Pre-review of a Protocol by Your PACUC Representative

Most departments at Purdue that use vertebrate animals in research, teaching, or testing have a faculty member or senior researcher that is a member of the Purdue Animal Care and Use Committee. These individuals represent your department or school on PACUC and serve as an important resource for other members of the committee on topics that protocol applications from your areas may cover.

These individuals are also a valuable resource for you, as a principal investigator, to utilize when writing your protocol applications. They are available to pre-review your protocol (s) to ensure that the form includes all of the information that the committee needs to properly review it;

(e.g., literature search performed appropriately, justification for the number of animals requested, well described study design, appropriate surgical explanation, humane endpoints, and euthanasia criteria).

I encourage you to route your protocol application through your representative prior to submitting it to the PACUC office. This ultimately will allow for a more expedient review by the committee as many of the questions/concerns may be eliminated prior to the application being sent to the PACUC office.

To determine who your representative is on PACUC, please contact the PACUC office at 49-49163 for assistance.

Lisa Snider
PACUC Administrator

From the AALAS Website (American Association for Laboratory Animal Science)

The 59th AALAS National Meeting will be held in Indianapolis November 9-13, 2008. The AALAS National Meeting is the largest gathering in the world of professionals concerned with the production, care, and use of laboratory animals. Each fall since 1950, the American Association for Laboratory Animal Science has held its annual National Meeting. During the five days of the meeting, members and nonmembers come together to enjoy the workshops, lectures, poster sessions, and exhibits. The program is designed to have topics relevant to the entire membership. Exhibitors have an opportunity to interact with AALAS members from the academic community, research institutions, government organizations, and commercial companies.

For this 59th meeting, the Program Committee is continuing the special themed forum initiated last year in Charlotte, NC. The theme for the 2008 National Meeting in Indianapolis, IN will be Neurobehavioral Sciences Forum.

Information regarding the meeting can be found at the AAALAS website: http://nationalmeeting.aalas.org/default.asp

With the meeting being held in Indianapolis, it will present a unique opportunity for Purdue animal care and research staff to attend this meeting. Start checking out your options / making your plans to attend!

William Ferner
Laboratory Animal Program
Mice (*Mus musculus*)

The mouse was first domesticated several hundred years ago by mouse fanciers who bred mutants with various colored hair coats. Derived from these mice in the early 1900's was the albino laboratory mouse. Today, there is a wide variety of inbred and transgenic mice that are prominent models for human diseases such as diabetes, cancer, and muscular dystrophy.

**Basic Biological Information**

- Life span: 2 – 2 1/2 years
- Adult body weight: 20 – 40 grams
- Newborn: 5 grams
- Sexual maturity: 6 – 9 weeks
- Estrous cycle: 4 – 5 days
- Gestation: 19 – 21 days
- Litter size: 6 – 12 pups
- Weaning age: 21 days
- Adult daily food intake: 5 – 10 grams

**Handling**

Mice will bite and care must be taken to avoid being bitten. Prior to picking up a mouse, the individual should be careful not to startle the mouse. Unlike rats, stroking the back of the animal is not helpful in calming the mouse, and may result in the mouse running around the cage or turning to bite. A mouse may be picked up by grasping it at the base of the tail; (close to the body), and placing it into a cupped hand or allowing it to grasp the cage top, etc.

**Diseases**

Mice are hardy animals, but they may become ill due to viral, bacterial, or parasitic infections. Whenever possible, obtain mice from sources that have stock with a known history of being disease free. Ill mice will usually have a rough hair coat and may lose weight. Mice, like other animals and humans, may have the diseases more common to old age such as cancer and arthritis.

General signs of illness in mice are a hunched posture, decreased activity, and a rough hair coat. Signs associated with respiratory infections include a nasal discharge, sniffing, and labored breathing. Infections of the intestinal tract are infrequent but can cause diarrhea. Mice infested with fur mites may have sufficient itching resulting in scratches or self-inflicted bite wounds.

