UNIVERSITY OF TEXAS AT ARLINGTON

INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE

RODENT BREEDING SOP

I. Responsibilities

A. Principal Investigator (PI) – the PI is responsible for:

1. Submitting a protocol for approval of a breeding colony by the IACUC, including providing justification of the breeding colony for research/scientific purposes. (See UTA IACUC Forms page for Breeding Protocol Application Form.)
2. Managing their own breeding colony under their own IACUC protocol and ensuring that the number of animals bred is maintained at the minimum number of animals needed for research purposes. *PIs must manage their breeding colonies with the intent to supply animals for their own research.*
3. Ensuring that their breeding colonies follow one of the schemes outlined in this document *or* fully describe their own breeding scheme in their breeding protocol.
4. Maintaining records of animal numbers and number of animals produced, and maintaining records of transfer of animals from a breeding protocol to an experimental protocol. Records must be accessible to the IACUC upon request.
5. Oversight of appropriate colony management, timely weaning of litters and prevention of overcrowded cages;
6. Ensuring a communication mechanism is in place to receive timely communications from husbandry and veterinary staff (e.g., voicemail/email that is routinely checked and/or a number that is routinely attended)
7. Ensuring that overcrowded cages are separated and the available space for new cages is allowed within the Animal Care Facility (ACF). Breeding animal cages should not be set up unless there is available space for the cages of weaned animals. If adequate vacant spaces are not available within the same housing room, the PI must discuss options with the ACF Manager.
8. Submitting transfer explanations to the ACF Manager. The occasional transfer of animals from one PI's breeding protocol to the approved protocol of another PI is permitted to minimize waste and support humane and ethical use of animals. Animal transfers to other PIs that occur frequently or involve a large number of animals may indicate a poorly managed breeding colony and will require evaluation by the IACUC. PIs must submit a written explanation for transfers. These explanations are to be submitted to the ACF Manager and are not intended to block the transfer to other PI's protocols. The transfer explanation will be added to the breeding protocol records maintained by the ACF and will be presented to the IACUC for assessment at the next regularly scheduled IACUC meeting.

B. ACF Staff – The ACF Staff is responsible for:

1. Daily observation of breeding cages for newborn animals, litters that are ready for weaning, separating of females and a general check of the animals' health and overall condition.
2. Obtaining transfer explanations from PIs as described in I.A.8. above. The ACF Manager will document these transfer explanations in the breeding protocol records maintained by the ACF and present these to the IACUC for assessment at the next regularly scheduled IACUC meeting.

C. IACUC – The IACUC is responsible for:

1. Review of breeding protocols and consideration of the scientific/research necessity of the colony.
2. Semi-annual inspection of breeding colonies.
3. Evaluating the progress of the breeding protocols to ensure that there is not an excessive number of animals being produced without a corresponding research need. To facilitate this evaluation, the IACUC will review the monthly ACF animal census numbers as well as transfer explanations from PIs.

II. Breeding Schemes –Any deviation from these recommended schemes must receive prior approval from the IACUC.

A. Monogamous pair - One male and one female are housed together for mating.

1. Optimal for strains with pups that are small and often stay with dam for extended duration.
2. They are not separated when the female becomes pregnant or delivers the pups.
3. Litters are born approximately 21 days apart.
4. Weaning should take place a minimum of 18 days after delivery, but no later than 28 days after delivery.
5. The litter must be weaned prior to birth of new litter.
6. For strains that require pups to be weaned later than 21 days of age, female must be separated to avoid overcrowding.

B. Trio Breeding - One male and two females are housed together for mating.

1. Mice
   a. Optimal for strains with small litter sizes (< 6 pups per litter).
   b. Male should be removed after pregnancy is confirmed.
   c. Both lactating females may be left in the same cage (+/- the male) only if both females have small litters (no more than 12 pups combined).

d. Weaning should take place a minimum of 18 days after delivery, but no later than 28 days after delivery - preferably prior to the birth of new litters.

e. For strains that require pups to be weaned later than 21 days of age, both females must be separated to avoid overcrowding.

2. Rats

a. One of the females must be separated once pregnancy is confirmed, but before delivery of pups, to avoid overcrowding. One of the lactating females may be left in the same cage with the male.

b. Weaning should take place a minimum of 18 days after delivery, but no later than 28 days after delivery - preferably prior to the birth of new litters.

C. Harem Breeding

1. Mice

a. One male and up to four female mice are housed together for mating.

b. Pregnant females must be separated into another cage before giving birth to avoid overcrowding. No litters should be born into cage with harem.

2. Rats - This breeding scheme is not recommended for rats due to increased risk of overcrowding and impact on animal welfare. It will only be permitted under specific circumstances and must be justified in the animal use protocol.

III. Weaning - Weaning refers to removing a pup from its home cage. The weaning schedule must be fully described in the IACUC breeding protocol.

A. Generally, laboratory rodents are weaned when they are 21 days old, but they can be weaned anywhere from 18 to 28 days old. Weaning age may vary depending on weanling size, weight, and maturity; some strains such as transgenics benefit from being weaned later than 21 days of age. Growth of pups can be supported by placing a dish at the bottom of the cage containing moist chow (pellets of feed that are soaked in water).

B. For colonies where mice are routinely weaned after 21 days of age, the female must be separated from the male prior to giving birth as to avoid overlapping of gestation and overcrowding.

C. Upon weaning, pups may be separated as follows:

1. Male and female pups separated by sex into cages

2. Housing a maximum of 5 mice up to 25g or 4 mice over 25g

3. With rats, it may be best to separate the pups 4 per cage, if possible. This will aid in preventing overcrowded caging as well as single housed rats once they have reached full maturity and over 400g. See IACUC Cage Density SOP for more information.