

1. PURPOSE

The intent of this Standard Operating Procedure (SOP) is to describe an appropriate environmental enrichment program for rodents.

2. RESPONSIBILITY

Facility Animal Care Committees (FACC), veterinarian, principal investigators (PIs), animal care staff.

3. CONSIDERATIONS

- 3.1. The purpose of environmental enrichment is to provide rodents with opportunities to express basic behavior needs, to promote species-typical, non-injurious behavior and to promote physical and mental health thus enhancing animal welfare. Environmental enrichment should be biologically relevant, i.e., allow for hiding, socializing, searching, so that it does not lose its enriching value over time.
- 3.2. The environmental enrichment program must be approved by a veterinarian. This includes enrichment provided within the animal facility, provided as part of an Animal Use Protocol (AUP), or provided in Alternative Locations for Procedures and Housing of Animals (ALPHA) locations.
- 3.3. Deviation or exemption from this environmental enrichment program must be scientifically justified in the AUP and approved by the FACC, or prescribed for medical reasons by a veterinarian.

4. PROCEDURES

- 4.1. Social Contact:
 - 4.1.1. Pair or group house rodents.
 - 4.1.2. Rodents may be singly housed with strong scientific, welfare, or medical justification:
 - 4.1.2.1. Incompatibility (aggression)
 - 4.1.2.2. Medical reasons.
 - 4.1.2.3. Specific protocol approved by the FACC.
- 4.2. Housing System:
 - 4.2.1. Animals should be housed with the goal of maximizing species-specific behaviors, minimizing stress-induced behaviors, providing opportunity for social contact and locomotor and exploratory behaviors. Cages should be of a sufficient size and complexity to allow rodents to be housed in appropriately sized groups and to perform behaviors important to their welfare.
 - 4.2.2. House rodents in solid-bottom cages with contact bedding, unless specifically described in the approved AUP and approved by the FACC.
 - 4.2.3. The housing system should meet or exceed the minimal space and height recommendations of the current Canadian Council on Animal Care (CCAC) guidelines. Housing density will be determined based on these criteria.
- 4.3. Nesting material:
 - 4.3.1. Nesting material addresses behavioral needs of rodents and provides comfort for the animals.
 - 4.3.2. Provide nesting material (e.g., loose paper strands such as Enviro-Dri®, NESTLET®, corn husk, shredded aspen) in every cage, unless specifically described in a protocol and approved by the FACC.
 - 4.3.3. During cage change, transfer a portion of the used nesting material to the clean cage to maintain scent markings in the new cage, add additional clean nesting material as needed.

4.4. Environmental enrichment devices:

- 4.4.1. Standard rodent cages must contain a minimum of two environmental enrichment devices, e.g., a tunnel and gnawing block. Providing only a single enrichment device in the cage can lead to increased aggression due to competition.
- 4.4.2. Additional elements that may enrich the animals' environment may be provided if described in the AUP and approved by the FACC.
- 4.4.3. Elements may include:
 - 4.4.3.1. Features to promote activity such as structures to climb on or around, exercise wheels, swings, hammocks.
 - 4.4.3.2. Structures for hiding or avoidance such as shelters, tunnels, tubes, or dividers.
 - 4.4.3.3. Substrates for burrowing.
 - 4.4.3.4. Objects to chew such as nylon bones or wooden blocks.
 - 4.4.3.5. Variety in food (e.g., seeds, cereal, treats), provided that these do not cause any biosecurity issues.
 - 4.4.3.5.1. Food should be consumed before its expiration date.
 - 4.4.3.5.2. Once packaging is opened, discard food items after a maximum of 90 days, unless the manufacturer provides specific instructions on the shelf life of opened packages.
 - 4.4.3.5.3. Store food items in sealed, vermin-proof containers. Store in a cool, dry area, or as per manufacturer's recommendations. Label containers with the contents and expiry date.
 - 4.4.3.6. Selected food items in the bedding to encourage foraging

5. REFERENCES

- 5.1. [Canadian Council on Animal Care \(CCAC\) guidelines: Rats, 2020.](#)
- 5.2. [Canadian Council on Animal Care \(CCAC\) guidelines: Mice, 2019.](#)

SOP REVISION HISTORY

DATE	NEW VERSION
2024.05.29	The intent of this Standard Operating Procedure (SOP) is to describe an appropriate environmental enrichment program for mice rodents .
2024.05.29	3. CONSIDERATIONS 3.1. The purpose of environmental enrichment is to provide mice rodents with opportunities to express basic behavior needs, to promote species-typical, non-injurious behavior and to promote physical and mental health thus enhancing animal welfare. Environmental enrichment should be biologically relevant, i.e., allow for hiding, socializing, searching, so that it does not lose its enriching value over time. 3.2. The environmental enrichment program must be approved by a veterinarian. This includes enrichment provided within the animal facility, provided as part of an Animal Use Protocol (AUP), or provided in Alternative Locations for Procedures and Housing of Animals (ALPHA) locations. 3.3. Deviation or exemption from this environmental enrichment program must be scientifically justified in the AUP and approved by the FACC, or prescribed for medical reasons by a veterinarian .
2024.05.29	4.1.1. Pair or group house mice rodents .
2024.05.29	4.1.2. Mice Rodents may be singly housed with strong scientific, welfare, or medical justification:
2024.05.29	4.2.1. Animals should be housed with the goal of maximizing species-specific behaviors, minimizing stress-induced behaviors, providing opportunity for social contact and locomotor and exploratory behaviors. Cages should be of a sufficient size and complexity to allow mice rodents to be housed in appropriately sized groups and to perform behaviors important to their welfare.
2024.05.29	4.2.2. House mice rodents in solid-bottom cages with contact bedding, unless specifically described in the approved AUP and approved by the FACC.
2024.05.29	4.2.3. The housing system should meet or exceed the minimal space and height recommendations of the current Canadian Council on Animal Care (CCAC) Guidelines for Mice . Housing density will be determined based on these criteria.

2024.05.29	<p>4.3. Other Environmental enrichment devices:</p> <p>4.3.1. Standard rodent cages must contain a minimum of two environmental enrichment devices, e.g., a tunnel and gnawing block. Providing only a single enrichment device in the cage can lead to increased aggression due to competition.</p>
2024.05.29	<p>4.3.3.5. Variety in food (e.g., seeds, cereal, treats), provided that these do not cause any biosecurity issues.</p> <p>4.3.3.5.1. Food should be consumed before its expiration date.</p> <p>4.3.3.5.2. Once packaging is opened, discard food items after a maximum of 90 days, unless the manufacturer provides specific instructions on the shelf life of opened packages.</p> <p>4.3.3.5.3. Store food items in sealed, vermin-proof containers. Store in a cool, dry area, or as per manufacturer's recommendations. Label containers with the contents and expiry date.</p>
2024.05.29	<p>5.1. Canadian Council on Animal Care (CCAC) guidelines: Rats, 2020.</p>