



ANIMAL TRACKS

A newsletter for the Duke research community



March 2009

<http://vetmed.duhs.duke.edu>

ARRA and Duke Animal Research Opportunities

The recent American Recovery and Reinvestment Act of 2009 (ARRA) has provided an unprecedented level of funding (\$8.2 billion in extramural funding) to the NIH. While NIH Institutes and Centers have broad flexibility to invest in many types of grant programs, they will follow the spirit of the ARRA by funding projects that will stimulate the economy, create or retain jobs, and have the potential for making scientific progress in 2 years. Specially, the NIH expects to:

- Select recently peer reviewed highly meritorious research grant applications (R01s and others), that can be accomplished in 2 years or less.
- Fund new research applications.
- Accelerate the tempo of ongoing science through targeted supplements to current grants.
- Support new activities such as the NIH Challenge Grant program that meet the goals of the ARRA.
- Use other funding mechanisms as appropriate.

The ARRA also provides \$1 billion to the National Center for Research Resources (NCRR) to support extramural construction, repairs, and alterations in support of all NIH funded research institutions; and \$300 million for shared instrumentation and other capital equipment to support all NIH activities.

This is a special opportunity for your research, but to be successful you must be aware of certain procedural criteria:

- Federal grants require verification that all animal procedures described in your NIH application have been approved by the IACUC. This verification process, called a 'concordance review,' is a side-by-side comparison of the animal activities described in the grant and the animal protocol.
- Concordance reviews are performed by the Duke IACUC as quickly as possible, and depending upon how complicated or extensive the grant and protocol, are generally completed within 24 hours. This is a critical time frame, as Just-In-Time (JIT) request from the NIH require a concordance response within 72 hours!
- The IACUC requires a copy of the grant (sans biosketches and financial information) to perform the concordance review. It is preferred that the copy be electronic, and submitted to the IACUC's email address: IACUC@DUKE.EDU

You can smooth the concordance process by considering the following steps:

- **Existing protocols:** Review your grant and protocol to confirm all grant activities are in an approved protocol. All grant activities, even those that would occur after the 3 year expiration of the protocol or activities which will occur at collaborating institutions, MUST be included in the Duke approved protocol. If any activities in the grant are not covered in an approved protocol, the submit a protocol amendment to match the grant and protocol.
- **New protocols:** Submit a copy of the grant that the same time the new protocol is submitted. The IACUC can perform the protocol and grant concordance review at the same time, and will provide a single letter showing IACUC approval AND grant concordance. Use the IACUC's email address IACUC@DUKE.EDU for all document submission.

While we have all been in a time of great challenges, the ARRA offers a parallel great opportunity. Duke has a long history of top funding with the NIH, and this opportunity presents real opportunity for income to the institution and your research endeavors!

If you have questions regarding this process you may wish to discuss the matter with:

- The IACUC Chair, Dr. James Reynolds; his email is reyno010@mc.duke.edu;
- The IACUC Vice-Chair, Dr. Laura Hale; her email is hale0004@mc.duke.edu;
- Or contact me at the Office of Animal Welfare Assurance (Ph: 684.4744; Em: ron.banks@duke.edu).

Wishing you a successful and productive research week,

Upcoming Dates & Deadlines

March 23	Significant Change Deadline
March 26	New Protocol Meeting
April 2	Amendment Meeting
April 6	New Protocol Deadline
April 6	Amendment Deadline
April 16	Amendment Meeting

Deadlines are 5 PM on the date listed!

(Continued in next column)

Euthanasia of Neonatal Rats with Carbon Dioxide

Ed Note: The full article can be found in JAALAS, Vol. 48/No.1/Jan 09
Author: Kathleen R. Pritchett-Corning, Charles River Labs

Exposure to CO₂ is a common method used to euthanize rodents. In this published study, the researchers determined the length of CO₂ exposure required to euthanize neonatal rats (0 to 10 days old). Time to death varied inversely with the age of the animals, requiring as long as 35 minutes on the day of birth. The time to death decreased steadily with increasing age. The time required for 100% mortality decreased an average of 3 minutes per day between days 0 and 10.

