

# Animal Biosafety Level 2a



This protocol has been developed by the Office of Animal Resources (OAR) and Environmental Health & Safety (EHS) and approved by the Institutional Biosafety Committee (IBC) for use of recombinant or synthetic nucleic acid molecules (rDNA) and/or biological hazards in rodents, when assigned to Animal Biosafety Level 2a (ABSL2a). Separate protocols are in place for animals assigned to ABSL1, when exposed to rDNA, rodents assigned to ABSL2c, and non-rodents assigned to ABSL2n containment.

## A. General Policies

1. Access to ABSL2a rooms is limited to authorized personnel.
2. Eating, drinking, smoking, and storing of food for human use are not permitted in animal rooms.
3. Personal protective equipment (PPE) is available and must be worn by all personnel entering an ABSL2a room. Remove PPE before leaving the room and discard the used PPE in the biohazard container in the room.
4. Staff must wash their hands before leaving the room or animal facility.
5. A biohazard sign that includes the universal biohazard symbol, the biohazard agent/s presently in use in the room, and name and telephone number of the principal investigator/lab contact must be posted on the door.
6. Cages must also bear the universal biohazard label, the biohazard agent being used, and date of administration.
7. If an incident occurs that may result in an exposure to rDNA/biological hazards (including animal bites), immediately notify your supervisor and EHS's Biosafety Officer (353-5679).
8. Prior to administering any biological hazards covered under this protocol, contact the facility supervisor to reserve appropriate housing of the animals after exposure.
9. Animals that will not be exposed to biological hazards (e.g., control animals) should not be housed in ABSL2a rooms.
10. PPE must be worn when handling animals, cages, or when administering biological hazards. A list of required PPE is posted on the entry doors to all ABSL2a rooms.

## B. Use of a Biological Hazard

1. The biological hazard must only be manipulated inside a biological safety cabinet (BSC), following [EHS guidelines](#).
2. Work surfaces must be decontaminated after use and in the event of a spill. It is the responsibility of research staff to ensure that the disinfectant employed is effective against the agent in use.
3. Procedures must be performed to minimize the generation of aerosols. Only needle-locking syringes or disposable syringe units (i.e., the needle is integral to the syringe) should be used for the injection or aspiration of biological hazards. Following the procedure, the needle and syringe should be promptly placed in a designated sharps container. Recapping needles is strongly discouraged; if you need to recap needles, you must follow EHS guidelines for this procedure (see section c.v. of the [Biological Safety Manual](#)).
4. All contaminated materials (needles, syringes, vials, gloves, etc.) must be placed in biohazard

containers, i.e., needles, syringes and vials in a sharps container, and gloves, etc. in the biohazard box/container. Biohazard containers are located in all ABSL2 rooms.

### **C. Cage handling**

1. Infectious rodents will be housed in a Thoren unit or on a shelving rack with filter-top caging.
2. Used bottles, feeders, filter tops, and cages with bedding must be placed in the covered dirty staging cart for autoclaving prior to manipulating, washing and reuse.
3. All animals and caging must be handled only in a BSC. Exceptions and/or deviations from utilizing a BSC for manipulations in the lab or core service (e.g. imaging) should be described in the deviations sections at the end of this form.

### **D. Transportation of animals and contaminated equipment to and from an ABSL2a room**

1. Transporting live animals outside of an ABSL2a room is prohibited unless prior approval by an OAR/IACUC veterinarian, through the animal protocol review process, has been obtained. The following procedure must be used when transporting animals outside of an ABSL2a room:

#### **a. Removing animals from an ABSL2a room to an outside lab:**

- i. Animals must be transferred inside a BSC to clean cage(s) containing all clean caging components and feed.
- ii. Exterior surfaces of cages/caging components must be disinfected as they are removed from the BSC.
- iii. Disinfected cages with animals should be placed on the clean staging cart to be prepared for transport.
- iv. Soiled cages and/or caging components must be placed on the dirty staging cart. OAR staff will secure cages/caging components in autoclavable biohazard bags prior to transporting them to the autoclave.
- v. Prior to transport, cages containing animals must be prepared using one of the following two methods:
  - Filter tops must be securely fastened to cage using a large rubber band or tape for transport, and cages must be covered completely in a disposable drape (available through OAR); or
  - Cages must be wrapped completely in a disposable drape, which is secured around the cage with tape or large rubber bands.
- vi. Cages should be transported on a cart; however, the cart must not be brought into the ABSL2a room to remove the animals.

