



Environmental Health and Safety

Minimizing Occupational Exposure to Hazardous Chemicals in Animal Protocols

Chemicals that are highly toxic or corrosive, known or suspected carcinogens, reproductive hazards, teratogens, antineoplastic agents and mutagens may be used in animal protocols. It is the responsibility of the Principal Investigator to evaluate potential exposure risks of hazardous chemicals and drugs to lab and animal husbandry staff during:

- chemical preparation
- animal dosing
- husbandry activities, including cage changing and disposal of bedding

Information on hazardous chemicals and drugs can be found at:

Princeton University Environmental Health and Safety SDS page:

<https://ehs.princeton.edu/safety-data-sheets>

NIOSH List of Antineoplastic Drugs

<http://www.cdc.gov/niosh/docs/2012-150/pdfs/2012-150.pdf>

National Toxicology Program

http://ntpsearch.niehs.nih.gov/tehis/search/?pr=ntp_web_entire_site_all&mu=Testing+Status

Toxicology Data Network

<http://toxnet.nlm.nih.gov/>

Assessing Hazards

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

- toxicity, half-life and metabolic byproducts of the compound
- method of preparation
- concentration and method of administration
- amount of material present in animal excreta and bedding
- engineering controls, work practices and personal protective equipment

Principal Investigator:

1. Conduct a risk assessment to determine engineering controls, safe work practices, and personal protective equipment that are needed when working with the hazardous chemical. Communicate this information to laboratory and LAR staff expected to work with these materials. See Table 1.
2. Determine if the hazardous chemical or drug is excreted.
3. Contact EHS to determine if animal bedding waste must be treated as hazardous chemical waste.

4. Advise laboratory staff to post hazardous chemical labels on cages and place hazard warning signs on housing room doors (See Figure 1) after animal(s) has been exposed.
4. Communicate to LAR animal husbandry staff if the hazardous chemical or drug will be excreted in animal waste.
5. Provide Material Safety Data Sheets to LAR Associate Director.

LAR Associate Director

1. Review safe work practices, found in Table 1, with LAR husbandry staff.
2. Ensure that all equipment required to control exposure is available for use within the laboratory animal facility.

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1. Review Applications for Animal Use that involve the administration of hazardous chemicals to animals.
2. Provide guidance to PI, laboratory and LAR staff on appropriate engineering, PPE and work practice controls and waste disposal procedures required to prevent exposures and comply with applicable regulations.
3. Consult with University Health Services to determine if medical surveillance is required for personnel involved in research.

Table 1 Controlling Exposure to Hazardous Chemicals Used in Animal Protocols

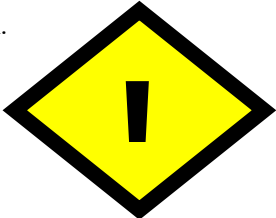
	Preparation of Chemical/Drug	Administration to Animal	Husbandry
Personal Protective Equipment	<ul style="list-style-type: none"> • Lab coat • Chemical-resistant gloves • Safety glasses or goggles • Additional PPE, such as a NIOSH-approved respirator may be recommended by EHS 	<ul style="list-style-type: none"> • Disposable lab coat, fully buttoned • Head/shoe coverings • Gloves (preferably nitrile) • Surgical mask • Safety glasses • Additional PPE, such as a NIOSH-approved respirator may be recommended by EHS 	<ul style="list-style-type: none"> • Scrubs • Disposable lab coat, fully buttoned • Shoe covers • Nitrile gloves • Surgical mask • Safety glasses • Additional PPE, such as a NIOSH-approved respirator may be recommended by EHS.
Work Practices/ Engineering Controls	<ul style="list-style-type: none"> • Prepare solutions in a fume hood (antineoplastic or chemotherapy drugs may be prepared in a certified Class II biosafety cabinet) • Wash hands upon completion 	<ul style="list-style-type: none"> • Use fume hood only if it does not jeopardize sterility required for the procedure; chemotherapy agents can be administered in a Class II biosafety cabinet. • Dispose of uncapped sharps in sharps container. • Wash hands after removing PPE. 	Bedding disposal: <ul style="list-style-type: none"> • Work at ventilated changing station or biosafety cabinet; if not available, wet down bedding and gently dump into waste receptacle. • Dispose of bedding in the usual manner unless directed to collect at hazardous chemical waste by EHS.
Labeling/ Signage	<ul style="list-style-type: none"> • Original label must be retained on chemical in storage 	<ul style="list-style-type: none"> • Label the cages using pre-printed chemical hazard label available from LAR • Post room door sign. <div style="text-align: center;">  </div>	
Sanitation	<ul style="list-style-type: none"> • Protect work area with disposable bench paper • In the event of a spill, follow EHS procedures for spill clean-up. 	<ul style="list-style-type: none"> • Clean work surfaces with disinfectant provided by LAR. • Sanitize cages according to LAR standard operating procedure. 	

Figure 1 Room Door Sign Template



Chemical:	Dosing start date:
Dose:	Route of Administration:
Duration of animal survival between exposure and euthanasia:	
Building:	Room:
MSDS Location:	

Medical Surveillance: Animal Worker Medical Surveillance Clearance

Precautions for 72 hours after administration and until bedding is changed:
 After injection, place mouse into clean cage, labeled to indicate presence of _____.

PPE to enter room:

<input checked="" type="checkbox"/> nitrile gloves	<input checked="" type="checkbox"/> dedicated shoes	<input checked="" type="checkbox"/> eye protection
<input checked="" type="checkbox"/> disposable gown	<input checked="" type="checkbox"/> surgical mask	<input checked="" type="checkbox"/> bonnet

Cage Changing Practices:

- Change cages 72 hours post injection
- Change cages in a biosafety cabinet

Special Disposal Instructions

- Carefully wet bedding down with a spray hose and then dispose at dumping station.
- Dispose of bedding as regulated medical waste.
- Dispose of carcass in usual manner, as pathogenic waste for incineration.
- Other, list:

	Contact Numbers
Principal Investigator:	
Contact Person:	
LAR Associate Director:	

Reviewed by EHS: February 2015