

University of Louisville
Institutional Animal Care and Use Committee
Policies and Procedures

Laboratory and Satellite Rodent Housing

Policy: Although strongly discouraged, the IACUC acknowledges that there are circumstances when holding animals in laboratories for long periods of time, defined as longer than 12 hours for the purposes of this policy, is warranted. Such housing of rodents outside of Comparative Medicine Research Unit (CMRU) vivaria must be specifically justified and approved in an IACUC *Proposal*. Husbandry and animal care must follow the principles outlined in the Guide and the Animal Welfare Act and Regulations (AWAR) as applicable by species. Rodents held in non-CMRU space must be observed and monitored at least *once daily* (including weekends, holidays, weather closures). The expectations for the room maintenance, environmental monitoring, and record keeping will correspond to the time period animals are kept in the laboratory: a) between 12-24 hours (“overnight housing”), b) up to 3 days (“temporary satellite housing”), or c) greater than 3 days (“satellite housing”). Such records must be retained for review by IACUC and CMRU staff. Access to CMRU veterinary staff must be made available at all times. In accordance with the Guide and Animal Welfare Act Regulations, each laboratory holding vertebrate animals outside of CMRU-controlled space must provide the Attending Veterinarian, or his/her designate, with access to the animals. CMRU *per diem* fees will be charged for animals held within non-CMRU locations greater than 24 hours

Note: Although use of any laboratory or area must be approved by the IACUC, this policy does not pertain to prolonged procedures requiring anesthesia (lengthy non-survival procedures), *i.e.*, it only applies to holding of conscious animals in laboratories. *Keeping animals in laboratories or satellite facilities for reasons other than those procedures approved by the IACUC is prohibited and considered non-compliance with this policy. Non-compliance with any IACUC policy or federal regulation/guideline is reportable to applicable regulatory, funding and accrediting agencies and may result in the limitation or permanent revocation of future animal use privileges by non-compliant laboratories at UofL.*

Rationale: USDA AWAR defines an area that houses animals for more than 12 hours as a “study area”, PHS policy defines a “satellite facility” as “any containment outside of a core facility or centrally designated or managed area in which animals are housed for more than 24 hours.” The 8th Edition of the Guide confirms that animals “should be housed in facilities dedicated to or assigned for that purpose, not in laboratories merely for convenience. If animals must be maintained in a laboratory to satisfy the scientific aims of a protocol, that space should be appropriate to house and care for the animals and its use limited to the period during which it is required. If needed, measures should be taken to minimize occupational hazards related to exposure to animals...” This policy/procedure outlines the minimum IACUC expectations for daily and other routine care and outlines mechanisms for providing information required by regulatory and accrediting agencies.

Procedures, Guidelines, and Exceptions:

1. The IACUC approves housing of rodents in laboratories/study areas or satellite facilities on a case-by-case basis based on the procedures to be performed and scientific justification for why animals

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must be housed in laboratories instead of CMRU vivaria. The following information is required of all *Proposals* requesting laboratory or satellite housing.