Time to death did not differ between inbred or outbred animals. Rats of both sexes were equally resistant / susceptible to CO₂. All neonatal animals appeared to be unconscious within 60 seconds of exposure to CO₂.

When animals recovered after CO₂ exposure, the pups that recovered appeared dead at the beginning of the recovery period, with no respiration or detectable heartbeat. Recovery occurred as long as 10 minutes after removal from CO₂ exposure in 0 – 4 day old rats.

This work confirms that neonatal rats euthanized with CO₂ take substantially longer to die than adult animals. The mechanism of action for this 'resistance' to CO₂ (resistance to hypercarbia and hypoxia) is retention of embryonic hemoglobin for up to 18 days after birth.

This research report confirms the Duke IACUC's position that neonatal rodents cannot be effectively euthanized by CO₂! The Duke animal program policy on euthanasia of neonatal rodents is:

- Birth through 14 days of age:
 - Options:
 - An overdose of chemical agents such as pentobarbital; or
 - Decapitation
 - NOTE: Cervical dislocation IS NOT approved for neonatal rodents!
 - Sedation: Hypothermia (cooling the neonate by placement on a gauze sponge laying on crushed ice), Isoflurane, or CO₂ may be used prior to decapitation for 'sedation' of the neonate.
- 15 days of age through adult:
 - CO₂ may be used, but always use a secondary physical method (bilateral thoracotomy, decapitation, exsanguination, organ removal) to assure euthanasia!

The key point in a discussion of euthanasia of rodents is prevention of recovery from euthanasia. **According to the NIH, recovery from euthanasia is a federal reportable adverse event. None of us want that outcome.**

UPCOMING BROWN BAG SEMINARS

Monday, March 23, 2009: Surgical instrumentation, sterilization and care; Anesthesia equipment, operation, maintenance and monitoring: This seminar is being presented by representatives from VWR Scientific and Miltex Vet Equip. The presenters will discuss proper selection and use of surgical instrumentation for research animal surgeries, effective methods to sterilize surgical equipment, and procedures to maintain your anesthesia equipment. This one-hour seminar is held in the Bryan Research Building Auditorium, and will begin promptly at noon. Soft drinks and snacks are provided.

Tuesday, March 24, 2009: JAX Laboratories Mouse Seminar: This seminar is a SPECIAL SEMINAR for the Duke research community. This seminar is virtually the same as the seminar being provided by JAX in Atlanta in June ... except you pay \$350.00 for that seminar and this seminar at Duke cost you nothing! Obviously we are receiving top notch training without spending resource dollars for travel or lodging See Page 3 for details of the paid June seminar).

This all day seminar (8:00 AM—4:45 PM) will review the following topic areas: Reproductive Biology of the Mouse; Mouse Nomenclature, Genetic Background Effects and the Importance of Genetic Stability; Colony Management and Breeding Strategies; Immunodeficient Models in Cancer Research; and Finding Mouse Models Using the JAX Mice Database. This seminar REQUIRES PRE-REGISTRATION for you to attend. Contact Bill Wade (668.6720) for registration details.

Friday, April 17, 2009: Rodent Caging Systems; Static Micro-Isolators to Individually Ventilated Cages and Containment Systems: This seminar is being hosted by Allentown Caging Incorporated and will feature Mr. Mike Sidelsky and Mr. Scott Hoy. These gentlemen will review the choice of caging systems available to the research community, highlighting the advantages of disadvantages of each. Their discussion will center on housing systems at Duke and how researchers can maximize their research outcomes by efficient use of the caging systems. The one-hour seminar will be held in the Bryan Research Building Auditorium and will begin promptly at noon. Soft drinks and snacks are provided.

