Stanford University
Minimizing Occupational Exposures to Hazardous Chemicals in Animal Protocols

BACKGROUND

Known or suspect carcinogens, reproductive hazards/teratogens, cytotoxic/anti-neoplastic agents, or mutagens may be used in animal protocols. It is the responsibility of supervisors to evaluate potential exposure risks of hazardous chemicals/drugs to staff during:

- chemical preparation
- animal dosing
- cage washing.

ASSESSING HAZARDS

Exposure risk to hazardous chemicals/drugs is a function of:

- toxicity of the compound
- method of preparation (e.g., weighing, diluting, heating)
- dose and method of administration to the animal (e.g., use of safety syringes, etc.)
- level of material present in animal excreta and bedding
- engineering controls, work practices, and personal protective equipment used.

Website links to common hazardous chemicals/drugs include:

- NIH TOXNET- Hazardous material search engine: .http://toxnet.nlm.nih.gov/
- National Toxicology Program- Carcinogen Search: http://ehp.niehs.nih.gov/roc/toc10.html
- Common drugs considered hazardous by OSHA: http://www.osha.gov/dts/osta/otm/otm_vi/otm_vi_2.html#app_vi:2_1
- Stanford's reproductive toxin page: http://www.stanford.edu/dept/EHS/prod/mainrencon/occhealth/Reproductive/links.htm

Additional Responsibilities of Researchers:

To protect the health and safety of animal handlers and cage washing staff, researchers must:

1. Determine the presence or absence of the hazardous drug/chemical in animal excreta using peer-reviewed literature.
2. Seek a hazardous waste determination from EH&S's Environmental Program Manager at 725-7529. To make this determination, EH&S will need the expected weight % of material in excreta. If weight % determination cannot be made, assume that entire administered dose will be present in excreta.
3. Communicate the presence or absence of hazardous chemical/drug in excreta and waste determination to husbandry/cage washing staff supervisor(s).

CONTROLLING HAZARDS

Supervisors must:

1. Develop a Standard Operating Procedure (SOP) for the protocol involving hazardous chemicals/drugs. See SU's Laboratory Chemical Safety Toolkit for guidance http://chemtoolkit.stanford.edu/TemplateSOP

2. Ensure animal researchers and husbandry/cage washing staff receive training on the specific hazards associated with the chemicals used in the protocol and follow the exposure control methods described on next page.

Supervisors may contact EH&S at 723-0448 with any questions.

Environmental Health & Safety
Stanford University
480 Oak Road
Stanford, CA 94305
(650) 723-0448

Operation-Specific Exposure Controls:

	Chemical Preparation	Animal Dosing/ Transporting Animals	Cage Cleaning (***if hazardous material present in excreta)*:**
Personal Protective Equipment	• lab coat • safety goggles/glasses • chemical-resistant gloves	During Animal Dosing: • disposable solid-front gown • head and shoe coverings • safety goggles/glasses • chemical-resistant gloves Transporting Animals: • lab coat • chemical-resistant gloves • safety goggles/glasses.	• long sleeved lab coat • plastic apron • rubber boots or disposable plastic booties • chemical-resistant gloves • safety glasses/goggles/face shield* • disposable mask**
Work Practices/ Engineering Controls	• Only prepare and handle solutions in a fume hood, including weighing, mixing, heating. • Ensure fume hood and eyewash/safety shower are currently certified/maintained. • Do not use positive laminar flow hoods (commonly found in VSC animals rooms) - air from units flows towards worker. • Wash hands after chemical preparation.	• Ensure animals are appropriately restrained via anesthesia or other physical means to reduce possibility of accidental self-inoculation, etc. • For injections, use safety syringe. Follow careful sharps procedures. • Use methods to minimize aerosolization of agent when handling vials, tamping down ampoules, etc. If tablets are administered, avoid liberating dust. • If topical application, avoid dermal contact with animal. • Wash hands after dosing animals.	• Handling cage bedding: **Option 1:** Dump dirty bedding in ventilated dump station. **Option 2:** Upon receipt of the dirty cages, thoroughly wet down bedding to help minimize dust generation; gently dump into appropriate waste receptacle. **Option 3:** Consider using disposable cages or omitting cage bedding or use alternative bedding (e.g., paper liner). • For large animal pens (e.g., pig/dog runs) and transport cages, follow VSC protocols → hose down sewer, do not direct jet stream at excreta. • Wash hands after working with contaminated bedding/cages.
Labeling/ signage	• Ensure proper storage and labeling of drug/chemical. • Consult chemical manufacturer's instructions and/or SU's Chemical Safety Database.	If hazardous material will be present in animal excreta: • Label the cages accordingly: *Animals treated with "name of chemical." Excreta/ bedding may be contaminated. Wear appropriate personal protective equipment.* • Indicate date and time animal was dosed.	
Disinfection	Ensure lab surfaces and equipment are decontaminated.	Ensure lab surfaces and equipment are decontaminated.	

* For operations with splash potential (e.g., hosing down pig runs) use goggles and face shield.

** Contact EH&S's Occupational Health & Safety Program for guidance on when respirator use is required or voluntary.