

STANDARD OPERATING PROCEDURES
DIVISION OF COMPARATIVE MEDICINE
UNIVERSITY OF SOUTH FLORIDA

SOP#: 456

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TITLE: **Naked Mole Rat (*Heterocephalus glaber*) Breeding and Colony Management**
SCOPE: Animal Care Personnel
RESPONSIBILITY: Facility Manager, Technical Staff, Veterinary Staff
PURPOSE: To Outline the Proper Procedures for Breeding Colony Management of *Heterocephalus glaber*

I. PURPOSE

1. To ensure the highest quality of animal health and preclude the development of spontaneous diseases or disorders, which could compromise the integrity of studies and the interpretation of results.
2. To ensure personnel breeding USDA covered naked mole rats perform their duties in a manner that complies with all current governing laws, regulations and guidelines.

II. RESPONSIBILITY

1. The Veterinarians oversee all aspects of animal health and are assisted by all program staff.
2. Facility Managers ensure implementation of all procedures.

III. GENERAL CHARACTERISTICS

1. NMR's are hairless rats with small hairs arranged across the body. They have a poor ability to regulate temperature, poor vision and have very large incisors used to digging which may need to be trimmed occasionally.
2. Their systems include toilet, breeding and food compartments.
3. NMR's are eusocial, like to live in colonies, and **must not** be separated from their colony groups or combined with other colonies, as they will become extremely aggressive. They are **extremely sensitive to changes in the environment such as housing, smell, vibration and noise.**
 - a. Each colony is composed of 1 queen female and 1-3 dedicated males for breeding.
 - b. **The average gestation period is between 70d**
 1. **NMR can give birth 2-4x per year**
 2. **Average litter size is 7-13 pups**

IV. PROCEDURES

1. Pre-partum (prior to birth)
 - a. Mark the cage of a pregnant female.
 - b. Cages should be kept clean by cages changes shortly before expected delivery date to avoid cleaning during the period after birth as described below.
 - c. Provide paper towels or nestlets to the caging system to allow nest building.
2. Post-partum (after birth)
 - a. To ensure newborn survival, activities **should be reduced** in the room as much as possible. Personnel entering the room should be limited to only those required to enter.
 - b. **Nest Chambers are NOT CHANGED when nursing young** (less than 30 days old) are present.
 1. While the nest chamber is not changed with young less than 30 days of age, **it can be spot cleaned after the young are 14 days of age by scooping out most of the soiled bedding from the nesting chamber and replacing it with fresh bedding,**
 2. Always leave some of the old bedding in the cage. This must be done carefully with little disturbance of the animals. Naked mole rats may cannibalize their young if all the bedding is replaced at one time, and if they are disturbed excessively.
 3. Regular cage cleaning (weekly) and replacement (monthly) of all cages in the system (except for the Nest Chamber) can resume when young are at least 14 days old.
 - c. If nesting material (paper towels or nestlets) are wet, trampled, shredded or not adequate for a large comfortable nest, add new nesting material to the chamber farthest away from the pups.
 - d. Place food farthest away from the newborns, and not in the toilet chamber.
 - e. Thoroughly check any bedding material removed from the cages for pups as they are commonly buried.
3. When a new litter is detected, record litter size, the date of birth, number of pups and any additional comments in the **USDA Rodent Colony Management Form.**
4. **Flag the cage with the New Litter Cage Card.**
5. **The Fiscal and Business Specialist will need to be notified of the number of pups and sex ratios for record keeping and will assign a USDA Identification number for each new pup.**
6. Adult NMRs can be easily marked using felt tipped pens.
7. Include microchipping.
8. Consult **SOP 455** for details related to NMR Husbandry.

NOTE: If at any time there is a medical emergency, the Clinical Veterinarian must be notified immediately.

Approved:

Date: