# PI Name: Click or tap here to enter text

# Standard Operating Procedure (SOP) for

# Handling Animals Dosed with Hazardous Chemicals/Drugs

***Purpose:***

To describe the procedures for performing animal care safely after the animals have been dosed with hazardous chemicals and drugs as defined in this SOP.

***Scope:***

This SOP covers the hazardous chemicals used in animal research that require hazard communication to employees involved in handling or performing husbandry on dosed animals. These chemicals have been documented in the IACUC protocol and have been approved for use in animals by the Duke Institutional Animal Care and Use Committee (IACUC).

***Hazards:***

Only hazardous chemicals/drugs that exhibit the following health hazards as defined by the Globally Harmonized System for the Classification of Chemical (GHS) are covered under this SOP:

* Fatal if inhaled; in contact with skin; if swallowed
* May cause cancer; suspected of causing cancer
* May damage fertility or the unborn child; suspected of damaging fertility or the unborn child
* May cause genetic defects; suspected of causing genetic defects
* May cause an allergic skin reaction
* May cause allergy or asthma symptoms or breathing difficulties if inhaled

And the following carcinogens:

* National Toxicology Program (NTP) known or reasonably anticipated
* International Agency for Research on Cancer(IARC) Group 1; 2A or 2B
* Occupational Safety and Health Agency (OSHA) regulated carcinogens

And:

* Investigational drugs with little or no toxicological data

***Route of Exposure:***

Animals that have been dosed with a hazardous chemical may excrete the parent chemical or toxic metabolites, particularly during the first 72 hours after dosing. **The primary hazard is potential exposure to airborne particulates from the contaminated bedding.** The precautions outlined below will protect employees in these situations. *Additional precautions may be necessary* *for volatile hazardous materials, or materials that are hazardous at extremely low doses.*

***Responsibilities:***

**Researcher will:**

* Follow the procedures in this SOP when dosing animals with the hazardous chemicals that exhibit the health hazards mentioned above.
* Maintain a completed and signed copy of this SOP in their lab or lab office.
* Submit completed [Chemical Hazards Door Sign](https://www.safety.duke.edu/sites/default/files/ChemicalHazardDoorSign.pdf)(s) with the protocol.
* Ensure that all personnel listed on the animal protocol read, understand, follow the procedures in this SOP and sign the copy maintained in the lab or lab office.

**Animal handlers will:**

* Follow the procedures in this SOP when handling or performing husbandry on animals dosed with hazardous chemicals as mentioned in the Scope above.
* Acknowledge that they have read and understood the procedures in this SOP by signing a completed copy for their lab.

***Procedures:***

Except for the exemptions listed below, the following procedures are required for the first 72 hours after dosing AND until the contaminated bedding is changed. (All bedding used within 72 hours of dosing will be considered contaminated.) The procedures may need to be adjusted for animals other than rodents.

Exemptions:

* The animals are sacrificed and appropriately discarded immediately after dosing.
* The hazardous chemical metabolites in bedding or drinking water will be <0.1% by weight. (Supporting documentation must be submitted with protocol.)
1. Notification and Signage:

Cages occupied within the first 72 hours after dosing must be marked until the contents have been dumped.