An Updated Bibliography “Information Resources on the Care and Welfare of Dogs”

An updated bibliography “Information Resources on the Care and Welfare of Dogs” has just been added to the USDA Animal Welfare Information Center website:

<http://nal.usda.gov/awic/pubs/dogs/dogs.shtml>

This publication updates and expands Animal Welfare Information Center (AWIC) publication Housing, Husbandry, and Welfare of the Dog Quick Bibliography series, QB 97-08. The current publication is divided into three major sections: Introduction, Bibliography, and Website Resources. The introduction was written by Robert Hubrecht, PhD., Deputy (Scientific) Director, for the Universities Federation for Animal Welfare (UFAW), United Kingdom. Dr. Hubrecht is one of the world’s leading experts on animal welfare and husbandry issues concerning the use of dogs in research settings.

Jackson Laboratory Course: Colony Management, Principles, & Practices

Registration is open for The Jackson Laboratory course: Colony Management: Principles and Practices at Emory University, Atlanta, Georgia, June 11-13, 2009.

This course provides training in the theory and practice of maintaining mouse colonies for production and research. This program is designed for scientists, colony managers, animal care technicians and students requiring an understanding of issues relating to the management of animal research and production colonies. Topics include: Mouse genetics and strain nomenclature, breeding strategies, strain effects, reproductive biology of the laboratory mouse, assisted reproductive technologies, cryopreservation, colony health, importation, managing disease outbreaks, production colony construction and maintenance, nutrition, genetic quality control and JAX colony management system computer software.

Registration fee is \$350.00; a discounted room block is available.

For additional information, visit our web site at http://courses.jax.org/2009/colony_emory.html or contact Barbara Donovan at 207-288-6803, or at barara.donovan@jax.org.

Evaluation of Tail Biopsy Collection in Laboratory Mice (Mus musculus)

In the November issue of Journal of the American Association of Laboratory Animal Science (JAALAS), Drs. Hankenson et al report findings supportive of anesthesia for tail tissue collection in mice 17 days of age or older.

The research team evaluated vertebral development, DNA content, and acute behavioral responses at different ages by harvesting tail biopsies of different lengths. The team considered laboratory mice from 5 inbred strains and 1 out bred stock at each of 12 ages (3 to 42 d of age). Biopsies of 5-, 10-, and 15-mm lengths were obtained and vertebrae graded according to level of ossification. Researchers were not able to identify ossified end plates in any animal within the distal 2mm of tail prior to 21 days of age.

Acute behavioral responses to biopsy varied by age and strain, and these differences were associated with vertebral maturation. Vertebral development progressed most rapidly in C57BL/6 mice, which also demonstrated the highest response rate to biopsy, whereas BALB/c mice had slower vertebral development.

In light of this paper, the Duke IACUC reconsidered its existing policy for tail snipping in mice. The Committee concluded that the present policy was consistent with the outcome recommendations of the published study (except that the paper recommended anesthesia after day 17 and the Duke policy requires anesthesia after day 21). The IACUC determined that the present criteria (21 days) was a more clear milestone than 17 days, and would result in enhanced compliance.

The publication also supported the IACUC’s policy position that the minimum amount of tail tissues necessary should be obtained; 2mm if possible, but not to exceed 5 mm.

For more information on the Duke policy for tail snipping, visit the animal program web site.

Importing Mammals and Mammal Materials For Laboratory/ Research Purposes

Principle Investigators who plan to import into the United States, mammals or materials derived from mammals should be aware of the requirements for importation. There are specific regulations that govern these practices and often permits are required to carry this out. A brief outline is provided. Additional information can be found on the OAWA web site.

