IACUC POLICY ON GROUP HOUSING AND ENVIRONMENTAL ENRICHMENT OF LABORATORY ANIMAL SPECIES

RESEARCH ANIMAL RESOURCE CENTER
MEMORIAL SLOAN KETTERING CANCER CENTER
WEILL CORNELL MEDICINE/HOSPITAL FOR SPECIAL SURGERY

Ver. 10.25.18
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ENRICHMENT OF LABORATORY ANIMAL SPECIES
Memorial Sloan Kettering Cancer Center, 
Weill Cornell Medicine and the Hospital for Special Surgery

I. The Program

Because there are considerable differences in each species biology and behavior, the program is tailored 
to each species.

Program details are described in SOPs for most species. The following are the key program components.

A. Inclusions

All mice, rats, guinea pigs, hamsters, rabbits, pigs, ferrets, Xenopus sp., and zebrafish (Danio rerio) 
housed in RARC facilities. Group housing and enrichment guidelines for dogs and non-human 
primates are described separately (“Nonhuman Primate Psychological Wellbeing Program” and 
“Dog Exercise and Enrichment Program” documents).

B. Exemptions

1. Principal Investigators (PIs) may request, if scientifically justified, that animals utilized in 
specific research projects be exempted from part or all of the enrichment and group housing 
program. This request for exemption will be included in the Animal Care and Use Protocol 
submitted to the IACUC and will be considered during the IACUC’s deliberations for approval 
of the project. These exemptions will be reviewed by the IACUC no less than annually.

2. A RARC veterinarian may exempt animals from participation in the program because of an 
animal’s health or physical condition. For USDA-covered species, this exemption is 
documented in writing and the animal(s) is reevaluated at least every 30 days unless the 
condition warranting exemption is permanent. Permanent exemptions are documented in the 
animal’s record. Animals that are documented as incompatible are permanently exempted from 
social housing and this exemption need not be reevaluated unless new potential conspecifics 
become available.

II. Species Specific Details

A. Swine (see SOP # HC-3601)

1. Group Housing

a. Pigs will be housed in rooms containing multiple animals, so that visual, auditory, and 
olfactory contact between conspecifics can be maintained.

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1 Excludes non-human primates and dogs which are covered under species specific programs mandated by the Animal Welfare Act. Ver. 10.25.18
b. Pigs will be maintained in their previously compatible groups upon arrival at the facility, if applicable.

c. Attempts will be made to pair or group-house females or castrated males of the same breed and vendor, requiring the same housing requirements (i.e. same quarantine status, same biosafety level, etc.), and of similar age, who do not arrive in a compatible group, if the animals will be maintained at the facility for at least 60 days. The process will be initiated by permitting snout-to-snout contact through cage dividers subsequently progressing to monitored co-housing. Animals will be monitored for at least 15 minutes for signs of aggression. Two attempts will be made to co-house, with the results recorded in each animal’s medical record. Successful attempts will progress to pair or group housing, assuming no signs of aggression are observed. If not successful, they will be housed individually, but will retain visual, auditory and olfactory contact with animals in neighboring cages.

d. Pigs will not be isolated from conspecifics unless there are no conspecifics with the same housing requirements in the facility, or if mandated by a RARC veterinarian for medical reasons, or justified in the animal care and use protocol for scientific reasons and approved by the IACUC.

2. **Enrichment Program**

   a. Pigs will be provided with 1 toy per pig at all times. Toys include plastic apples, balls, swing toys and brushes. Toys will be changed and cleaned weekly.

   b. Food enrichment will be provided 3 times per week. Food treats include assorted items (listed on the animal room door) and nutra-blocks.

   c. Both toys and food enrichment will be recorded in an Enrichment Log, noting what type is provided, when it is provided, and when it is changed.

