

RAT (*Rattus norvegicus*) **CAGE DENSITY POLICY**

Overcrowded rat cages represent a significant animal welfare concern. Such cages are noncompliant with Public Health Service (PHS) Policy and our Assurance to PHS. The *Guide for the Care and Use of Laboratory Animals* states the PHS recommendations for housing densities. In order to standardize housing densities and prevent or eliminate the possibility of overcrowding within cages, the University's Animal Resource has adopted the following UCAR-approved policy: **The number of rats per cage depends on the weight of the rat(s) and the size of the cage.**

Required Floor Space Per Rat

Standard rat cages have at least 143 square inches floor space.

<100 g per rat = 17 sq inches = 8 rats

Up to 200g per rat = 23 sq inches = 6 rats

Up to 300g per rat = 29 sq inches = 4 rats

Up to 400g per rat = 40 sq inches = 3 rats

*Over 400g per rat = ≥ 70 sq inches = 2 rats

Female w/ litter = 124 sq inches *Rats exceeding 500 grams may require alternative caging. Consult the Animal Resource.

Breeding

- Standard breeding: 1-3 females:1 male. Pregnant females are housed individually before birth of pups.
- Continuous breeding: 1 male:1 female; not separated before birth of pups. This strategy takes advantage of the post-partum estrus which occurs within 14-28 hours after parturition. This strategy requires a larger cage; please consult with Animal Resource management. Continuous trio breeding is not permitted.
- The breeding strategy utilized must be described in the UCAR protocol.
- Justification is required for continuous breeding and/or for cage densities which exceed those described above.

Weaning

Investigators who choose to manage their own breeding colonies are responsible for timely weaning. Rats are generally weaned at 21 days of age. At 23 days of age, the overcrowded cage will be immediately separated by vivarium staff as one "un-sexed" group. The investigator will receive an email indicating the date of weaning, the location of the cage and the responsibility of the research staff to separate the weanlings by sex before they reach sexual maturity. Should delayed weaning be required for extremely fragile rats, this must be described in the protocol be approved by UCAR with specification of actual weaning ages (e.g., up to 28 days of age). Additionally, a special request must be submitted to the Animal Resource office identifying the group of rats approved for delayed weaning. Continuous breeding with delayed weaning is not permitted.

If a breeding strategy results in two litters from the same dam, the older litter must be weaned before new litter is born. This means that litters may require weaning between 17 and 20 days of age to prevent overcrowding and trauma to newborn pups. The investigator is expected to provide supportive care (moistened chow +/- Nutragel®) and daily observation until early weaned pups are self-sustaining. This information must be documented daily in a PI Provision of Husbandry log.

Adopted by UCAR 1-20-16eh; Updated 5-3-24 DL

Training in the management of rodent breeding colonies is available for investigators and their staff. The Animal Resource also offers colony management services to PIs for a fee.

Overcrowded Cages

Cages containing rats which exceed the floor space requirements are considered overcrowded. These cages will be reported to investigators. The overcrowded cage will be immediately separated by vivarium staff as one “un-sexed” group. The investigator will receive an email indicating the date of separation or weaning, the location of the cage and the responsibility of the research staff to separate the rats by sex.

Identification

A completed cage card must be present on all rat cages. Please refer to the Animal Resource website (<http://www.urmc.rochester.edu/vivarium/Barcoding.cfm>) for information on cage card activation. The information on the card must include: the investigator's name, the approved UCAR protocol number, the rat strain/stock, the source and the account number. The use of individual animal identification such as ear punches, ear tags, tattoos or implantable transponders is encouraged, especially in cases in which animals are group housed and/or appear identical. Animal identification numbers, if used, should be included on the cage card. All methods of identification must be described in the animal protocol and approved by UCAR.

The Animal Resource staff is available to discuss any questions you may have regarding this policy. Please do not hesitate to contact the Animal Resource Office at X5-2651.

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