- a. All laboratories housing animals longer than 12 hours *must* be equipped with a means of monitoring temperature and remotely notifying laboratory and CMRU personnel in the event of critically high or low temperatures ($\pm 7^{\circ}\text{F}$ from set-point). Laboratories that are already equipped with such equipment *must* include CMRU personnel in the notifications in the event of an emergency where animals may need to be relocated. Validated monitoring equipment is available for purchase through the CMRU and IACUC Office. Please contact the IACUC Office (iacuc@louisville.edu) to arrange for CMRU personnel notification and to purchase equipment.
- b. In the event of a building emergency that could impact the health and welfare of animals in laboratories, CMRU personnel *must* be notified when animals are moved to a laboratory overnight or longer so that they know animals are present and can relocate them in collaboration with the laboratory to a safe location. This can be accomplished by completing the following web based "[Housing Notification](#)" form.
- c. Information to be included in the *Non CMRU Study Site(s) section of Proposal*: The specific procedures performed and justification for keeping rodents within a non-CMRU space longer than 12 hours must be detailed in this section of the proposal. In addition, this section should state the building(s) and room number(s) to be used, proposed length of time animal(s) will remain in the room(s) , and an approximate number of animals to be housed at any given time.
- d. Husbandry practices should be described in detail including frequency of cage changes, cage changing practices, and location where cages are being changed. Rodent cages that are static (not on ventilated racks) and house multiple animals must be changed at least two times per week. Single-housed rodents in static cages must be changed at least once per week. Rodent cages on ventilated racks must be changed at least once every two weeks and at least once weekly if animals are polyuric. Movement of animals from vivaria to site, acquisition of clean cages and cage components, as well as practices for returning dirty cages and cage components to a designated CMRU cage wash site must be described in detail. Measures taken to reduce allergens and allergen exposure within housing space should also be addressed. Labs requesting to house animals for greater than 72 hours will be prompted to provide information including a detailed facility description; provisions for emergency response; lighting, temperature, and humidity controls; security; pest control; and an annual HVAC assessment.
- e. Information to be included in the *Non-standard housing, food, and water (or other special considerations) section of Proposal*: If, during non-vivaria housing, animals are to be subjected to conditions other than standard CMRU housing conditions, exceptions must be fully described and justified in this section. Examples may include non-standard primary enclosures such as metabolic cages, single housing, environmental enrichment exceptions, special food and/or water, food and/or water restrictions, and other special needs.
- f. Information to be included in the *Project Participants section of Proposal*: The laboratory personnel responsible for daily animal health observations and husbandry should be identified. Associated training logs will need to reflect training and proficiency in performing these tasks. All personnel identified as responsible for husbandry will be required to complete a *Health Assessment and Husbandry Training* course provided by CMRU husbandry supervisor and veterinary staff prior to assuming this role. Species-specific online training (such as CITI program courses *Working with mice in Research Settings* or *Working with Rats in Research*

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Settings) should also be completed by all laboratory personnel responsible for daily animal health observations and husbandry.

2. **“*Overnight Housing Location*” - Rooms holding rodents for over 12 but less than 24 hours.**
 - a. Information outlined in item 1 of this policy must be included in the approved protocol.
 - b. Transport of animals must be in accordance with IACUC Policy/Procedure, “[Transportation of Research Animals](#).” Transport must occur in a clean cage with adequate food, water, bedding, and appropriate environmental enrichment (unless exemptions were approved in the IACUC *Proposal*). CMRU-produced cage cards must remain with the cages. Upon completion of transport, water level in bottles should be checked for leakage.
 - c. Animal should remain in their cage with the filter top attached as much as possible and returned to a CMRU animal holding room as soon as possible. Cages must not be stacked.
 - d. The names and contact numbers (including emergency contact numbers) for individuals responsible for animal observations in the area must be posted.
 - e. Adequate space in the room should be dedicated to animal holding for the time period during which cages remain in the room. This space must be physically separated from chemicals or other hazards. An empty fume hood, biological safety cabinet, or other space that provides containment of dust and allergens is preferred.
 - f. Any safety procedures outlined in laboratory-specific SOPs or in approved Animal Biosafety or Animal Chemical Hazard Signs must be followed. Animal Biosafety or Animal Chemical Hazard Signs must be displayed where they can be easily seen when animals are treated or have been treated with a hazardous agent. Special cage cards indicating the hazard that the animals have been exposed to and special precautions must be present on each cage.
 - g. Security measures must be in accordance with IACUC Policy/Procedure, “[Animal Security in Investigator Laboratories](#).”
 - h. CMRU veterinary care staff must be notified immediately of veterinary medical issues (abnormalities including illness, poor recovery, abnormal behavior, or mortality).
3. **“*Temporary Satellite Housing Area*” - rooms holding rodents for over 24 but less than 3 days.**
 - a. Information outlined in item 1 of this policy must be included in the approved protocol and procedures outlined in item 2 of this policy must be followed.
 - b. Light cycles should be controlled and correspond to the same on-and-off cycle as the vivarium of origin.
 - d. The date the cage (s) entered the room and the date the cage(s) was returned or the animals were euthanized must be noted on a cage card. If all cage occupants are euthanized, the cage cards must be retained for at least 3 years and made available to the IACUC and CMRU for review.
 - e. Any clean cages needed should be obtained from the CMRU as “kits” (cage fitted with bedding, lid, microisolator top, food, and water) and transported to the location within a plastic bag. Movement of animals from the transfer cage should be minimized, but, if necessary (excess soiling, water spillage, dividing groups, *etc.*), animals should be placed into complete clean cage kit. Soiled cages should be bagged carefully to avoid exposure to aerosolized bedding and returned within 3 days to the soiled cagewash of the facility of origin. Bedding must not be removed from caging within the laboratory.