B. **Rabbits (see SOP # HC-3301)**

   1. **Group Housing**

      a. Rabbits will be housed in a room containing multiple animals, so that visual and olfactory contact with conspecifics, as well as tactile contact with adjacent cages, can be maintained at all times.

      b. If appropriate housing is available, attempts will be made to pair or group-house females or castrated males of the same sex, breed, similar age, and same housing requirements, if the animals will be maintained at the facility for at least 60 days. At least two attempts will be made, with the results recorded in each animal’s medical record. Successful attempts will progress to pair or group housing, assuming no signs of aggression are observed. If not successful, they will be housed individually, but will retain visual, auditory and olfactory contact with animals in neighboring cages.
c. Rabbits will not be isolated from conspecifics unless there are no conspecifics with the same housing requirements in the facility or if mandated by a RARC veterinarian for medical reasons or justified in the animal care and use protocol for scientific reasons and approved by the IACUC.

2. **Enrichment Program**

   a. Rabbits will be provided with a toy at all times. Toy rotation will be specified by a schedule posted on the animal room door. Toys will be rotated during cage changes. Toys for rabbits include: chains, bells, jingle balls, nubby balls and dumbbells.

   b. Food treats will be provided 3 times per week. Food treats include: irradiated hay, bunny blocks, and fruit.

   c. Both toys and food enrichment will be recorded in an Enrichment Log, noting what type of enrichment is provided, when it is provided, and when it is changed.

   d. All pregnant rabbits will be provided a nesting box. This box is filled with 2-3 inches of Aspen shavings and changed as needed during the week.

C. **Hamsters**

1. **Group Housing**

   a. Hamsters, except for male Armenian hamsters and male and female Syrian hamsters, will be housed in cages containing multiple animals, so that direct visual, auditory, and olfactory contact between conspecifics can be maintained.

   b. Hamsters will be housed in individual cages if specified by the IACUC protocol or for health reasons (i.e., intraspecies aggression), at the discretion of a RARC veterinarian.

   c. Male Armenian hamsters and male and female Syrian hamsters are individually housed, due to high rates of aggression. Other hamster species will only be individually housed if there are no available or compatible conspecifics with the same housing requirements, or no other animals from the same experimental group, belonging to the same Principal Investigator, on the same protocol within the facility.

2. **Enrichment Program**

   a. Polycarbonate domes will be placed in each cage to provide environmental complexity and a hiding spot.

   b. Enviro-Dri® shredded paper is provided as nesting material at each cage change.

   c. For additional enrichment, hamsters may be housed in cages with a running wheel attached to the wire bar lid.

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D. Guinea Pigs

1. **Group Housing**
   
a. Guinea pigs will be housed in cages containing multiple animals, so that direct visual, auditory, and olfactory contact between conspecifics can be maintained.

b. Guinea pigs will only be housed in individual cages if there are no available or compatible conspecifics with the same housing requirements, belonging to the same Principal Investigator on the same IACUC protocol, in the facility, if specified by the IACUC protocol, or for health reasons at the discretion of a RARC veterinarian. If housed individually, they will retain auditory and olfactory contact with animals in neighboring cages.

2. **Enrichment Program**
   
a. Polycarbonate hutches/igloos will be placed in each cage to provide environmental complexity and hiding spots.

b. Food enrichment will be placed in the bedding three times weekly to create foraging opportunities. Food enrichment includes irradiated Timothy hay and fruit crunchies or other treats approved by a RARC veterinarian.

c. Food enrichment will be recorded in an Enrichment Log, noting what type of enrichment is provided and on which dates.

E. **Ferrets** (see SOP # HC-3605)

1. **Group Housing**
   
a. Ferrets will be housed in a room containing multiple animals, so that visual and olfactory contact with conspecifics, as well as tactile contact with adjacent cages, can be maintained at all times.

b. Pregnant jills will be housed in individual cages until parturition, at which point their litter will remain with them until weaning.

c. If appropriate housing is available, attempts will be made to pair or group-house females or castrated males, with the same housing requirements if the animals will be maintained at the facility for at least 60 days. If introducing novel cage mates, at least two supervised attempts will be made, with the results recorded in each animal’s medical record. Successful attempts will progress to pair or group housing, assuming no signs of aggression are observed. If not successful, they will be housed individually, but will retain visual, auditory and olfactory contact with animals in neighboring cages.
d. Ferrets will only be isolated from conspecifics if there are no conspecifics with the same housing requirements in the facility or if mandated by a RARC veterinarian for medical reasons or justified in the animal care and use protocol for scientific reasons and approved by the IACUC.

