

# Research Resources

"We can judge the heart of a man by his treatment of animals."....Immanuel Kant

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**Research Resources will be sent out to Active Project Directors, but I encourage you to share this will all your staff, and, if any want to be included in the mailing, have them send a request to [stacy.wells@louisville.edu](mailto:stacy.wells@louisville.edu). If you would like to contribute to the newsletter, you may send your items to the same address.**

## Infectious Disease Resource Manual

This Resource Manual highlights the role of the mouse in infectious disease research, focusing especially on HIV (AIDS) and Category A bioterrorism agents anthrax, botulism, Ebola, plague, smallpox, and tularemia. The Manual includes the following:

- brief descriptions of these diseases
- summaries of selected studies that have used the mouse to characterize the pathology and immune responses to and develop therapies and vaccines for these diseases, and
- descriptions of selected JAX Mice models that have been used in the past and that are promising for future research of these diseases

Request a copy of this manual at [http://jaxmice.jax.org/request/infectious.html?WT.mc\\_id=201309](http://jaxmice.jax.org/request/infectious.html?WT.mc_id=201309)

## IACUC Policy: Use of Freund's Complete Adjuvant

The use of Freund's Complete Adjuvant (CFA) may be associated with the potential for pain or distress. The American Veterinary Medical Association views pain induced by inflammatory agents as "an unnecessary and unwanted side effect of the use of inflammatory agents, or as a result of poor technique," and counsels that the side effects "should not be accepted as a normal event in an immunization procedure". Accidental inoculation of personnel with CFA can result in sensitization to tuberculin as well as chronic, local inflammation which

is poorly responsive to antibiotic therapy. Therefore alternative adjuvants should be considered and utilized if and when possible. If adequate alternatives to CFA are not feasible, many of the undesirable side effects can be reduced or eliminated through the use of appropriate routes of administration, adequate separation of injection sites, and the use of a small amount of inoculum per site. Because of the potential for complications from certain routes of administration of immunizations, the following guidelines have been established:

- CFA may be used only for the first (priming) dose. Subsequent immunizations should be with incomplete Freund's or another adjuvant unless justified. Re-immunization with CFA is rarely warranted. If approved by the IACUC, an interval of at least three weeks should be given between doses.
- The inoculum should be free of extraneous microbial contamination. Millipore filtration of the antigen before mixing with the adjuvant is recommended when possible.
- Injection sites should be cleaned to remove debris that may result in contamination and infection. This is probably the major cause of abscess formation in animals.
- Separation between inoculation sites adequate to avoid coalescence should be encouraged. The volume injected at each site, locations of sites injected, and number of sites/number of injections should be described in the animal use proposal.

Additional procedures known to minimize the adverse effects and discomfort associated with its use include refinements such as:

- Injections containing Freund's complete adjuvant should be given subcutaneous (SQ), rather than intradermal (ID), intramuscular (IM), intravenous (IV) or intraperitoneal (IP). ID injections frequently result in skin necrosis and sloughing; injected into the footpad, it can cause chronic lameness and arthritis; injected intraperitoneally, it can cause peritonitis. IM injections can result in temporary or permanent lameness. IV injections can cause pulmonary lipid embolism. CFA is associated with adjuvant arthritis.
- Footpad injection of CFA in rodents is discouraged because animals may develop chronic pain and secondary infections in the inflamed areas. If this procedure is to be used, it must be described and its use scientifically justified, including documentation that injections in other sites do not produce adequate antibody titers for the specific antigen being used. If used, only one hind foot may be injected with a maximum volume of 0.05 ml per site in the mouse and 0.1 mL/ site in the rat, and injections must be spaced at 10 day to 2 week intervals. Animals that have received foot pad injections must be housed on contact bedding rather than wire-bottomed cages.