Mice housed in groups will commonly develop a hierarchy of dominance that may lead to fighting and "barbering." Barbering is biting the fur off specific areas of the subordinate animal, often on the head or muzzle, giving the appearance that the mouse has been shaved. The problem is more likely to occur when males are group-housed. Placing environmental enrichment or toys in the cage can help reduce or eliminate barbering. Removing the animal from the cage that has not been barbered is your best bet of eliminating further problems. (Pictures represent typical barbering; obtained from *Biomedical Methodology for Laboratory Mice, and Dermatologic Diseases*).

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Malocclusion

Incisor teeth grow continuously throughout the rodent's life and teeth that grow too long will interfere with an animal's ability to eat. This problem is common in rodent colonies, especially in colonies of transgenic mice. Husbandry technicians and students should be taught to check the teeth of any animal that appears thin or smaller than its cage mates, or any animal with known history of malocclusion. Periodically trimming the teeth with scissors is a temporary cure for the problem. Teeth that have been trimmed will be sensitive for a few days and the animal should be offered soft food to encourage continued eating. Due to the hereditary nature of the malocclusion, breeding animals with this condition should be considered carefully.

Rodents are especially prone to malocclusion, since their open-rooted incisors continue to grow throughout life. The tooth enamel of rodents is very hard and often orange-yellow due to the incorporation of iron-containing pigments. In the wild, rodent teeth wear naturally through the consumption of hard food-stuffs and gnawing behavior. In the laboratory, these conditions are mimicked by providing the animals with rodent chow formulated to be hard enough to wear the teeth.

The mouse incisor is comprised mainly of dentin, with enamel formed only on the labial surface of the tooth. As the tooth wears, the pulp cells produce more dentin so that the pulp of the tooth, where the nerves reside, is never exposed. Eruption of the incisors in young mice occurs between days 10-12 of age. In mice, the normal rate of eruption (which equals the rate of wear, so that the incisors remain a constant size in adult mice) is approximately 2mm/week for the upper incisors and 2.8mm/week for the lower incisors. This results in a turnover of the entire tooth in 35-45 days. If teeth are damaged, the rate of growth may increase.

Carol Dowell
Training Coordinator
**Introduction to Handling, Restraint and Injection Techniques in the Rat and Mouse.**

I will be offering 5 training workshops with a maximum of 5 participants in each session.

This 2.5 hour hands-on workshop is designed to introduce the student to the basic techniques of handling and restraint in the laboratory rat and mouse. Students will also be introduced to basic injection, blood collection, and oral dosing techniques. Prior to learning techniques utilizing the needle and syringe, we will cover sharps safety, disposal, and aseptic use of the hypodermic needle. Students will learn the proper handling technique to increase their chance of quality blood sampling of their animal.

**This workshop is designed for the beginner whom has little to no rodent or clinical experience.**

**Preliminary agenda:**
- Normal behavior
- Enrichment
- Handling and restraint
- Oral dosing (gavage)
- Needle/syringe safety
- Syringe handling
- Injections — IP, SQ, IM, ID, +/-IV
- Blood collection
  - Tail, lateral saphenous, (mandibular in mice)

**Workshop dates are filled on a first-come, first-serve basis.**

Location for the following workshops – AHF 1137

1. Monday September 15, 2008 from 8:30 – 11am. *(FULL)*
2. Tuesday October 14, 2008 from 8:30 – 11am.
3. Wednesday October 29, 2008 from 8:30 – 11am.
4. Thursday November 6, 2008 from 8:30 – 11am.
   
   Friday November 14, 2008 from 8:30 – 11am.