#### **b. Moving animals back to an ABSL2a room:**

- i. If animals are anesthetized, they should be monitored and not transported until they have recovered (maintain upright posture and exhibiting voluntary movement).
- ii. External cage surfaces must be disinfected in the lab before transport to the ABSL2a room.
- iii. Prior to transport the cages must be prepared using one of the following two methods:
  - Filter tops must be securely fastened to cage using a large rubber band or tape for transport, and cages must be covered completely in a disposable drape (available through OAR); or
  - Cages must be wrapped completely in a disposable drape, which is secured around the cage with tape or large rubber bands.
- iv. Cages should be transported to the assigned ABSL2a room on a cart; however, the cart must not be brought into the ABSL2a room.

- v. Disinfected cages with animals should be transferred back into the room by placing cages on the clean staging cart within the ABSL2a room.
  - vi. Once back inside an ABSL2a room, cages must be placed on a ventilated rack.
- 2. Soiled cages must be returned to an ABSL-2a room or to an ABSL2 dirty cage staging area (bagged cages only), where all bedding and waste from animals exposed to rDNA/biological hazards will be managed by OAR personnel. Soiled cages must be transported using one of the following two methods:
  - a. Soiled cages, filter tops, wire racks, etc. must be placed into an autoclavable biohazard bag and secured within the bag for transport. Bagged cages can be returned to either the ABSL2 dirty cage staging area or an ABSL2a room.
  - b. Filter tops must be securely fastened to the cage for transport (i.e. rubber band or tape), and cages must be covered completely in a disposable drape. *Note: this option requires that the cages be returned to the ABSL2a room for bagging.*
- 3. Cages, including bedding, food, feeder and filter top must be autoclaved by OAR personnel prior to cage manipulation and washing.
- 4. Animal carcasses/tissues will be handled by research staff and must be double-bagged in plastic biohazard bags and staged for disposal by placing the bag(s) in red biowaste tubs located within the walk-in coolers, refrigerators, or freezers of each animal facility.

**E. Use of Core Facilities with animals that have been exposed to rDNA/ biological hazards – WHEN APPROVED IN ADVANCE BY AN OAR/IACUC VETERINARIAN**

1. Whenever possible, animals should be manipulated on the cart used to transport the animals to the facility (rather than contaminating table top surfaces or chucks in the room).
2. If necessary, dedicated nose cones should be used to administer gas anesthetic to maintain anesthetic level of the animal.
3. When possible, anesthetized animals should be placed on a single use disposable sheet on shared equipment (a black sheet is used for the IVIS in vivo imaging instrument).
4. When the procedure/imaging is completed, animals must be placed back into their cage and the filter top put back in place.
5. The disposable sheet must be sprayed down (until wet) with an appropriate disinfectant and placed in the biohazard waste receptacle in the facility.
6. The equipment must be disinfected with an appropriate disinfectant (includes inside of machines as well as the outside and handles/knobs).
7. Nose cones must be disinfected by soaking them in a closed container with appropriate disinfectant and stored in the investigator's lab, not the core facility.
8. All working surfaces in the room (e.g. tabletops, plastic cover on computer keyboards, etc.) must be disinfected with an appropriate disinfectant. Any chucks used on tabletop surfaces or otherwise contaminated should be decontaminated with an appropriate disinfectant, disposed of in the biohazard container, and replaced with clean chucks.

**F. Infected Animal Disposal by OAR Personnel**

1. If a deceased animal is found, OAR personnel will bag the carcass in a biohazard-labeled double bag, place it in the cooler, and submit a dead in pen (DIP) slip for the animal. The PI and any staff with system access will receive an email from OAR notifying them of the death.
2. Carcasses will be placed in a DIP bin in the cooler; bins are labeled with the day of the week that corresponds to the date on the automated email that PIs and staff receive once the DIP slip is processed. Carcasses are saved for at least three working days after being found.

*List the hazardous agent(s) that will require ABSL2a containment*

*Will animals be transported out of the ABSL2 holding room?      Yes      No*  
*If yes, for what purpose(s) and to which outside lab?*

*Describe anticipated deviations from the procedures listed above and/or additional procedures specific to this research project*

*Lab Emergency Contact Information*

*PI Signature* \_\_\_\_\_

*Date* \_\_\_\_\_

# Hazard Containment Protocol

Office Use Only

Protocol # \_\_\_\_\_

Reviewer	Signature	Date
OAR/IACUC Veterinarian		
Environmental Health & Safety Office		