

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

Rodent Breeding Colonies

Policy: Justification for maintaining a breeding colony as well as other animal use information must be included in an IACUC-approved *Proposal*. Investigators must ensure that the number of animals used **never** exceeds the total number of animals approved on the IACUC *Proposal*. Animal use exceeding the IACUC-approved total constitutes performance of an animal activity not approved by the IACUC, is expressly forbidden and reportable to regulatory and accrediting bodies.

Rationale: Rodent breeding colonies are needed to generate experimental animals and maintain irreplaceable lines/strains. Investigators must avoid unnecessary production of animals and compliance with housing space requirements included in *The Guide for the Care and Use of Laboratory Animals*. During times when experimental *Proposals* do not require a continued production of animals, yet the need for the breeding colony will recur in the future, measures such as separation of breeders should be implemented. Because the Comparative Medicine Research Unit (CMRU) does not oversee the weaning of breeding colonies, PIs must provide production numbers so that required periodic reports to regulatory authorities may be completed.

Procedures, Guidelines, and Exceptions:

1. The IACUC recommends the use of monogamous pairing rather than harem breeding. Because an individual cage can only support a single litter, monogamous pairing avoids the necessity of more frequent observation and removal of additional pregnant females. If harem breeding is used, cage occupancy must be limited according to CMRU guidelines; only one male is permitted per cage and pregnant females must be separated to prevent multiple litters per cage.
 - a. Weaning of mice & rat pups should occur as quickly as possible once the pups reach 21 days of age and must be weaned before 28 days of age unless specific justification is approved in the IACUC *Proposal*. Because rodents can become pregnant during postpartum estrus, offspring from continuous mating schemes should be weaned at or very soon after 21 days of age to prevent double litters.
 - b. CMRU recommends supportive care (including a water bottle, moistened chow on the cage floor, and additional nesting material) be provided to rodents at the time of weaning to ease transition. Weanlings should be divided into cages not exceeding the guidelines in the IACUC policy “Housing of Mice and Rats Policy.”
 - c. Monogamous pairing is a more efficient breeding strategy for production of larger numbers of animals per female due to utilization of postpartum estrus. However, utilization of smaller number of genetically-valuable males may warrant harem breeding in some scenarios. Harem breeding definition: One male only with more than one female per cage. Monogamous breeding definition: One male and one female only per cage, and the male is not separated when the female becomes pregnant or delivers the pups.
 - d. CMRU-caging does not allow for more than one litter per cage or more than 2 adults with one litter per cage. Thus, it is critical that when harem breeding schemes are used, pregnant females must be separated prior to parturition to be compliant with *Guide* space requirements.

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2. Because of the nature of a breeding colony, the expected number of animals in such *Proposals* is flexible, whereas the number of animals in *Proposals* describing only experiments is relatively fixed. Nonetheless, the IACUC must be presented with sufficient information to verify that the opportunity for excessive animal production and/or use is minimized. This justification should be based on the number of animals needed for experimental purposes and line maintenance and include estimates of the number of pups per litter, the number of usable animals per litter, the number of litters per dam, and number of dams (and sires).
3. For tracking purposes, it may be convenient (but not mandatory) for breeding colony *Proposals* to be separate and apart from other IACUC *Proposals*. However, if a breeding colony is required solely to produce experimental animals for an experimental *Proposal*, then combining these activities in a single *Proposal* will avoid the need to transfer animals from one *Proposal* to the other. A stand-alone *Proposal* may be needed if a breeding colony will be used to provide experimental animals to several different experimental *Proposals*. In these cases, a “Proposal Transfer Request” must be submitted via the CMRU’s website (Louisville.edu/research/cmru/business-services/forms) to document the transfer of animals from one *Proposal* to another. To ensure adequate space, update location information, and enhance biosecurity and compliance efforts, the CMRU must be notified of such transfers. *Simply modifying or replacing a cage card identifying the animals is not adequate.* A Proposal Transfer Request must be submitted for each transfer of animals; the official transaction, including generation of updated cage cards and appropriate accounting designation, will occur only after the CMRU has processed the transfer request.
4. An accurate animal use record must be maintained. This record must include the number and disposition of all animals produced and should be available for IACUC review during inspections. Because the CMRU cannot identify animals produced “in-house,” the PI must update the IACUC/CMRU records on the number of animals used (*i.e.*, weaned) in breeding colonies. This animal usage report must be sent to the IACUC Office. The IACUC Office or designee will send a notification to PIs with IACUC *Proposals* approved for breeding at the end of each quarter requesting the animal usage report.

Investigators must provide an account for every *Proposal* approved for breeding, even if the number of animals used in breeding colonies is “0”. Investigators must provide an exact account of animals used; estimates or approximations are unacceptable. This animal usage report will be debited from the IACUC-approved total in the *Proposal*. The current balance of remaining animals on a *Proposal* is available in eSirius.

5. Investigators are responsible for overseeing all aspects of their research projects, including breeding colony management and recordkeeping. The number of animals used must never exceed the total number approved on the IACUC *Proposal*. Investigators should regularly monitor the balance of remaining animal numbers on a breeding *Proposal* in eSirius to ensure that the IACUC-approved total is not exceeded, and must submit a *Proposal* modification via iRIS to request an increase in animal numbers for IACUC review and approval in the event that more animals are needed.

To check balances in eSirius: click “animal order” in the left-hand pane, then click the order animals tab on the right side. The balances are listed on the line of each IACUC *Proposal*.

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6. In the generation of new genetic strains of rodents or in breeding programs that result in abnormal or unexpected phenotype or recurring health conditions, the Principal Investigator must notify the IACUC and submit a modification to the *Proposal* that incorporates plans of addressing potential animal pain and distress.

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