If you are interested in participating in this workshop, please complete the enrollment form *(which is attached to the email that brought you this newsletter)* indicating which date you would like to attend, or contact Carol Dowell at dowellc@purdue.edu or 494-2521.
Justification for withholding analgesia

When the American Association for the Assessment and Accreditation of Laboratory Animal Care (AAALAC) visited the University last fall, one item of concern expressed by the site visit team was that in some protocols there was inadequate justification for the withholding of analgesia. The treatment of pain and distress in animals in experimental studies is of the utmost importance for investigators. It should be recognized by investigators that anything which might be thought to cause pain in humans would be expected to do so in animals. It must also be realized that an animal in pain is in distress and is not a normal animal, and so the pain itself may be important in interfering with the interpretation of experimental results. Even in the development and use of experimental animal models for human disease, it should be remembered that it is unlikely that humans with that disease would not be administered some form of analgesia.

There are two factors to consider. One of these is the recognition of the animal being in pain or distress and the second is considering what possible treatment options are available for relief of the pain. The signs of pain in experimental animals may be species specific, e.g. vocalization, writhing, withdrawal or evasive behavior, posture, grooming, response to handling, immobility, feeding behavior, and abnormal appearance. There are a number of approaches which can be used to treat the pain depending upon its severity. Again, these may be species specific with the doses of therapeutic agents also being dependent upon the severity of the pain and the need to have these drugs be effective with minimal adverse reactions. Analgesic agents may be used pre-, intra-, or post-operatively. In addition to the traditional opioid and non-opioid analgesics such as the non-steroidal anti-inflammatory drugs (NSAIDS), there are newer agents available. There are also pharmacological agents, such as anxiolytics and sedatives which, while themselves are not analgesics, may be useful in a comprehensive approach to the treatment of pain. It is also important to recognize that the monitoring for pain and distress, including the need for continued treatment with analgesics, must be both realistic (e.g., if eating and drinking are endpoints, food and water intake must be carefully measured and recorded) and extend for a sufficient time until the pain no longer occurs or the animal is euthanized.

There are resources listed on the PACUC website that may provide useful information with respect to both the recognition and grading of the severity of pain as well as alternative treatments. Of particular interest are the National Research Council report on Recognition and Alleviation of Pain and Distress in Laboratory Animals (2008), the Cornell University website, the Guide for the Care and Use of Laboratory Animals, Humane Endpoints in Animal Experiments, the Canadian Counsel on Animal Care, and the Animal Welfare Information Center. The veterinarians in the Laboratory Animal Program are also available to assist with suggestions on appropriate medications based on species and procedure.

In the future, investigators who request that they be able to withhold treatment with analgesics following surgery, experimental procedure to produce inflammation, or other painful procedures will need to clearly justify the lack of any form of analgesia. The simple explanation that analgesics may interfere with the study will not suffice for PACUC approval of the protocol.

Gary P. Carlson, Ph.D.
PACUC Chair
The orientation program for new faculty, staff, and students, who will be using vertebrate animals in research, teaching, and/or testing, will be held on the following dates during the fall semester:

Tuesday, September 2, 1:30-3:00 p.m. in STEW 313.
Tuesday, October 7, 1:30-3:00 p.m. in STEW 313.

Attendance at one of these sessions is mandatory for personnel (i.e., faculty, staff, students) who wish to initiate work with vertebrate animals at Purdue University. Personnel will not be approved to work with animals until such time that they have attended one of these meetings or completed the program on-line. We strongly encourage participating in an “in-person” program; however, it may be completed on-line if your schedule does not allow for in-person participation. Please go to the following URL:
http://www.purdue.edu/Research/vpr/compliance/animals/
onlineorientation.shtml.
The password to enter is “pass” (without the quotation marks).

This program presented by staff of the Purdue Animal Care and Use Committee (PACUC) and the Laboratory Animal Program (LAP) is designed to introduce you to the Purdue system for maintaining regulatory compliance with federal and University guidelines and ensuring humane care and use of animals.

Registration is required to attend one of the “in-person” sessions and may be done via e-mail to Lisa Snider at ldsnider@purdue.edu.

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<td>November 19</td>
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