



Title: Biosafety Level (BSL) 2 Rodent Husbandry

SOP Number: 035

Purpose: To describe necessary procedures to safely conduct husbandry of rodents housed in BSL II animal holding rooms. To reduce or eliminate the risk of exposure to biohazardous agents while working within the BSL II animal facility. To provide the highest quality of animal care and prevent the spread of disease.

RESPONSIBILITY

- A. Animal Care Services is responsible for ensuring:
 - 1. All technical and animal care staff are trained prior to working in the facility.
 - 2. Animal holding rooms are clearly labeled with the biohazardous agents used
 - 3. Appropriate safety practices are implemented and any changes in safety procedures are communicated to relevant personnel.
 - 4. Appropriate personal protective equipment (PPE) is available.
 - 5. Biohazard Safety Data Sheet (SDS) is accessible.
- B. It is the responsibility of Animal Care Services and the investigators to be sure all personnel review and adhere to the safety procedures

REQUIREMENTS

- A. Access is restricted. Doors are kept closed at all times.
- B. Enter facility with clean, non-soiled clothing through the receiving area
- C. Personal shoes are removed in the receiving area and designated crocs are worn.
- D. Scrubs are provided at the locker rooms. You **must** remove your personal clothing before putting on scrubs. Scrubs must be worn when working with animals or in the facility for extended periods of time. Scrubs and/or a lab coat and crocs must be worn before entering the main corridor of the animal suite.
- E. All personnel must don the appropriate PPE in the following order at the PPE entry barrier before entering the animal holding rooms:
 - 1. Disposable isolation gowns
 - 2. Face mask (respiratory protection)
 - 3. Eye protection (during cage change outs)
 - 4. Two pairs of gloves (when working with the animals)
 - i. First pair secured under isolation gown sleeves
 - ii. Second pair pulled up over isolation gown sleeves
 - 5. Other PPE unique to the specific hazard

**required PPE can be found posted on the door in the PPE entry room prior to entering the animal suite.
- F. Once appropriate PPE is applied all authorized personnel will access animal holding rooms through the appropriate animal suite corridor.

- G. All PPE must be discarded in the appropriate receptacle located in the animal holding room, each time you leave the animal holding room. To avoid wasting PPE be sure you have everything you need before entering the room.
 - 1. Doff PPE in the following order:
 - i. Remove top pair of gloves/isolation gown
 - ii. Remove eye protection (if being used)
 - iii. Remove face mask
 - iv. Remove bottom pair of gloves
 - v. Spray eye protection with disinfectant
- H. Wash and disinfect your hands in the sink before exiting the animal holding room
- I. Step on disinfecting foot bath as you exit the animal holding room.
- J. To re-enter the holding room, you must apply clean PPE. in PPE can be found in the PPE anteroom to the suite.
- K. Scrubs must be removed and placed in the laundry basket in the locker room. **These are never to be worn outside of the animal facility.**
- L. Wash and Disinfect your hands in the locker room before exiting the facility.
- M. Crocs are removed in the receiving area before exiting the facility. ACS staff will disinfect crocs accordingly.

BASIC BSL II PROCEDURES

- A. Review requirements section for PPE requirements and proper disposal.
- B. Obtain all necessary supplies before entering the room.
- C. Husbandry and care of ABSL II animals are completed after animals in barrier or conventional animal rooms. All work surfaces are decontaminated with departmental approved disinfectant and 70% alcohol, before and after use.
- D. Extra care will be taken to minimize the creation of aerosols.
- E. All items removed from the room will be sprayed with disinfectant prior to removal.

HOUSING AND CARE:

- A. Mice/rats are generally socially housed in ventilated cages.
 - 1. For any animal that is individually housed, justification must be given in the animal use protocol and approved by the IACUC or AV.
- B. All forms located in the room's notebook must be adequately filled out.
 - 1. Daily observation sheet
 - 2. Task sheets
 - 3. Temperature/humidity logs
 - a. Temperature range: 68-79 degrees F
 - b. Humidity range: 30-70%
- C. Rooms should be checked daily for any operational deficiencies. Any deficiencies must be reported immediately to the facility manager.
- D. All cage manipulations are performed under a class II biosafety cabinet.
 - a. Water bottles are filled as needed and changed out weekly.
 - b. Fresh food is added to the cages as needed.
 - c. Cage lids, wire bars, and enrichment devices are changed out at least once a month. Cages are changed out as follows:
 - i. Cages with 3 or more mice:

1. Total change outs occur every two weeks (this includes wire bars, lids, bottoms, and enrichment)
2. Cage bottoms will be changed out every week (this includes new bedding and nesting material)
- ii. Cages with 2 mice:
 1. Total change outs occur every two weeks (this includes wire bars, lids, bottoms, and enrichment)
- iii. Cages with 1 mouse:
 1. Total change outs occur once a month (this includes wire bars, lids, bottoms, and enrichment)
- d. Any cage excessively soiled will be changed as needed to maintain an acceptable level of sanitation.

