

GUIDELINES FOR INVESTIGATORS WHO MANAGE MOUSE BREEDING PROGRAMS

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Background

According to the *Guide for the Care and Use of Laboratory Animals (Guide)*, up to 5 adult mice may be housed in static and most ventilated mouse cages on campus. Per ACUC approved exceptions to the *Guide*, up to 6 adult mice may be housed in the blue, individually ventilated mouse cages (Tecniplast, 82 sq. in.). For breeding purposes, the standard mouse cage is designed by size to accommodate one adult female mouse, one adult male mouse, and their litter.

Animal overcrowding compromises humane animal care and goes against the principles of the *Public Health Service (PHS) Policy on Humane Care and Use of Laboratory Animals*.

Purpose

These guidelines were established to assist Principal Investigators (PIs) who manage mouse-breeding colonies.

Investigators who find a procedure to be incompatible with the scientific needs of their research may submit a written request for the Animal Care and Use Committee (ACUC) to consider an exception to these guidelines.

Procedures

1. The Office of Laboratory Animal Care (OLAC) staff monitors animal health daily (food, water, health concerns) but is not responsible for management of rodent breeding colonies. The PI must check all breeding mouse cages at least three spaced times every seven days. When approved in the Animal Use Protocol (AUP), triad breeding (2 females and one male) is permitted with careful management. Triad breeding is only approved for strains that consistently have small litters or long interparturition intervals and when PIs can document breeding performance is enhanced by triad breeding. The two pregnant females must be separated before both females have delivered their litters. Only one litter is allowed in a cage at one time.

An exception may be made for strains that consistently produce no more than 5 pups per litter. When approved in the AUP, triad breeding groups (2 females and one male) and their litters may remain in the same cage until weaning at 21 days

of age only if no more than 11 pups are present in the cage. If multiple litters are present in a cage, the litters cannot be more than 4 days apart in age.

2. In most cases weaning of litters must be performed by 21 days. The day of birth is counted as day zero, cages that have not been weaned by day 22 will be considered overcrowded. Cages that do not have birthdates noted on the cage card may be tagged as overcrowded. The ACUC may approve prolonged lactation for certain transgenic mice based on data documenting small pup size at 21 days. If pups are to be nursed beyond 21 days the male must be removed from the cage prior to parturition to avoid breeding during post-partum estrus/ovulation. If a second litter is born into the cage the older litter must be immediately removed. Compliance with this exception may require daily observation of animals.

It is suggested that undersized litters not be weaned on Fridays or the day before a holiday. If a litter is 21 days old or less on a Friday, weaning may be delayed until the next workday. These cages must be tagged and dated with a Delayed Weaning tag. It is essential that these cages be weaned promptly the next workday or they will be considered overcrowded.

3. At the PI's request, cage changing can be delayed when new litters are present. Delayed cage-change is only done on an individual cage basis. Cage change can be delayed no more than 3 days. Cages for delayed change must be clearly tagged and dated. The lab is responsible for changing the cage within the three day limit.
4. When overcrowded cages are identified by OLAC staff, overcrowding cards will be placed on the cages immediately. At the end of the work day (4pm on weekdays and 2pm on weekends and holidays), any tagged cages that have not been addressed by the lab will be separated by OLAC staff. A per-cage charge will be levied for each cage set up. An email report will be sent to the PI and a designated laboratory contact through the next day's morning health report. An email will be sent to the ACUC to monitor for excessive overcrowding violations (more than 3 violations per month). The ACUC will review the circumstances and may suspend the investigator's approval to maintain a breeding colony.

OLAC reserves the right to immediately separate, or change the cage of, any animals when animal welfare concerns exist.

5. PIs are responsible for maintaining appropriate cage card information on all rodent cages. This information includes, but is not limited to, the following:
 - PI's name, department, and lab contact person
 - Cage identification number
 - Species and/or strain
 - Sex and number of adults per cage
 - Birth dates (or dates of arrival) of adults
 - Birth dates and wean dates of litters

- Source (name of vendor or "colony born")
6. On the AUP, investigators managing mouse breeding colonies must provide up-to-date e-mail information for themselves and designated laboratory contacts prior to beginning work. A lab contact email list that includes all members of the lab responsible for rodent care is recommended. The health reporting system maintains two email contacts per lab, one of which must be the PI's email. The PI is responsible for keeping these contacts up to date and should report any changes to the Animal Health Technicians.
 7. An investigator may request additional information or assistance with breeding colony management by contacting the facility Lab Animal Supervisor or an Animal Health Technician.

References

- Office of Laboratory Animal Welfare. (2002). Public Health Service Policy on Humane Care and Use of Laboratory Animals.