



ACUP ID number: HM-64		
Approval date:		GPS
Written by:	Sep 2022	J. Villano
Revision by:		
Distribution	All	

HM-64: SOP on Rat Cage Density

Purpose: To guide JHU Animal Care and Use Committee (ACUC), animal care staff, and researchers in determining maximum allowable rats per cage in conjunction with the ***JHU Guidelines for Rat Housing Density***.

Responsible Personnel:

- Animal Care and Use Committee (ACUC), ACUC office, and veterinarians – review and implement the guidelines
- Researchers - maintain appropriate housing densities according to the guidelines and this SOP as a part of routine colony management
- Research Animal Resources (RAR) and Oncology Animal Research Services care staff – implement this SOP

Procedure:

1. In order to determine rat housing density, responsible personnel should refer to the ***JHU Guidelines for Rat Housing Density*** and utilize the minimum space requirements indicated below to calculate the total maximum number of rats allowed in each individual cage. As an example, for cages found at the Johns Hopkins Bayview Medical Campus, which have 144.5 in² of floor space, if all rats in the cage weigh less than 100g and therefore need a minimum floor area of 17 in² per animal, then the floor space is divided by the minimum floor area per animal (144.5/17) to determine that up to 8 rats <100g can be kept in that cage.

Minimum Space requirements¹:

Animals	Individual Animal Weight, g	Floor Area/Animal, in. ² (cm ²)	Cage Height (cage floor to top), in. (cm)
Singly housed or group housed rats	<100	17 (109.6)	7 (17.8)
	Up to 200	23 (148.35)	7 (17.8)
	Up to 300	29 (187.05)	7 (17.8)
	Up to 400	40 (258.0)	7 (17.8)
	Up to 500	60 (387.0)	7 (17.8)
	>500	≥70 (≥451.5)	7 (17.8)
Female + litter		124 (800)	7 (17.8)

2. The table below lists examples of the most common rat cages found at JHU and their appropriate cage density.

Cage Type	Cage size and Floor Space (in., in ²)	Maximum number of Rats*	
		Individual weight	Total #
CRB Allentown IVC Rat Cages	14" x 9" = 126 in ²	< 100 g	7
		Up to 200 g	5
		Up to 300 g	4
		Up to 400 g	3
		Up to 500 g	2
		>500 g	2**
		Breeding	1 adult rat + 1 litter until weaning age
Bayview/SPH Allentown Static Rat Cages	8.5" x 17" = 144.5 in ²	< 100 g	8
		Up to 200 g	6
		Up to 300 g	4
		Up to 400 g	3
		Up to 500 g	2
		>500 g	2**
		Breeding	1 adult rat + 1 litter until weaning age
MRB/Homewood/Ross Allentown IVC Rat Cages	10" x 14" = 140 in ²	< 100 g	8
		Up to 200 g	6
		Up to 300 g	4
		Up to 400 g	3
		Up to 500 g	2
		>500 g	2**
		Breeding	1 adult rat + litter until weaning age

*Animals may be singly housed based on experimental design (as approved in the IACUC protocol), veterinary team/animal care staff decision (e.g., fighting, treatments), or attrition and breeding status (as determined by research personnel). Follow ***RAR SOP for Identifying Singly Housed Rodents***.

**Based on the approved JHU Guidelines, rats more than 500g in BW should be pair-housed unless otherwise determined as above.

3. **Research personnel:** house rats according to this SOP unless otherwise approved by the ACUC.

4. **Husbandry personnel and supervisors:**

- Ensure rats are housed according to this SOP and other related documents.
- For overcrowded cages, follow procedures described in the ***RAR SOP for Handling Overcrowded Cages***.

Related documents:

1. JHU Guidelines for Rat Housing Density
2. RAR SOP for Identifying Singly Housed Rodents
3. RAR SOP for Handling Overcrowded Cages

References:

1. Institute for Laboratory Animal Research. 2011. Guide for the Care and Use of Laboratory Animals, 8th ed. Washington (DC): National Academies Press.

I acknowledge that I have read and understand the JHU Animal Care and Use Program document **“SOP on rat cage density”** and I will follow this procedure. I agree to bring any deviations in this procedure to the attention of my supervisor/GPS Working Group.

Name (Print)

Date

Signature