ENRICHMENT:

- A. Rodents are housed in groups to provide social interaction, unless otherwise justified.
 - a. Strain Specific Mouse Housing:
 - i. CD-1: up to 3 mice per cage
 - ii. Swiss Webster: up to 3 mice per cage
 - iii. Balb/c: up to 5 mice per cage
 - iv. C57: up to 5 mice per cage
 - b. Rat Housing:
 - i. Up to three small juvenile rats per cage
 - ii. Up to 2 adult rats per cage
- **additional strains not mentioned above will be housed based on weight (*Guide* p.57)
- B. Nesting material is added to the cages to facilitate thermoregulation and provide opportunities for species-typical behavior (i.e. foraging, burrowing, nest building, etc.).
- C. Enrichment tubes or huts are added to the cages to provide the rodents with shelter and also aid in thermoregulation.

ENRICHMENT IMPLEMENTATION:

- A. Enrichment is provided on a rotational schedule by the technicians at change-outs.
- B. Exceptions to enrichment require adequate justification as to why environmental enrichment would interfere with the study. These exceptions must be stated in the approved institutional animal care and use protocol.

CAGE SANITATION:

- A. Soiled cages are to be emptied into a biohazard bag under the biosafety cabinet.
 1. Place appropriately sized biohazard bag in a large trash bin under the dump station.
 2. Dispose of bedding and water appropriately.
 3. Spray the dirty cages under the biosafety cabinet with departmental approved disinfectant and allow for appropriate contact time to disinfect

4. Secure waste material in biohazard bag with sterilization tape. Spray the outside of the biohazard bag with disinfectant and allow for appropriate contact time to disinfect prior to removing from the room.
 5. Transport biohazard bags directly to autoclave or into a designated tote until ready for sterilization.
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- B. All cage set ups removed from the room will be sprayed with disinfectant prior to removal.
 - C. Water bottles, cage lids, wire bar lids, enrichment devices, and cages free of bedding, are cleaned in the facilities' cage or rack washer.
 - D. In facilities without access to a rack washer, racks should be cleaned and sanitized with appropriate disinfectant every 6 months.
 - E. In facilities with access to a rack washer, racks are to be changed out and cleaned in the rack washer every 6 months.

ANIMAL ROOM SANITATION:

- A. Floors are swept daily and mopped with disinfectant mixed according to manufacturer's recommendations at least twice a week. Designated brooms and mops are to be used in each room.
- B. All surfaces (including door frames, lights, and vents) are wiped down with disinfectant mixed according to manufacturer's recommendations, weekly.
- C. Floors, walls, and ceiling should be disinfected according to manufacturer's recommendations, monthly.
- D. Rooms will be decontaminated according to SOP 042 Decontamination of Animal Rooms and Procedural Areas of On-Campus Facilities upon the completion of all studies.

VENTILATED RACK MAINTENANCE:

- A. Check Daily:
 1. Power supply to rack
 2. Ensure all of the appropriate connections are capped
 3. Condensation in the cages- if present, report it to the facilities manager
- B. Check Every Two Weeks:
 1. Inspect pre-filter- clean if necessary
 2. Wipe down the unit
- C. Every 6 months:
 1. Change out the rack and hoses
- D. Yearly:
 1. Replace the EXHAUST HEPA filter
 2. Replace the pre-filters
- E. Every two years:
 1. Replace the SUPPLY HEPA filter

ANIMAL HEALTH MONITORING:

- A. Animals are observed daily by animal care staff for evidence of illness or change in behavior.

1. Everyone with access to the animal facility is responsible for immediately informing the facility manager or a university veterinarian when an animal becomes ill or a change in behavior is observed.
2. Possible signs of illness are as follows:

Species	Behavior	Appearance
Rodents	Decreased activity; excessive licking/scratching; self-mutilation; avoidance or aggression; abnormal locomotion (stumbling); writhing; no nest building	Piloerection; rough or stained haircoat; abnormal stance or hunched back; porphyrin staining (rats); rapid, shallow respirations

B. In the event of suspected illness:

- a. Record your observation on a sick animal card located in the ACS card system unit in the hallway of the animal facility- - fill out the information on the card completely. Be sure to place the white copy behind the cage card on the rack and bring the yellow copy to the animal health technician, veterinarian or facilities manager for further examination.

C. In the event of an emergency:

- a. Contact the ACS facility manager or a university veterinarian:

ACS Attending Veterinarian
806-834-8588 Office
806-239-2120 Cell Phone

ACS Clinical Veterinarian
806-834-7373 Office
660-562-4425 Cell Phone

ACS Facilities Manager
806-834-2872 Office
602-758-0670 Cell Phone