

**Rat Cage Density**  
**IACUC Policy**  
**Effective Date: January 2023**

**I. Purpose**

UCSF is committed to complying with all housing standards in the *Guide for the Care and Use of Laboratory Animals*, 8th Edition. This policy outlines UCSF's implementation of The Guide's recommendations for mouse husbandry and sets standards for rat cage density, social housing, and breeding.

**II. Policy**

**A. Cage Density**

The following table indicates the maximum number of rats that may be housed in standard UCSF rat cages. Other cage sizes will also have densities consistent with Guide requirements. This policy applies to all rats housed at UCSF.

| <b>Body Weight of Each Rat (grams)</b> | <b>Ancare Static (140in<sup>2</sup>)</b> | <b>Lab Product Ventilated (211 in<sup>2</sup>)</b> | <b>Allentown Ventilated (142 in<sup>2</sup>)</b> | <b>Thoren Ventilated (121 in<sup>2</sup>)</b> | <b>**Allentown Ventilated (279 in<sup>2</sup>)</b> | <b>**Ancare Static Penthouse (260 in<sup>2</sup>)</b> |
|----------------------------------------|------------------------------------------|----------------------------------------------------|--------------------------------------------------|-----------------------------------------------|----------------------------------------------------|-------------------------------------------------------|
| < 100                                  | 8                                        | 12                                                 | 8                                                | 7                                             | 16                                                 | 15                                                    |
| 101 to 200                             | 6                                        | 9                                                  | 6                                                | 5                                             | 12                                                 | 11                                                    |
| 201 to 300                             | 4                                        | 7                                                  | 4                                                | 4                                             | 9                                                  | 8                                                     |
| 301 to 400                             | 3                                        | 5                                                  | 3                                                | 3                                             | 6                                                  | 6                                                     |
| 401 to 500*                            | 2                                        | 3                                                  | 2                                                | No                                            | 4                                                  | 4                                                     |
| > 500*                                 | 2                                        | 2                                                  | 2                                                | No                                            | 3                                                  | 3                                                     |
| Female and litter                      | Yes                                      | Yes                                                | Yes                                              | No                                            | Yes                                                | Yes                                                   |
| Female, male and litter                | No                                       | Yes                                                | No                                               | No                                            | Yes                                                | Yes                                                   |

\*Rats greater than 500 grams may require larger cages. Consult with LARC for large rats to ensure adequate cage size. Rats approaching 500g and breeding animals are prone to rapid weight increase, which should be a consideration for longterm studies.

\*\*Researchers may be required to purchase additional cages and associated accessories to meet these requirements.

**Excessive Weight or Size:**

- Excessive weight or size is not an approved criterion for single housing.
- Cage floor space should be of sufficient size to allow rats to perform normal behaviors. Rats should be able to turn freely without twisting their heads or bodies and walk at least a few steps. Adequate floor area ensures that no part of the rat's body is unavoidably distorted by contact with the cage in any normal posture.

## **B. Enrichment and Social Housing**

Rats must be provided with environmental enrichment. Provide at least one piece of physical or food enrichment in each cage (nestlet, shelter, additional nesting material, etc.). Refer to the [LARC Enrichment Guidelines](#) for additional enrichment options.

Rats must be socially housed, and any rats singly housed must comply with the exceptions in the [Environmental Enrichment and Social Housing policy](#).

## **C. Breeding**

Lab Product cages are appropriate for pair breeding. Monogamous/Pair Breeding (one male and one female) is the standard method for breeding, with no more than two adults and one litter per cage. Ventilated rack cage capacity is one male, one female, and one litter. Exceptions to this must be justified in the protocol and approved by the IACUC.

- For experiments where age is critical, laboratories should closely monitor cages and identify exact birth dates because LARC may not always capture this level of detail.
- Cages are labeled by LARC with birth and P21 projected weaning dates
- Cages containing a litter older than P21 cannot also contain a newborn litter
- For the welfare of a newborn litter, LARC staff is authorized to separate litters into new cages on a recharge basis when two generations of pups are present.

## **D. Weaning**

Litters are to be weaned at **P21** and separated into same sex cages.

## **III. Exceptions**

Continuing approval is contingent upon a closely managed breeding program.

**Extended weaning** (P22-P28): may be requested in the IACUC protocol under 'Reportable Exceptions' for strains that consistently require delayed weaning. The request should include justification. When approved, the researcher must separate the female from the male during pregnancy to avoid overcrowding as a result of breeding at the post-partum estrus and the delivery of a subsequent litter.

## **IV. References**

- a. The Guide for the Care and Use of Laboratory Animals, 8<sup>th</sup> edition
- b. Animal Welfare Act & Animal Welfare Regulations
- c. Canadian Council on Animal Care Guidelines: Rats
- d. Animal Research Review Panel (Australia) Guideline 20: Guidelines for the Housing of Rats in Scientific Institutions