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**1.0 PURPOSE**

This Standard Operating Procedure (SOP) specifies the institutional policies and criteria for the administration of biological hazards to rodents.

**2.0 SCOPE**

The SOP applies to all USC research personnel who are responsible for administering biological hazards.

**3.0 ROLES AND RESPONSIBILITIES****Department of Animal Resources (DAR)**

DAR Vet group representatives must ensure that - research personnel working with animals (animal researchers) maintain the minimum requirements for the biological hazard administration.

**Environmental Health and Safety (EH&S)**

EH&S office will ensure that animal researchers follow appropriate SOPs and adhere to the proper safety precautions when administering biological hazards to rodents

**Principal Investigators (PI)**

PIs will ensure that research lab manager and animal researchers are adequately trained in performing biological hazard administrations to rodents.

**Researchers**

Researchers will follow appropriate SOPs and safe handling practices when administering biological hazards to rodents.

#### **4.0 DEFINITIONS**

##### **Biological Hazard**

A biological agent or disease that poses a threat to humans, animals or the environment.

#### **5.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)**

- Disposable lab gown
- Head cover
- Shoe covers
- Surgical Mask
- Safety Glasses (if animals handled outside of a biosafety cabinet (BSC) or ventilated cage-changing station)
- Gloves

#### **6.0 TOOLS/EQUIPMENT/INSTRUMENTS**

- Certified Biosafety Cabinet (BSC)
- Clean Cages and clean bedding
- Forceps
- Needles
- Orange Cage Cards
- Biohazard waste container with biohazard red bags
- Disinfectants

#### **7.0 SAFETY PRECAUTIONS**

- Animals that have been administered with a biological hazardous substance may excrete the infectious metabolites, particularly during the first 72 hours after dosing.
- Before administering biological hazards to lab animals, PI or lab manager must confirm that the individual has read the relevant SOPs and is proficient in performing the administration procedures.
- When an animal is injected with a biological hazard, there is a danger of self-inoculation.
- Do not reuse needles.
- **Do not recap** needles
- Sharps container must be used to dispose used needles and syringes.
- Unbreakable (e.g., plastic) containers must be used to carry chemical materials.

#### **8.0 GENERAL CONSIDERATIONS**

- BSCs must be certified annually by an approved vendor.
- Only keep required equipment and materials inside the BSC.
- The BSC blower must be turned on and the sash must be lowered to the proper height for protection while working in the cabinet.
- BSC surface area should be divided into clean, working, and dirty zones. Movement inside the BSC should be unilateral (from clean to working to dirty zone) to avoid cross-contamination
- Immediately notify the lab manager if any malfunctions are suspected.

- Avoid using a Bunsen burner or other **flame producing devices** inside the BSC. Be aware that flames disrupt the laminar flow inside the BSC.

## 9.0 PROCEDURES

### 9.1. Biological hazard and cage card preparation

- The Biological agent/toxin should be prepared in a fume hood, including reconstitution, weighing, and diluting.
- Prepare the Biological Hazard “Orange” Cage Cards
  - Write the **biological agent/toxin** name.
  - Write the **date of first** administration.
  - Write the **date of last** administration.
  - Write the **date of cage card removal**.
- Transport samples to the animal facility in a leak-proof secondary container.

### 9.2. Chemical Hazard administration

- Before entering holding room, fill out the Sign-In sheet with required information.
  - **Date, protocol number, number of cages, agent name(s)**
- Turn “ON” the BSC or change station, disinfect it using Bleach-Rite and allow it to stabilize (refer to BSC preparation and decontamination SOP).
- Remove the cage from rack and place it inside the BSC.
- Bring a new cage with clean bedding and place it inside the BSC.
- Take the animal out of the cage and restrain properly.
  - It is recommended to anesthetize or physically restrain the animals for biological hazard administration
  - Please refer to specific administration route SOP (e.g., IP, IV, SC, and others).
- Dispose of any sharps in the sharps container.
- After administration, place the animal in the clean cage. Repeat process with remaining animals in the cage.
- The cage containing animals administered with biological agent/toxin must be labeled with the Orange Cage Card which indicates the **name, administration date(s) of the agent(s), and cage card removal date**.
  - If the lab uses transgenic animals so **transgenic label should be added to the original cage card**
- Place the labeled cage back into the cage rack and place the dirty cages on the transport cart.
- Replace PPE before leaving the ABSL-2 room.

### DAR personnel

- Transport the dirty cages to the washroom.
- Remove PPE and place it in the biohazard waste container before leaving the facility

**10.0 EMERGENCY**

For general emergencies, follow the steps below.

1. Call DPS immediately. UPC 213.742.4321, HSC 323.442.1000
2. Call EH&S. Dial 323.442.2200
3. Supply name; call back number; nature of the emergency and location.
4. Report the emergency to the supervisor, lab manager, or principal investigator.

Refer to EH&S' "Emergency Notification" Fact Sheet (link below) for more details

[http://adminopsnet.usc.edu/sites/default/files/all\\_departments/EHS/ehs%20fact%20sheet-emergency%20notification-1.pdf](http://adminopsnet.usc.edu/sites/default/files/all_departments/EHS/ehs%20fact%20sheet-emergency%20notification-1.pdf).

**11.0 SPILL AND ACCIDENT PROCEDURE**

**In case of spill inside the biosafety cabinet (BSC):**

- Immediately notify others around you.
- Contaminated PPE, such as gloves, lab coats, and safety glasses, should be removed and disposed of as biohazardous waste or set aside for disinfection.
- Don/replace appropriate PPE.
- Use forceps to remove any broken glass or other sharp items; sharps should be placed into biohazard sharps containers.
- Cover the spill with paper towels or other absorbent materials.
- Apply 10% bleach directly around and onto the paper towels covering the spill.
- Allow 15-minute contact time before cleaning, starting at the perimeter and working inwards towards the center.
- Dispose used materials into biohazard waste containers.
- Disinfect all surfaces of the BSC with freshly prepared 10% bleach with a 15 minute contact time, followed by a wipe down with 70% ethanol to reduce corrosion.
- Allow the BSC to run for at least 10 minutes before resuming work or turning it off.
- For large spills, you may contact the EH&S office for assistance at (323)442-2200.
- Any chemical decontamination method (formaldehyde, hydrogen peroxide, and others) requires the involvement of personnel who have been trained in the specific procedure. The Biosafety Officer shall coordinate the process with the authorized vendors. Decontamination using chemical gases (e.g., Vaporized Hydrogen Peroxide/VHP) might take 12-15 hours in some cases.

**12.0 KEY REFERENCE**

*The Guide for the Care and Use of the Laboratory Animals 8th edition, NRC 2011 California Code of Regulations*

**13.0 SOP REVIEW/REVISION**

Date prepared: 06-27-2022 By: EH&S Biosafety Team

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