SAN DIEGO STATE UNIVERSITY

Office of Laboratory Animal Care
Standard Operating Procedures

RAT HUSBANDRY

IACUC Endorsed: October 13, 2014

BACKGROUND
To provide husbandry of rats in shoebox micro-isolator cages and in hanging rack cages.

RESPONSIBLE INDIVIDUALS
OLAC technicians, OLAC manager, Research lab personnel

DEFINITIONS
Shoebox micro-isolator [MI]: standard plastic rat caging with wire bar lid and filter top
Rat automated watering rack: rat cage shelf housing with automated water manifold and drinking valves
Shelf rack: generic shelf system without watering manifold.
Hanging rack-cage system with individual cages with wire bar bottom for short term housing for mating pairs to check for copulatory plugs.

MATERIALS
Sanitized caging including cage bottom, wire bar lid, filter top, cage card holder, cage cards, water drinking valves or water bottle where applicable, bedding, feed, enrichment items where applicable, disinfectant, maximum/minimum thermometers, room log, health observation sheet.
Protective clothing including scrubs, lab coats, gloves, shoe covers and face masks, bonnets and disposable gowns where required.

DOCUMENTATION AND COMMUNICATION
Room log is completed each day and environmental parameters of maximum and minimum room temperatures, current humidity, husbandry activity and relevant comments are recorded.
The number of cages for each investigator and/or investigator subsets are counted and recorded on the animal inventory sheet.
Animal health, breeding management and compliance issues are recorded on the health observation sheet and the information is emailed to designated lab personnel and OLAC veterinarians by technician or OLAC manager.

PROCEDURE

Environment

Temperature: Optimum room temperature is 72F +/- 2 degrees. The *Guide* recommends an acceptable range of 68-79F for rats. Maximum and minimum temperatures are recorded each day in the room log. Room temperatures outside of the acceptable range are reported by phone to SDSURF Facilities Services by technician or OLAC manager for correction by HVAC personnel.

Humidity: the relative humidity will be monitored. The acceptable range of relative humidity is 30% to 70%. The current relative humidity percent is recorded each day in the room log.

Illumination: Time-controlled lighting is used to provide a regular diurnal photoperiod (12 hours), unless otherwise noted in the protocol. Timer performance should be checked after each time change or any power disruption to ensure that photoperiod (6am on / 6pm off).

Housing: Rats are housed in shoebox micro-isolator cages in compliance with recommended *Guide* space requirements.

Room will be maintained in an orderly manner, free of clutter or any other items not required for husbandry or maintenance of animals. Wiping down counters and tabletops to remove bedding, hair, feces, etc. on a daily basis will be performed. Vermin sticky traps are checked each day for the presence of insects or rodents and replaced as necessary.

Husbandry for MI Shoebox cages:

Shoe covers must be donned at point of entry to the Alvarado lab and when entering the rat room in NLS. OLAC technicians wear scrubs and/or a lab coat when entering and working in animal housing rooms. A supply of cloth or disposable lab coats is dedicated to the Alvarado facility and to the NLS rat housing room. Disposable latex, vinyl or nitrile gloves must be worn when handling cages and/or rats.

Daily:

Each cage will be observed for husbandry, animal health, breeding management, appropriate cage card identification and compliance issues and appropriate notations recorded. The pressure valve at the top of each rack is loosened to bleed the line of air and verify water flow to the rack. The lines on each rack are also flushed for 1-2 minutes by opening the drain valve at the bottom of the rack

Cages will be checked for cleanliness and changed/cleaned if required (wet/excessive fecal material/etc.). Filter covers will be inspected and replaced if soiled or damaged.

Food and water will be checked to insure there is sufficient quantity. Feed may be topped off if feed already in the wire bar lid is not moist, crumbly or wet. Water bottles will be replaced if necessary.

Cage shelving and floors will be cleaned and soiled bedding and fecal material will be removed.

Weekly:
All cage bottoms for singly and multiple housed rats are changed at least once weekly into cages with fresh unsoiled bedding. Only one cage at a time is removed from the rack and handled when changing cages. A pinch of soiled bedding is removed from each cage in the designated sentinel subset and collected for placement in the sentinel cage along with the sentinel cage's fresh bedding. The wire bar lid, filter top and cage card holder containing the cage card are transferred to the fresh cage. The designated feed for the rats is replenished in the wire bar lid as necessary and water bottles [if in use] are changed. Moist, crumbly or wet feed in the wire bar lid is discarded as it may mold. The water valve stem is checked for leaks and proper operation when cages are changed. The cages are returned to the same position in the rack after changing after wiping down the cage location platform. The automated water manifold on the rack is flushed during cage changing and the attached drinking valves are sanitized with the approved disinfectant. Some subsets of cages may need to be changed in a particular order depending upon project or health profile. Gloves are changed and the cage change work surface is wiped down with the approved disinfectant between defined subsets. The cage change working surface is wiped down with disinfectant after changing is completed.

Biweekly:
Cages receive a full change including cage bottom, wire bar lid, filter top, cage card holder.

Monthly:
All animal rooms will be sanitized at least once a month. This includes, but is not limited to, cage racks, ceilings, walls, floors, all counters/cabinets, feed and trash containers.

When clean racks are changed following washing or during the set up of new cages, the automated water connections are checked to ensure correct fit and water valve stems on each rack are checked to verify presence and delivery of water.

Equipment maintenance:
Cages with cracks or chips are replaced as needed. Valve stems that are leaking or showing signs of wear are replaced. Adjustments to the flow rate of the valves should be made as needed. There is a special wrench to make the flow adjustment

Husbandry for wire bottom hanging cages:
Psychology lab personnel place mating pairs of rats in the individual hanging cages for short term periods [< 5 days] to identify gestation onset dates as part of the research project. Each cage will be observed for husbandry, animal health, breeding management, appropriate cage card identification and compliance issues and appropriate notations recorded. The hanging rack has automated water delivery through drinking valves and each cage has an external food hopper Automated water connections are checked to ensure correct fit and random water valve stems on each rack are checked to verify presence and delivery of water. Polypads are placed under the hanging cages to collect urine, feces, food waste and copulatory plugs. Lab personnel are responsible for changing polypads when soiled after they check for the presence of copulatory plugs. The rack and individual cages are washed by OLAC after each set of mating rats for that period are removed and placed back in shoebox MIs.