



## **INSTITUTIONAL ANIMAL CARE AND USE POLICY**

Social Housing

Approval Date: April 2, 2018

### **SCOPE**

This policy applies to all animals owned by SUNY Downstate Medical Center (DMC) for use in teaching, research, or exhibition on IACUC approved protocols. The purpose of this policy is to define what constitutes a social species as well as what is considered an acceptable justification for single housing of a social species at DMC. The intent of this document is to define the IACUC's policy and to provide guidance to investigators.

### **BACKGROUND**

The *Guide for the Care and Use of Laboratory Animals* states that members of a social species should be socially housed whenever possible. The Guide indicates that, "Appropriate social interactions among members of the same species (conspecifics) are essential to normal development and well-being (Bayne et al. 1995; Hall 1998; Novak et al. 2006). When selecting a suitable social environment, attention should be given to whether the animals are naturally territorial or communal and whether they should be housed singly, in pairs, or in groups. An understanding of species-typical natural social behavior (e.g., natural social composition, population density, ability to disperse, familiarity, and social ranking) is key to successful social housing." The IACUC recognizes that there are certain scenarios that would preclude the social housing of animals. This policy details general categories of exceptions to the social housing policy and the IACUC approval requirements for each category.

This policy explains the requirements of and offers guidance for the following topics:

- Key concepts
- Standard Exceptions
- Research-related single housing
- Clinically-related single housing
- Isolation housing

### **KEY CONCEPTS**

1. Social housing is the default housing paradigm for all social species.
2. When available, animals procured from commercial vendors should be obtained as stable pairs/groups and then maintained as pairs/groups.
3. When possible, investigators should consider social housing when designing experiments that may interrupt an animal's social housing status. For example, if two rats are pair-housed, every effort should be made (when scientifically relevant) to end the study for both animals simultaneously, rather than leave one animal singly housed for an extended period of time.
4. A USDA animal's "incompatibility" will be determined by a DCM veterinarian and documented in the animal's clinical record by the veterinary staff, unless covered by an exception within this policy.
5. Non-USDA incompatible rodents are covered by either the standard exceptions in this policy, an exemption approved by the IACUC, or DCM veterinary-approved exemption.
6. Temporary single housing (clinical or experimental reasons) should be for the minimum time necessary, and then the animal(s) returned to social housing.



7. Singly housed animals will continue to receive species-appropriate enrichment (determined by the DCM veterinary staff), unless scientifically contraindicated and approved by the IACUC. Isolated animals will receive additional enrichment at the direction of DCM veterinarians and documented.
8. Singly housed animals will be housed in visual, auditory, olfactory and/or tactile range with conspecifics whenever possible.
9. Singly housed animals may need gradual introduction to conspecifics and close supervision by DCM to prevent injury or trauma.

### STANDARD EXCEPTIONS

There are various scenarios in which single housing is the acceptable housing paradigm; *justified based on social incompatibility resulting from [likely] inappropriate behavior, [and] veterinary concerns regarding animal well-being (AAALAC)*. There is no need for DCM veterinary approval (or documentation within the medical record) or an IACUC exemption to this policy for these scenarios. The IACUC approves these scenarios with approval of this policy.

1. Asocial animals – Not all members of a social species are necessarily socially compatible; social housing of incompatible animals can induce chronic stress, injury, and even death ([Guide](#), p. 64). All research and teaching animals currently used are considered social animals, except: adult boars, unfamiliar adult male mice, and sexually mature male rabbits that have not been previously social housed.
2. Socially Incompatibility – Animals lacking documented social compatibility (e.g., aggression, health status, gender) will be singly housed. Socially incompatible animals (other than mice) may have attempts at repairing under the oversight of the DCM veterinarian. Mice that have been separated due to fighting will remain in single housing (unless breeding), and every attempt will be made to remove only the mouse that seems to be the “aggressor” while leaving the remaining group intact.
3. Male Mice – In some mice, standard caging may induce overt aggression in groups of males, resulting in social stress and injury ([Guide](#), p. 53). While groups of young male mice delivered in a group or raised together as littermates should continue to be group housed, male mice separated for experimental studies or for breeding should not be reintroduced into a group of other male mice.
4. Breeding Colony Management –
  - a. Male Breeders: Intact male breeders of any species separated for breeding should not be reintroduced into a group of other intact male animals and can be singly housed between mating with females.
  - b. Pregnant Females: Pregnant females may be singly housed to minimize stress prior to and during parturition.
  - c. Weaning Animals and Female Breeders: Animals may be singly housed at weaning when litter makeup contains a single sex or single genotype. Female mice may be singly housed after litters are weaned while subsequent breeding schemes are being coordinated.
5. Non-breeding Animals – Intact males and females of the same species should not be group housed with members of the opposite sex unless breeding is approved by the IACUC, and then only when breeding is needed as part of the research activities.



6. Attrition – Animals may be singly housed due to attrition of cage mates (e.g., clinical or research endpoints) or uneven number of animals. Efforts should be made to introduce socially compatible cage mates as appropriate.
7. Quarantine – Animals may be singly housed during quarantine prior to entering a facility or conditioned colony when not received in established pairs or groups.
8. Procedures Requiring Anesthesia –
  - a. Pre-operative animals: In cases where fasting is required prior to surgery or other procedures requiring sedation or anesthesia, animals may be singly housed for the period of time in which food is removed prior to the procedure.
  - b. Post-operative animals: While whenever possible, post-surgical animal should be group housed, it is acceptable to singly house animals post-operatively up to 14 days for recovery, observation and incision healing. Post-operative single housing >14 days must be covered by either research- or clinically-related single housing described below.

#### **RESEARCH-RELATED SINGLE HOUSING**

*Social animals should be housed in stable pairs or groups of compatible individuals unless they must be housed alone for experimental reasons (Guide, p. 51). These experimental reasons must be approved by the IACUC prior to initiating single housing for USDA species (>12 hours) and for non-USDA species (>24 hours). The justification should be defined for the shortest period of time necessary.*

Single housing of social species should generally be limited to experiments and/or animal models in the following categories, although other justifications will be considered by the IACUC:

- Studying isolation stress
- Individual feed or water intake monitoring
- Activity monitoring (e.g. beam break, etc.)
- Experimental instrumentation
- Avoiding cross contamination for infectious disease models, vectors, test articles, etc.

Individual IACUC approval is not needed for scenarios described above in “Standard Exceptions”.

#### **CLINICALLY-RELATED SINGLE HOUSING**

DCM veterinarian(s) may require social animals to be housed individually for veterinary medical and/or animal welfare concerns. Exemptions from single housing for veterinary care purposes are documented in the animal's health record and, for USDA regulated species, reviewed every 30 days unless the basis for the exemption is a permanent condition. IACUC approval is not required for veterinary care exemptions from social housing.

#### **ISOLATION HOUSING**

There may be research- or clinically-related reasons to house an animal within a room by itself, without visual, auditory, olfactory, or tactile access to conspecifics. The IACUC will review research-related requests for isolation housing as described above. The DCM Veterinarian will notify the IACUC Chair and Office of Animal Welfare of clinically-related isolation housing, for discussion at the next convened IACUC meeting.