

Location: University

Responsibility: Principal Investigators (PI), Research Staff, Veterinary Staff

Purpose: The purpose of this Standard Operating Procedure (SOP) is to describe the standard procedure to breed rats and wean rat pups.

- 1. Introduction and Definitions:** In the laboratory, the traditional breeding age of rats begins at 3-4 months and ends at 10-12 months of age. Male rats are capable of impregnating females as early as 5 weeks of age, although this is not common. There are two breeding schemes: polygamous -placing a single male with multiple females, and monogamous - a single male with a single female. Additionally, one can implement timed or untimed breeding. In timed breeding, mates are placed together for a predetermined period of time (usually several days) and female rats are checked daily for a copulatory plug, which indicates breeding has occurred. Alternatively, a vaginal flush can be performed to monitor for the presence of spermatozoa cycle. This is a more sensitive and reliable method for determination of mating and allows for a more precise estimate of the expected date of parturition.

With untimed breeding, mating pairs (or groups) are placed together for 10 days and then separated, so the date of breeding is unknown.

Polygamous: one male bred with multiple females.

Monogamous: one male bred with a single female; alternatively, monogamous trios are commonly used in which one male is housed with 2-3 females. Each female is removed from the group when pregnancy is confirmed and remains housed separately until pups are weaned.

Copulatory plug: a secretion passed from male to female during mating which hardens to form

Following this period, pups and mom should be checked twice daily for grooming, appearance, activity, food and water intake. They should be minimally handled unless problems arise including (but not limited to): cannibalism, inability of a pup/s to nurse, death of the mother or rejection of the litter by the mother.

b. Weaning:

Approximately one week before weaning add a few pellets of rodent chow to the bottom of the cage to introduce the pups to an adult diet (in some cases, T-Gel can be given to the pups). Ensure all pups can access the water