### May 2006 JAALAS

The following are the titles of the publications in the May issue of AALAS's journal The Journal of the American Association for Laboratory Animal Science (JAALAS):

- [Calcinosis Circumscripta in a Common Marmoset \(\*Callithrix jacchus jacchus\*\)](#)
- [Comparison of the Stress Response in Rats to Repeated Isoflurane or CO<sub>2</sub>:O<sub>2</sub> Anesthesia Used for Restraint During Serial Blood Collection via the Jugular Vein](#)

- [Controlling Allergens in Animal Rooms By Using Curtains](#)
- [Efficacy and Safety of Topical Selamectin to Eradicate Pinworm \(\*Syphacia\* spp.\) Infections in Rats \(\*Rattus norvegicus\*\) and Mice \(\*Mus musculus\*\)](#)
- [Evaluation of a Potential Stress Effect in Rat Adjuvant Arthritis by Using a New and Efficient Plethysmograph](#)
- [Human Cancer Xenograft Perfusion In Situ in Rats: A New Perfusion System that Minimizes Delivery Time and Maintains Normal Tissue Physiology and Responsiveness to Growth-inhibitory Agents](#)
- [Persistent Left Superior Vena Cava in Sheep](#)
- [Pharmacokinetics of Buprenorphine after Intravenous Administration in the Mouse](#)
- [Primary Amenorrhea Associated with Ovarian Leiomyoma in a Baboon \(\*Papio hamadryas\*\)](#)
- [Response of Lightly and Highly Pigmented Porcine Skin \(\*Sus scrofa domestica\*\) to Single 3.8-mm Laser Radiation Pulses](#)
- [Successful Introduction of Macaca nemestrina Infants to Their Mothers after Cesarean Delivery](#)

If you would like to view copies of these articles, please contact the RRF office or one of the husbandry supervisors.

### New OLAW Communication

The NIH's Office of Laboratory Animal Welfare (OLAW) has created a brochure intended to communicate to investigators their responsibilities under **PHS Grants Policy** and **PHS Policy on Humane Care and Use of Laboratory Animals**. *What Investigators Need to Know About the Use of Animals* provides a succinct resource for investigators to quickly grasp the main expectations and requirements when using animals in research supported by the Public Health Service (PHS). The brochure may be accessed at the OLAW Web site. OLAW will provide institutions with enough copies to disseminate to all of their investigators that work with animals. Send requests, along with the number of copies needed, to OLAW, and please be sure to provide your complete mailing address.

### **IACUC Protocol Submission**

Sorry, I forgot to include the web address for the IACUC in the last newsletter. It is: <http://www.louisville.edu/medschool/research/acup/iacuc/>

### **New ALL Courses**

The AALAS Learning Library has a new course: *Inhalation Anesthesia Systems for Rodents: principles of rodent gas anesthesia using a precision vaporizer, properties of common inhalation anesthetics, components of an inhalation anesthesia system, and important safety issues in operating a gas anesthetic system.* It has been developed for researchers and technicians who provide anesthesia to mice and rats.

### **An Unpopular Position**

By Mark Suckow, DVM

My 16-year-old daughter had an assignment to write a persuasive paper for a class. I was somewhat surprised and entirely delighted when she chose to write about the value of biomedical research involving animals. Perhaps I've had an influence on her after all! As she turned the assignment in, her teacher commented that supporting animal research was not a popular position to take. Of course, my daughter knows this. She's been inundated by the media with messages that try to convince the public otherwise. Naturally, I am proud that she chose to share her convictions in a logical and wellreasoned manner.

How many of us have shied away from the controversy of our profession? If the topic of animal research arises at a party or backyard barbecue, do you avoid the topic and try to hide from it? I suspect that many of us do. It is often more convenient to do so, rather than expose ourselves to accusations, lies, and half-truths. I have learned that it is neither convenient nor easy to convince everyone that our work is with merit; nonetheless, it is needed and necessary. While views on animal research vary greatly, public opinion polls have consistently demonstrated that the public supports the work we do. That is, the public believes in

the value of animal research to human health when done ethically by trained and knowledgeable people. Still, this majority viewpoint is often squelched by a vocal, visible minority. From my daughter's viewpoint, it is tough to be supportive of animal research when her peers likely take on the views of outspoken celebrity critics. I am empathetic to the anxiety she might feel at taking a stance which is neither trendy nor fashionable.

When I asked my daughter what approach she took in writing her persuasive paper, she said it was really rather simple. She wrote that she knows from firsthand observation that the animals used in research that have lead to advances in treatment for diabetes, cancer, heart disease, and ALS (a disease which recently claimed her grandfather) were cared for by people who not only were trained and skilled, but showed empathy toward animals and people. That empathy is simply missing among those who would curtail such advances. I see this, in some small way at least, as a victory for AALAS. I encourage all AALAS members to have pride in the work they do and to take every opportunity to educate others how animal research—performed by skilled, compassionate people—has yielded tremendous advances in human and animal health. Unpopular to some, benefiting to all, animal research continues to bear fruit!