Animal Resource Program

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Animal Source

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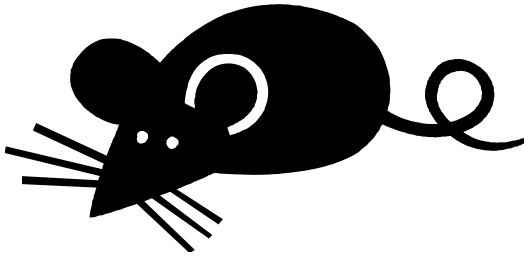
Searching for the Correct Alternative



Federal regulations require research investigators to search for alternatives to the use of animals when procedures causing more than momentary pain or distress will be used. Not only must investigators consider non-animal alternatives but also alternatives that may reduce the number of animals used, decrease animal pain or distress or replace the proposed animal species with a less sentient one. The key to conducting an alternatives search is to focus on alternatives to the potentially painful or distressful procedures used in the study, not on alternatives to the topic or purpose of the research study. Alternatives for each potentially painful or distressing procedure used in the research study must be considered.

Investigators may use their own experience or consult with other professionals in the field as part of their search. However, many investigators rely on internet databases to conduct a comprehensive survey of their field of study. It takes thought and planning to conduct a good database search that yields beneficial information.

Before beginning a literature search identify what experimental techniques or procedures

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Equine Herpesvirus Myeloencephalopathy: A Potentially Emerging Disease?

A recent outbreak of equine herpesvirus myeloencephalopathy (EHM) in southwestern PA has brought this potentially emerging disease into the local news. EHM is a disease of horses caused by equine herpes virus (EHV)-1. EHV has many different types and is known to cause respiratory disease and abortions. EHM is associated with mutant or neuropathogenic strains of EHV-1.

Horses with EHM suffer inflammation in the brain and spinal cord that results in variable neurologic signs such as wobbly stance, uncoordinated gait, and changes in tail movement.

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Responding to Adverse Incidents in PSU Animal Facilities or Laboratories

"Do not attempt to answer questions or talk to reporters yourself."

In the event of an adverse incident (suspicious activities, vandalism, release of animals, bomb threats, etc.) in PSU animal facilities or laboratories immediately notify the University Police Department at 863-1111.

The PSU Police Department will notify the Animal Resource Program (ARP) if the incident affects PSU animals or animal facilities.

If fire is involved activate fire alarms and evacuate the building. If animals have been released within the facility, capture and/or confine the animals if you are confident that you can do so safely. Contact the ARP (865-1495) for assistance.

If it is safe to do so, remain at the scene to give police/fire officials your knowledge of possible hazards due to chemicals, radiation, biohazards or animals.

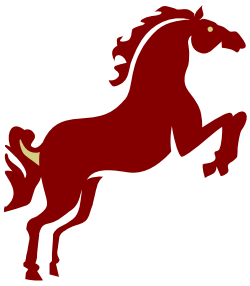
Refer all questions from the news media to the PSU Department of Public Information (865-7517). Do not attempt to answer questions or talk to reporters yourself.

If you receive a bomb threat:
Record the exact information given in the threat using the exact words spoken by the person, whether in person or by telephone.

If possible, provide the police with a description of the person making the threat, or of their voice which may be characteristic of a sex, race, or age, with special attention being given to words and terms used.

If the threat is made by telephone, listen for background noises that might indicate from where the call is originating. Immediately relay the information to the University police. Give your name, location, where you can be contacted, and the exact words used by the caller, as well as the time the call was received. The police will determine if further actions, such as building evacuation, will be taken.

Written by Mary Kennett and Kathleen Heiderstadt



EHM, cont. from page 1

Direct contact between horses is the primary means of viral transmission. However, aerosolization and persons carrying the virus on their hands and clothing may also contribute to transmission.

The number of reported EHV-1 cases has increased in recent years. There have been several large outbreaks of EHM at equine facilities, such as racetracks and boarding stables in the US. These outbreaks may be associated with a change in the severity and behavior of the virus. The potential for widespread transmission of this disease has both health authorities and horse owners concerned.

Vaccines are effective at preventing the respiratory and reproductive diseases caused by EHV-1 but do not appear to be protective against the neurologic form of disease. Control includes quarantine of animals from infected premises and increased attention to biosecurity practices that help prevent transmission. Further information on EHV and EHM may be found at the USDA.