If the Import Is:

Then:

African rodents, bats, cats, civets, dogs, NHPs

CDC import permit will be required

Any animal, agent, host, or vector of infectious agent
Suspected to cause disease in humans

CDC import permit will be required

An animal that has been inoculated or exposed to
livestock or poultry disease agents

USDA-APHIS import permit is required

Any animal from a laboratory known to work with
exotic (not common to USA) viruses

USDA-APHIS import permit is required

Rodents, ferrets, rabbits, transgenic animals, knockouts
IMPORTED FOR RESEARCH PURPOSED AND
TRANSPORTED **WITH** DOCUMENTATION

No import permit required

Rodents, ferrets, rabbits, transgenic animals, knockouts
IMPORTED FOR RESEARCH PURPOSED AND
TRANSPORTED **WITHOUT** DOCUMENTATION

USDA-APHIS import permit is required

Blood fractions (albumin, antibodies, anti-sera, clotting
factors, RBC, WBC, plasma or whole blood
IMPORTED FOR RESEARCH PURPOSED AND
TRANSPORTED **WITH** DOCUMENTATION

No import permits required

Blood fractions (albumin, antibodies, antis era, clotting
factors, RBC, WBC, plasma or whole blood
IMPORTED FOR RESEARCH PURPOSED AND
TRANSPORTED **WITHOUT** DOCUMENTATION

USDA-APHIS import permit is required

DNA, enzymes, extracts, feces, fluids, hormones, peptides
peptides, RNA, semen or tissue
IMPORTED FOR RESEARCH PURPOSED AND
TRANSPORTED **WITH** DOCUMENTATION

No import permits required

DNA, enzymes, extracts, feces, fluids, hormones, peptides
peptides, RNA, semen or tissue
IMPORTED FOR RESEARCH PURPOSED AND
TRANSPORTED **WITHOUT** DOCUMENTATION

USDA-APHIS import permit is required



Duke Animal Care & Use Program Brown Bag Seminar

Monday, March 23rd, 2009

Noon – 1 p.m.

Bryan Research Building: Room 103

Tracy Sterling – Miltex Inc.

Bob Schrock – VetEquip Inc.

Keith Lewis – VWR International

Earl Simpson – WWR International

Will be presenting:

- *How to determine the best instrument quality for surgery
- *Different grades of stainless steel
- *How to properly clean, lubricate and sterilize instruments
- *Inhalation anesthesia 101
- *The basic anesthesia system
- *Modern anesthesia systems
- *Waste gas pollution control
- *Overview of VWR's capabilities at Duke University
- *VWR's LAS program

The presentation will be on **Monday, March 23rd, 2009 from noon to 1 p.m.**

The session will be held in room **103 of the Bryan Research Building**, located at 421 Research Drive, on Duke University's West Campus.

Attendees are encouraged to bring a lunch. OAWA will provide drinks and desserts.

Please plan on arriving prior to noon in order to get refreshments, sign in, and be seated.

For those who will be coming from off campus, driving directions and parking information can be found at the following link: <http://neuro.duke.edu/Links/map.htm>

This session will count for 1 CEU of AALAS In-house Training Credit



Duke Animal Care & Use Program Brown Bag Seminar

Tuesday, March 24TH, 2009
8:30 a.m. – 1 p.m.
Hock Plaza Auditorium (basement)

Rebekah Harden and staff from
The Jackson Laboratories

Will be presenting:

8:30 – 9:30 AM: Making Sense of Mouse Nomenclature, Genetic Background Effects and Importance of Genetic Stability.

9:30 – 9:45 AM: Finding JAX mice

9:45 – 10:45 AM: Mouse Colony Management and Breeding Schemes

10:45 – 11:00 AM: BREAK

11:00 – Noon: Reproductive Biology of the Mouse

Noon – 1:00 PM: Modeling Human Disease in Immunodeficient Mice

Jackson Labs has requested that Duke staff interested in attending please sign up at the web link listed below. Lunch will be provided by Jackson Labs.

<http://jaxmice.jax.org/affiliates/event/duke2009.html>

The presentation will be on **Tuesday, March 24th, 2009 from 8:30 a.m. to 1 p.m.**

The session will be held in the **Hock Plaza Auditorium**, located in the basement floor at 2424 Erwin Road, on Duke University's West Campus.

Please plan on arriving on time or early in order to sign in, and be seated.

For those who will be coming from off campus, driving directions and parking information can be found at the following link: <http://neuro.duke.edu/Links/map.htm>

This session will count for 1 CEU of AALAS In-house Training Credit