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- f. Information regarding disinfection of the macroenvironment (ie the room where animals are housed), including frequency, method of disinfection, and assessment of the effectiveness of sanitation should be included in the non-CMRU study sites section of the proposal or SHAD as well as logged by the laboratory. The frequency of disinfection and/or assessment of the effectiveness should not be less frequent than that of CMRU housing rooms (assessment of effectiveness semiannually; disinfection at least yearly or more frequently if needed based on assessment of effectiveness). Assessment of disinfection should be performed based on IACUC policy: “[Microbiological Monitoring of PI Maintained Animal Rooms, Support Areas, and Equipment](#).”
- g. The following information must be documented **daily** when animals are kept in the room. The use of a standardized log form (appendix A) is recommended.
- 1) Animal census (for mice by cage, for rats by animal) by *Proposal* number.
 - 2) Maximum and minimum temperature reached the previous 24-hours, taken from the area of animal cage holding.
 - 3) Verification that feed, water, and an assessment of animal health was checked.
 - 4) Date of cage change if applicable.
 - 5) Any animal abnormalities noted, including illness, abnormal behavior, or mortality. *Note that CMRU veterinary care staff must be notified immediately of such issues.*
 - 6) These records must be retained for at least 3 years and be made available to the IACUC and CMRU for review.
 - 7) If the laboratory is unable to provide daily observation due to unexpected staff illness or weather that prevents members of the laboratory trained in health assessment from observing the animals, CMRU veterinary staff must be contacted by noon of that day to arrange for the daily observation. CMRU routinely provides updated emergency contact information to PI’s that should be made available to everyone in the laboratory by the PI.
 - 8) CMRU personnel **must** be notified when animals are moved to a satellite housing area so that appropriate monitoring can take place and in the event of an emergency. This can be accomplished by completing the following web based “[Housing Notification](#)” form.
4. “**Satellite Housing Areas**” - Rooms holding animals for **greater than 3 days**
- a. Information outlined in item 1 of this policy must be included in the approved protocol and procedures outlined in item 2 and 3 of this policy must be followed.
 - b. A detailed satellite housing area description will be prompted within the *Non CMRU Study Site(s) section of Proposal*.
 - 1) Facility(ies) Description includes the following.
 - a) Estimates for both the area (square footage) used for animal housing and the area (square footage) available for animal support.
 - c) A description of the finishes/materials used, including floors, walls, doors, and ceilings for all areas. Surfaces should be maintained to enhance sanitation practices.
 - d) Note if emergency power is provided and if so, what electrical services and equipment are maintained in the event the primary power source fails. An emergency response plan addressing major system failures must be addressed.
 - e) A description of the lighting system(s) for the animal housing rooms should include estimated light intensity, spectrum, photoperiod (light/dark), construction features (e.g., water resistance), and control (e.g., automatic versus manual, phasing). For systems

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- automatically controlling photoperiod, override mechanisms should be described.
Exterior and interior windows should be opaque or red-filtered.
- f) Safety features of the areas should be described, including electrical hazard safety and physical hazards.
 - g) Security measures used in the areas should be described.
 - h) Any pest control program affecting the housing room(s) should be described.
 - i) A description of the HVAC system supporting the area should be included.
 - i. If air is not 100% fresh/exhausted, the AAALAC FAQ regarding use of recycled air should be considered.
 - ii. If static microisolator cages are used, room air exchange rate should exceed 10 air changes per hour. If individually ventilated cage systems are used, air exchange rate should be adequate to support temperature and relative humidity in Guide-recommended ranges and prevent odor escape into surrounding areas.
 - iii. Room relative pressure should be maintained negative with respect to the surrounding areas for odor and allergen control.
 - iv. Room (or cage) temperature and relative humidity should be maintained within Guide-recommended ranges (+/-2°F with a set-point between 70-72°F, relative humidity 30-70%).
 - v. HVAC equipment performance should be evaluated at least annually.
- 2) Primary Enclosures
- a) A general description of each primary enclosure used. If primary enclosures are not provided by the CMRU, this description should include the number of such enclosures, species housed, composition/construction materials, dimensions, and maximum number of animals per enclosure (housing density). For the latter, a description of the performance criteria used to determine the appropriateness of space should be provided if the density is greater than CMRU standards.
 - b) The *Proposal* should include a justification for any individually housed animals and a description of any elements used within the primary enclosure to enhance animal well-being (e.g., environmental enrichment).
- c. Cage-changing should be arranged with and provided by the CMRU. Alternatively, the proposal must contain a description of husbandry and animal care procedures.
- 1) A description and plan of ensuring daily observation, including weekend, holiday care, weather closures as well as procedures for contacting animal care and/or veterinary personnel in case of an emergency.
 - 2) The *Proposal* should describe the frequency of cage changing. Clean cages must be obtained from the CMRU as complete “kits.” Unless a special, IACUC-approved diet is employed, storage of feed and bedding is not allowed.
 - 3) The *Proposal* should contain a description of the source, treatment, and method of providing drinking water.
 - 4) Methods of monitoring animals for infectious agents or other illnesses, including criteria used to indicate a need for veterinary staff assistance, must be included.

