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## **Title: Mouse Breeding Colonies**

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I. Purpose:

The purpose of this policy is to outline the minimum standards of care for rodent breeding colonies based on Public Health Service Policy, and the ILAR ***Guide for the Care and Use of Laboratory Animals***.

II. Policy:

All units providing animal care for breeding colonies of rodents must meet or exceed these minimum requirements. Any deviation from these standards must be described in the animal use and care protocol and approved by the IACUC.

It is the responsibility of the Principal Investigator, the Husbandry staff and the Veterinary Staff to ensure proper breeding techniques, and that appropriate weaning and cage densities are adhered to. The Principal Investigator and his, or her, delegates have primary responsibility for maintaining the breeding colony; however, if they fail to meet these minimum standards, the Vivarium husbandry staff has secondary responsibility to ensure the standards are met per the procedures outlined below and will ensure the approved standards and operating procedures are adhered to.

Breeding colonies of rodents must continue to meet all standards regarding cage density. For example: there may not be two litters in a cage designed for 4-5 adult mice.

Failure to meet these standards can result in loss of the privilege to maintain rodent breeding colonies at UC Davis. The facility, veterinary staff or other campus entity providing service may charge the Principal Investigator's account for labor related to breeding, weaning, and separating of mice as a service or for corrective action taken on the Principal Investigator's behalf to bring all aspects of the breeding program into compliance. For example: if the husbandry staff must separate unweaned overdue mice or multiple litters in a cage the facility may charge labor rates for the time spent performing this function.

III. Procedure:

**Breeding Schemes and Management:**

Each facility must decide if they will manage breeding, allow Principal Investigators to manage their colonies, or manage the breeding together.

Mice can be set up in trios, harems or pair breeding. Only 1 male is allowed per breeding cage. Multiple females may be bred to a single male; however, the total number of mice per cage may not exceed the cage capacity.

For trios and harem breeding the pregnant female should be separated and placed into her own cage (with appropriate nesting/enrichment materials) prior to giving birth. This is usually accomplished before E15 (15 days of gestation) when pregnancy is identified, or after mating when a plug is identified. If a female litters while in the trio or harem cage, the male and remaining females should be removed to a separate cage leaving the female with her litter undisturbed. When pregnant females are separated, the male may remain with only one female or he can be moved to another breeding cage or housed separately based on the needs of the colony/protocol. This procedure applies to cages designed to house 4 to 5 adult mice. Cages designed for more than 5 adult mice can house up to two females with two litters, the male may remain or be removed based on the cage density established by the facility.

When breeding in pairs (one male to one female), the dam and sire may remain together throughout gestation and lactation. Breeding pairs often breed during post-partum estrus (immediately following parturition) so pairs with litters near weaning age must be monitored closely for the arrival of a new litter. Ideally, the current litter should be weaned just prior to the birth of the new litter; however, if the new litter arrives early, the older litter must be weaned; even if it is not yet 21 days old. Alternatively the new litter can be euthanized, either way the two separate litters may not remain in the same cage after discovery.

**Weaning:**

Mice are usually weaned between 19-23 days of age with 21 days of age being the most common. They may be weaned as early as 17 days of age when made necessary by the death of the dam or the birth of a post-partum estrus litter. Litters may also be left with the dam for an extended time when underweight or small of stature, as long as the dam doesn't give birth to another litter. Some transgenic, inbred, or specialty strains do not mature as quickly as normal wild type mice and require an extended nursing period. The weaning age is extended until they are mature enough to be weaned, and a notation is made on the cage label. When strains commonly require an older weaning age, this exception is noted in the animal use and care protocol and is discussed with the husbandry staff and facility manager in advance. The weanling mice are separated by sex and housed in a density appropriate for the facility and caging. When genotyping, the IACUC policy on identifying and genotyping rodents must be followed. If the Principal Investigator fails to wean a litter or has multiple litters in a cage the husbandry staff will wean and separate the overcrowded cages. A 24-48 hour notice

may be given to the Principal Investigator for overdue litters. Cages with multiple litters and/or more than one dam should be separated when discovered. Sampling for Genotyping is generally completed prior to 21 days of age per the IACUC policy, lack of genotyping results is not a valid reason to delay weaning a litter.

**Record Keeping for all rodent colonies:**

Breeding records are kept by the Principal Investigator. When required by the facility, cage specific breeding cards are to be used to track breeding/pairing dates, plug dates (if known), birth dates and wean dates. These may be required by the facility manager on an individualized or facility wide basis. Individual facilities should develop specific local procedures for tracking breeding progress, births and weaning dates. The Campus Veterinarian's Office can help set up these programs/procedures and tailor them to facility specific needs (email [animaltransfer@ucdavis.edu](mailto:animaltransfer@ucdavis.edu)). **Animals born to a breeding protocol are recorded in breeding logs kept by the Principal Investigator or the colony manager if the facility is maintaining the breeding colony. These animals must be entered into the Animal Tracking System (ATS) as described in IACUC ATS policy when they are weaned, or for pre-weaning age pups when they are used experimentally in accordance with an approved animal care and use protocol. Frequency of entering breeding colony additions to the ATS is described in the IACUC ATS Policy.**

**Space Coordination:**

Prior to setting up any breeders the Principal Investigator or designated protocol staff must formulate a breeding and space plan with the husbandry staff and facility manager. Principal Investigators must maintain their colonies within their allotted space. A facility designated percentage of cages or discreet number allotted for breeding will be left available for weaning and separating litters.

**Principal Investigators that are unable or unwilling to abide by facility procedures or this policy for weaning and separating will lose the privilege of maintaining their own breeding colonies.**