1. For PI-managed housing, researchers will:
* Provide advanced notification to those who will take care of their animals.
* Label the animal cages with a “Hazardous Chemical” cage card that contains the following information: PI name, Protocol #, Start/End Date, Agent Name and Cage Change checkbox. (Within the laboratory, cage labels can take any form that is recognizable to all laboratory workers.)
* Post “Chemical Hazards” door signs.
* Remove door signs and cage cards when chemical hazard is no longer present.
1. **For animals housed in the Division of Lab Animal Resource (DLAR)-managed areas researchers will**:
* Notify DLAR of the dosing schedule at least five business days prior to dosing and await acknowledgement before beginning work.
* Send the Safety Data Sheet (SDS) for the chemical/drug **AND**
* Send a copy of the completed “Chemical Hazards” door sign to the DLAR Assistant Director, Deputy Director, and Operations Manager of the animal facility where the work will occur. Contact information for these personnel can be found on the DLAR website ([DLAR – Duke Animal Care and Use Program](https://sites.duke.edu/oawa/dlar/)). ***The work cannot begin until the laboratory has obtained confirmation that their scheduling notification has been received.***
* Place a “Hazardous Chemical” cage card (supplied by DLAR) on each cage when dosed animals are returned to their cages.
* Post a completed “Chemical Hazards” door sign on the door.
* Transfer yellow cage cards to new cages at time of cage change for ***continuous dosing***. Make sure that dosing dates are accurate on cage cards for continuous dosing.
* Remove the cage card and door sign once the hazard is no longer present (in most cases, after the first cage change that takes place more than 72 hours after animals receive their final dose).
1. **Engineering Controls:**
* Rodent cages will be covered with micro-isolator lids and/or will be maintained on a ventilated rack.
* Rodent cages will be opened (including for cage-changing, animal care or experiment-related reasons) in a ventilated cage changing station, a biological safety cabinet, or a chemical fume hood.
* Bedding will be dumped in a ventilated dumping station (e.g. “Bio Bubble” or automated system), chemical fume hood or biological safety cabinet.
* Respiratory protection requirements may still be necessary when working with certain engineering controls (please see Personal Protective Equipment (PPE) below).
1. Personal Protective Equipment (PPE):

Standard practice for DLAR employees is to wear an N-95 (or better) respirator *or* a PAPR in any rodent, rabbit, or bird room without ventilated racks. Respirator use requires medical clearance, fit testing, and training (see the [OESO Respiratory Protection](http://www.safety.duke.edu/occupational-hygiene-safety/personal-protective-equipment/respiratory-protection) webpage).

Employees must wear the following standard PPE when handling animals and cages:

* Standard 4-mil exam/laboratory-style gloves,
* Lab coat, gown, or coveralls (closed in front)
* Shoe covers (if required in the area).

PLUS the following additional PPE when:

1. Splashing may occur:
* Powered Air Purifying Respirator (PAPR) *OR*
* Safety goggles and/or face shield
1. Open or unventilated cages containing contaminated bedding (e.g., working around dirty cages not on ventilated racks and not covered with microisolator lids; opening or changing cages with contaminated bedding in areas not protected by the above-mentioned engineering controls):
* PAPR *OR* N-95 (or better) respirator
1. **Cage dumping** (of **ANY** contaminated bedding unless a chemical fume hood or Biological Safety Cabinet is used)\***:**
* PAPR OR
* N-95 (or better) respirator **PLUS** face shield ***OR*** goggles (note: goggles do not provide as much face protection as a face shield)

\*Respiratory and face protection **IS** required when a “Bio Bubble” is used.

1. **Work Practices:**
* If researcher performs cage change: Place hazardous agent sticker (from DLAR) on bag containing dirty cages/bedding.
* Gloves will be changed at least every 2 hours, when they become torn or contaminated ***AND*** before handling animals in other experimental groups.
* Employees will wash hands after removing gloves.
* If a gown or coveralls are to be re-used, they must be stored in a manner that does not permit contact between outer and inner surfaces.
* Safety glasses, goggles, or reusable face shields should be cleaned with water and detergent, and stored in a clean place before reuse.
* Decontamination (after each use) of the ventilated cage-changing station will consist of surface cleaning with water and detergent/disinfectant followed by thorough rinsing with clean water. Cleaning will proceed from least to most contaminated areas.
* Animal carcasses and contaminated bedding will be handled per DLAR policy.
* Waste bags should be closed for transport through the building.
1. **Work-related Injury/Illness/Exposure:**
* Notify Employee Occupational Health & Wellness (EOHW) by filling out an [EOHW Work-Related Injury/Illness](http://www.hr.duke.edu/policies/health_safety/injury_illness.php) report.
* For highly toxic compounds (where medical intervention is needed), employees should call the EOHW exposure hotline (919-684-8115).

All personnel listed on an animal protocol must read and understand the procedures in this SOP and sign below. A copy should be maintained in the lab or lab office.

“I have read and understand this SOP. I agree to fully adhere to its requirements”

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