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- d. The following information must be documented **daily** (including weekends, holidays and weather closures) when animal are kept in the room. The use of a standardized log form (Appendix B) is recommended.
- 1) Animal census (for mice by cage, for rats by animal) by *Proposal* number.
 - 2) Maximum and minimum temperature *and relative humidity* reached the previous 24-hours, taken from the area of animal cage holding.
 - 3) Verification of checking feed, water, and an assessment of animal health.
 - 4) Date of cage changes.
 - 4) Any animal abnormalities noted, including illness, abnormal behavior, or mortality. *Note that CMRU veterinary care staff must be notified immediately of such issues.*
 - 5) These records must be retained for at least 3 years and be made available to the IACUC and CMRU for review.
 - 6) If the laboratory is unable to provide daily observation due to unexpected staff illness or weather that prevents members of the laboratory trained in health assessment from observing the animals, CMRU veterinary staff must be contacted by noon of that day to arrange for the daily observation. CMRU routinely provides updated emergency contact information to PI's that should be made available to everyone in the laboratory.

5. Core laboratory proposals

- a. Proposals that require overnight or satellite housing to facilitate core activities or core services will need to provide information outlined in item 1 of this policy in the approved protocol and adhere to procedures outlined in item 2, 3, and 4 of this policy as applicable.
- b. Protocols utilizing core services will need to include the following information in their respective protocols.
 - 1) Information to be included in the *Non CMRU Study Site(s) section of Proposal referencing a CORE protocol*: The specific procedures to be performed and justification for keeping rodents within a non-CMRU space longer than 12 hours. Proposed length of time animal(s) will remain in the room(s), and an approximate number of animals to be housed at any given time.
 - 2) Information to be included in the *Non-standard housing, food, and water (or other special considerations) section of Proposal*: Any conditions other than standard CMRU housing conditions that are not described and justified in the CORE protocol must be fully described and justified in this section. For example, if a CORE protocol describes a one day experiment placing animals in a metabolic cage with standard food and water and another PI needs to use a special diet or medicated water, then the deviation from the approved CORE activity would need to be described and justified in the individual protocol.
 - 3) Information to be included in the *Project Participants section of Proposal*: The laboratory personnel responsible for daily animal observations and husbandry should be identified or indicate that these activities are provided by personnel listed on the CORE protocol. Associated training logs will need to reflect training and proficiency in performing these tasks as applicable. All personnel identified as responsible for daily animal observations will be required to complete a *Health Assessment Training* course

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prior to assuming this role. All personnel identified as responsible for husbandry will be required to complete a *Husbandry Training* course prior to assuming this role.

References:

1. National Research Council. 2011. Guide for the Care and Use of Laboratory Animals, 8th Ed.
2. Program Description template, AAALAC, International, 2012.
3. PHS Policy on the Humane Care and Use of Laboratory Animals
(<http://grants.nih.gov/grants/olaw/references/phspol.htm>).
4. AAALAC Frequently Asked Questions, “Recycled air”
(http://www.aaalac.org/accreditation/faq_landing.cfm#E6).
5. Animal Welfare Act and Animal Welfare Regulations. United States Department of Agriculture, Animal and Plant Health Inspection Service. Current version.

Attachments:

Appendix A –Satellite housing form less than 3 days

Appendix B - Satellite housing form greater than 3 days

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