2. **Enrichment Program**

   a. One cloth hammock or tunnel will be placed in each cage to provide environmental complexity and allow ferrets the opportunity to burrow, hide and rest.

   b. Ferrets will be provided with a toy at all times. Toy rotation will be specified by a schedule posted on the animal room door. Toys will be rotated during cage changes. Toys for ferrets include a small 3” Blue Kong, ferret balls, dumbbells and assorted chew toys that have been assessed for durability.

   c. Toy enrichment will be recorded in an Enrichment Log, noting what type of enrichment is provided, when it is provided, and when it is changed and by whom.

   d. In lieu of a hammock or tunnel, pregnant and lactating ferrets will be provided with a plastic nest box. This box is filled with ~3 inches of Aspen shavings and changed as needed during the week.

F. **Rats** (see SOP # HC-3111 and HC-3113)

1. **Group Housing**

   a. Rats will be housed in cages containing multiple animals, so that direct visual, auditory, and olfactory contact between conspecifics can be maintained.

   b. Rats will only be housed in individual cages if the size of the animal necessitates individual housing (as per recommendations in *The Guide for the Care and Use of Laboratory Animals*; Table 3.2), there are no compatible conspecifics with the same housing requirements, there are no other animals from the same experimental group belonging to the same Principal Investigator on the same protocol within the facility, single housing is specified by the IACUC protocol, or for health reasons at the discretion of a RARC veterinarian.

2. **Enrichment Program**

   a. Enviro-Dri® shredded paper is provided as nesting material at each cage change.
G. **Mice** (see SOP #s HB-3103, HC-3106, HC-3111)

1. **Group Housing**
   
   a. Mice will be housed in cages containing multiple animals, so that direct visual, auditory, and olfactory contact between conspecifics can be maintained.
   
   b. Mice will only be housed individually if there are no compatible conspecifics with the same housing requirements, or from the same experimental group belonging to the same Principal Investigator on the same protocol, within the facility, single housing is specified by the IACUC protocol, or for health reasons (i.e. recovering from major surgery or intra-species aggression) at the discretion of a RARC veterinarian.

2. **Enrichment Program**

   a. Nesting material will be provided for all mice and replaced at each cage change. Compressed cellulose (Nestlets®) will be used in the majority of cages. For hairless strains of mice (e.g., nude mice) and all mice housed in human xenograft cubicles or rooms, shredded paper (Enviro-Dri®) will be provided in lieu of Nestlets®.

   b. Enviro-Dri® may be used to replace or in addition to Nestlets® at the request of the investigative staff, if described in their approved IACUC protocol, by submitting a special husbandry request or, for health reasons, i.e., conjunctivitis, at the discretion of a RARC veterinarian.

H. **Xenopus sp.** (see SOP #s HC-3604)

1. **Group Housing**

   a. *Xenopus* will be housed in tanks containing multiple animals, so that contact between conspecifics can be maintained.

   b. *Xenopus* will only be housed in individually if there are no compatible conspecifics with the same housing requirements, there are no other animals from the same experimental group belonging to the same Principal Investigator on the same protocol within the facility, single housing is specified in the IACUC protocol, or for health reasons (i.e. recovering from major surgery or intra-species aggression) at the discretion of a RARC veterinarian.

2. **Enrichment Program**

   a. A polycarbonate hutch or other shelter will be placed in each tank to provide environmental complexity and a hiding spot.
I. **Zebrafish (Danio rerio) (HC-3603)**

1. **Group Housing**

   a. Zebrafish will be housed in tanks containing multiple animals, so that contact between conspecifics can be maintained.

   b. Zebrafish may be housed in individual tanks if there are no compatible conspecifics with the same housing requirements, there are no other animals from the same experimental group or genetic line belonging to the same Principal Investigator on the same protocol within the facility, single housing is specified in the IACUC protocol, for short periods of time (< 1 month) while awaiting genotyping results, or for health reasons (i.e., recovering from major surgery or intra-species aggression) at the discretion of a RARC veterinarian.

2. **Enrichment Program**

   a. Live feed (Artemia sp. or rotifers) is provided to promote natural feeding behaviors.

   b. Plastic plants may occasionally be provided to improve breeding performance or reduce intra-cage aggression or decrease anxiety in singly housed fish.

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