Loyola University Chicago
Comparative Medicine Facility

Standard Operating Procedure

SOP Number: **02-18- 5822**
Service: **Research**
Operating Section: **IACUC**
Unit: **CMF**
Title: **Space Requirements for Rodent Housing (Breeding and Research Colonies)**

Purpose: The Public Health Service (PHS) and the Association for Assessment and Accreditation of Laboratory Care International (AAALAC) require that institutions base their animal care and use program on the *2011 Edition of the Guide for the Care and Use of Laboratory Animals*. The IACUC and the Department of Comparative Medicine have established the following policy for rodent housing and breeding.

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1) Minimum Space Recommendations for Laboratory Rodents

a) All investigators or other animal users are required to adhere strictly to the CMF SOPs which meet or exceed recommendations outlined for all common species in the *2011 Guide* unless a specific request for an exception to these rules has been included in the experimental (or breeding) protocol and approved by the IACUC.

b) To receive approval for an exception to the established rules, a request must be submitted to the IACUC. It must be accompanied by a sound scientific justification. Investigator convenience or economies are not acceptable reasons for granting an exception to the regulations. The request must include a plan to meet "Guide" requirements which include periodic measures of:
     i)   Animal behavioral assessment (fighting, barbering)
     ii) Reproductive indices
     iii) Mortality increase
     iv) Growth curve comparison
     v)   Body weight measurement
   The IACUC will determine an appropriate post-approval monitoring schedule to review these records.

c) Litters of substantially different ages are not permitted to share a cage unless the justification for, and conditions of, such a practice are accepted by the Committee on a case by case basis.

d) Exception requests must be accompanied by a specified maximum necessary cage density for approval (or modification). If exceeded, the cage will be designated as overcrowded.

e) All cases of unacceptable rodent cage densities are periodically reported by the CMF to the IACUC at its regular monthly meetings.

f) Investigators who are working with an already-approved protocol, and whose experimental design necessitates their employing cage densities in excess of the CMF SOPs, must submit an amendment specifying the maximum density they feel is necessary and providing the required scientific justification.

g) The placing of an "overcrowding" card on the affected cage will constitute sufficient notice to the investigator.

h) If after expiration of the 72 hour grace period (which includes holidays and weekends) the cage overcrowding has not been relieved, the CMF staff will correct the overcrowding. Technical time required to perform this service will be charged to the investigator.

i) In cases where the observed overcrowding exceeds 200% of the minimum space requirements, the CMF staff will separate the animals without notification or provision of a grace period. This service is chargeable to the investigator.

j) Where more than one pregnant rodent is housed in a cage, the CMF may place an "overcrowding" card on the cage. The CMF staff may then separate the animals after 72 hours have passed or at the birth of the litter(s), whichever is later, without further notice to the investigator.

2) Space Requirements for Breeding Mice

a) In general, cages currently used are sufficient for a single dam with litter (requires 51 square inches). In any breeding cage, two or more males must never be housed together.

b) Recommendations for number of mice per cage (breeding cages):

   i) Pair breeding: 1 male and 1 female (*preferred method to prevent overcrowding*)
   Entire litter may remain with parents until 3-4 weeks of age or after birth of next litter (whichever is sooner).

   ii) Trio breeding: 1 male and 2 females
   Pregnant females must be separated prior to the delivery. Any exception must be justified in the IACUC breeding protocol.

   iii) Harem breeding: 1 male and 3 or 4 females
   Remove females when pregnancy is determined by physical examination (plug) or enlargement.

c) For some mutant strains with weak or neurologically compromised immune systems, mice pup survival is improved by keeping affected pups with their dam in excess of 4 weeks. If this practice is necessary, it must be described in an IACUC protocol.

3) Space Requirements for Non-Breeding Mice

a) Mice heavier than 25 grams must have at least 15 square inches of floor space per mouse.

b) The largest mouse shoeboxes used at the CMF provide 68 square inches of floor space. According to current PHS and AAALAC regulations, this can accommodate 5 mice <25 grams, or 4 mice >25 grams. Since most adult mice are larger than 25 grams, current CMF SOPs require 4 mice/cage.

4) Space Requirements for Breeding Rats

Female and litter requires 124 sq. inches.

5) Space Requirements for Non-Breeding Rats

< 100 grams = 17 sq. in.

< 200 grams = 23 sq. in.
< 300 grams = 29 sq. in.
< 400 grams = 40 sq. in.
< 500 grams = 60 sq. in.
< 600 grams = 70 sq. in.

6) In addition to the above specifications, there are considerations outlined in the 2011 Guide (Pg. 56-57).

    a) Consideration should be given to the growth characteristics of the stock or strain as well as the sex of the animals. Weight gain may be sufficiently rapid that it may be preferable to provide greater space in anticipation of the animal's future size. In addition, juvenile rodents are highly active and show increased play behavior which may increase their space needs.

    b) Sufficient space must be allocated for mothers with litters to allow the pups to develop to weaning without detrimental effects for mother or litter.

    c) There must be sufficient space so animals can comfortably rest away from areas soiled by urine and feces.

    d) Floor space taken up by food bowls, enrichment devices and novel objects should not be considered part of the floor space.

Comments: Also, please see Admin 02-18-5012.

APPROVALS

Responsible Official Signature			Date
QA Signature			**Date**
Version	**Effective Date**	**Supersedes**	**Original Date**
#2	02/13/13	#1	9/12/12