

Guidance for Investigators Seeking Exemptions to the Rodent Breeding and Weaning Policy (LASP SOP 3.021)

For all NCI-Frederick breeding colonies, investigators are required to comply with the Laboratory Animal Sciences Program [LASP] SOP 3.021 "Rodent Breeding and Weaning Policy." This SOP permits a maximum of two adult animals in a single cage with one litter at any given time. Due to difficulties in some breeding colonies [i.e., litter survival rates, etc.], the ACUC recognizes that there may be circumstances that require exemption to this SOP. Therefore, an investigator may request an exemption to LASP SOP 3.021 by providing the following information for review and approval by the LASP Director or Deputy Director:

1. *All exemptions must be justified in writing and submitted electronically to the ACUC Office;*
2. *Scientific justification for maintaining more than two adults and one litter in a single cage must be provided;*
3. *The maximum number of adult males, adult females, and pups that will be permitted in a single cage [with associated body weights and the cage size utilized] must be outlined; and*
4. *If approved, cage cards should bear a label indicating "SOP 3.021 Exemption" as well as the maximum number of adults and pups permitted in a single cage.*

It is important to note that neither the LASP nor the ACUC are involved with assigning or monitoring an investigator's cage allocation. All investigators are required to ensure that his/her animal colony is managed in accordance with the assigned allocation and that an adequate number of empty cages [at least 20%] are readily available to permit timely separation and weaning.

To ensure that authorized SOP exemptions do not result in overcrowding or adverse cage conditions that could compromise the health and welfare of animals, the following guidance has been provided to assist an investigator with detailing his/her exemption request:

The standard criteria for establishing maximum permissible cage occupancy is based on cage density [in accordance with the *Guide for the Care and Use of Laboratory Animals*]. For example, the *Guide* recommends that for group-housed mice that 125 grams of total body mass [five per cage x up to 25 grams body weight per animal] is permitted per 60 square inches [12 in² floor area x 5 mice] of floor space.

Therefore, let's consider the density of mice in a Thoren Model # 5 cage [8.75" x 12.13" x 6.39"]. The interior floor area is specified by the manufacturer at 78 in² and therefore permits 162 grams of total body mass [2.08 in² per gram]. If we then say that each pup weighs less than 10 grams [at weaning] and each adult is approximately 25 grams then the math is pretty straightforward:

$$\begin{aligned} & \mathbf{162 \text{ grams total density} - 25 \text{ grams [average single adult weight]} = 137 \text{ grams}} \\ & \mathbf{137 \text{ grams cage density available} \div 10 \text{ grams [average pup weight]} = } \end{aligned}$$

a maximum of 13 pups are permitted to occupy the remaining cage space

Using the average body weight for your adults and pups [since this will be strain dependent] you can use this calculation to establish a baseline for maximum total body mass permitted in a single cage. The table below has been provided as an example to outline the maximum number of animals that may be housed in a single cage based on average body weight in compliance with the *Guide* provisions.

Please note that the body weight of adults and pups shown below [**] must be adjusted as applicable to account for strain size variability. This table provides an at-a-glance overview of maximum animal numbers to ensure that when an investigator proposes an exemption that he/she does not exceed *Guide* provisions. LASP [as authorized by the ACUC] will evaluate the scientific justification provided along with the number of animals being proposed for housing in a single cage to determine if an exemption will be granted. Additional justification or stipulations may be required if *Guide* provisions are exceeded.

Cage Size <i>[Inches]</i>	Appx Square Inches	Maximum Permitted Body Mass	# of Adults <i>[appx 25 grams]</i> **	# of Pups <i>[appx 10 grams]</i> **
Thoren # 1 7.70 x 12.17 x 5.25	68	141	1	11
			2	9
			3	6
Thoren # 5 8.75 x 12.13 x 6.39	78	162	1	13
			2	11
			3	8
Allentown PC7115HT 7.5 x 11.75 x 5	67	139	1	11
			2	8
			3	6
Lab Products 18760G 10.75 x 7.75 x 6	83	172	1	14
			2	12
			3	9

It is important to note that the investigator is also required to consider the following issues and implement necessary measures to alleviate adverse cage conditions that may impact the health or welfare of animals:

- **Body Weight:** *You may need to increase the average pup weight if you are maintaining litters for greater than 21-28 days*
- **Weaning:** *When multiple litters of varying ages are maintained, you have a responsibility to wean the animals in a timely fashion to alleviate trampling*
- **Behavior:** *Some adults may have aggressive tendencies resulting in harm or death to the pups ... early weaning may be necessary*

- **Cage Change Frequency:** *Based on the number of animals maintained in the cages, cage change frequencies may need to be increased. Heavily soiled cages are not permissible under any circumstance.*

Again, this information only serves as guidance for justifying an exemption to SOP 3.021 "Rodent Breeding and Weaning Policy." Depending on the exemption being requested, other criteria [based on experience] may be more applicable. Regardless of the justification provided, the investigator must ensure that the health and well-being of the animals will not be adversely affected by the proposed housing environment.