monitor the physiological status (heart rate, respiratory rate, temperature, oxygen saturation) of the anesthetized animal.
- Discussion of the most common challenges of using inhalant anesthetics and trouble-shooting problems (i.e.: animal is too deeply anesthetized or not anesthetized enough) will also be covered.
- Post-anesthesia supportive care and monitoring of animals anesthetized with inhalant anesthetics will also be discussed.
- **Overview of Injectable Anesthetics**
 - Discussion of the effects of the more commonly used recovery injectable anesthetics in rodents and their effect on the animal's physiology
 - Discussion of the pros and cons of injectable anesthetics
- **Review of humane handling, restraint and injections of rodents (mice or rats)**
 - Demonstration of the proper handling, restraint and injection of rodents
 - Discussion and demonstration of the proper way to calculate the volumes of the anesthetic drugs, aseptically draw the drugs into a syringe and proper mixing of drugs
- **Hands on handling, restraint and injection of anesthetics and analgesics**
 - Students will be provided with the doses of anesthetic drugs to be given and will calculate the correct volume to administer, choose the correct needle size and syringe to use, aseptically draw up the drugs from a vial, mix compatible drugs into one syringe (if applicable) +/- administer the drugs to the animal.
- **Hands on monitoring and supportive care of anesthetized rodents**
 - Students will monitor their animal for loss of reflexes, determine if and when the animal has become surgically anesthetized, provide supportive care, and monitor the physiological status (heart rate, respiratory rate, temperature, oxygen saturation) of the anesthetized animal.
 - Discussion of the most common challenges of using injectable anesthetics and trouble-shooting problems (i.e.: animal is too deeply anesthetized or not anesthetized enough) will also be covered.
 - Post-anesthesia supportive care and monitoring of animals anesthetized with injectable anesthetics will also be discussed.