Written by Jacob Werner and Kathleen Heiderstadt

Searching for the Correct Alternative

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used in the study have the potential to cause pain or distress in animals. Consider what the significance of these procedures is to the study and whether or not they can be refined or replaced. If painful or distressful procedures must be used, consider what endpoints will be chosen to determine when an animal will be removed from the study.

When conducting a literature search use descriptive search keywords specific for the techniques and procedures noted above. Include the animal species you wish to use and select a database appropriate for the area of study. Do not include search terms like the name of the gene you are studying or scientific keywords relating to your study. The use of the term "alternatives" in the search is usually not very productive.

For example, if the study proposes retro-orbital blood collection from mice search keywords could include: blood collection, method, and mouse. A search would provide alternative sites or methods for blood collection such as the tail artery, saphenous vein, and cardiac puncture. The investigator must then consider how much blood may be obtained with each method, whether or not repeated blood collection is required and the potential for pain and distress with each method.

For an experiment involving intra-cerebral injections in mice, the keywords could include: drug, administration, method, and mouse. A search will result in other potential administration routes such as: intravenous and subcutaneous injections, oral gavage and subcutaneous implants. The method the investigator selects will be dependent on the specific needs of the experiment. If the drug needs to cross the blood-brain barrier in a certain time frame, the intra-cerebral injection might be the only possible route.

Websites such as the UC Davis Center for Alternatives and the Fund for the Replacement of Animals in Medical Research have been created to assist investigators in planning and conducting alternatives searches. PSU investigators may also contact any ARP veterinarian for assistance.

Written by Amanda Donnard and Kathleen Heiderstadt

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Mouse Biomethodology Seminar

The next ARP Mouse Biomethodology Seminar will be offered **September 18, 2009 from 1-4 pm** in the Centralized Biological Laboratory. This seminar is oriented toward new or returning mouse users who desire basic information and training in the biology and use of mice in research.

Emphasis will be placed on techniques for working with mice in the animal facility and laboratory to ensure animal welfare and prevent disease transmission. Participants will practice commonly used handling and injection techniques.

Please contact the ARP office at 865-1495 to register to attend. Attendance is limited.

Animal Resource Program
The Pennsylvania State University
101 Centralized Biological Laboratory
University Park, PA 16802

Phone 814 864 1495
Fax 814 865 3685

The Animal Resource Program (ARP) is committed to providing PSU research personnel with high quality animal care services and facilities, to facilitate and improve animal research, and to ensure the health, well-being and humane treatment of all animals at PSU. ARP provides veterinary and diagnostic services, personnel training and expertise in laboratory animal, agricultural and wildlife technology and medicine. ARP veterinarians have specialized training and are available to assist with animal model development, experimental design, budget projections and grant preparation. Participation in collaborative research projects is welcomed.

We're on the Web!

www.research.psu.edu/arp

Influenza Viruses and the Flu

This negative-stained transmission electron micrograph (TEM) depicts the ultrastructural details of an influenza virus particle, or "virion". A member of the taxonomic family *Orthomyxoviridae*, the influenza virus is a single-stranded RNA organism

The flu is a contagious respiratory illness caused by influenza viruses. It can cause mild to severe illness, and at times can lead to death.

Every year in the United States, on average, 5% to 20% of the population gets the flu. More than 200,000 people are hospitalized from flu complications, and about 36,000 people die from flu. Some people, such as older people, young children, and people with certain health conditions, are at high risk for serious flu complications.

Influenza A and B are the two types of influenza viruses that cause epidemic human disease. Influenza A viruses are further categorized into subtypes on the basis of two surface antigens: hemagglutinin and neuraminidase. Influenza B viruses are not categorized into subtypes.

Since 1977, influenza A (subtype H1N1) viruses, influenza A (subtype H3N2) viruses, and influenza B viruses have been in global circulation. "Swine flu" is caused by an influenza A (H1N1) virus.

Both influenza A and B viruses are further separated into groups on the basis of antigenic characteristics. New influenza virus variants result from frequent antigenic change (i.e., antigenic drift) resulting from point mutations that occur during viral replication. Influenza B viruses undergo antigenic drift less rapidly than influenza A viruses.

Information and photo provided by the Public Health Image Library of the CDC.

More information on influenza viruses may be found at www.flu.gov and other CDC webpages.