



Standard Operating Procedure for ***Testing Olfactory Habituation/Dishabituation in the Mouse***

1.0 PURPOSE

This procedure describes how test mice for a simple form of learning – habituation. Given that mice use olfactory cues extensively, it is logical to begin to assess this ability using odor cues.

2.0 SCOPE (Should include which Cores this SOP applies to)

This procedure applies to all personnel who will test mice in the elevated plus maze within the Stem Cells Engraftment and *in vivo* Analysis Core.

3.0 PROCEDURE

3.1 Apparatus

Subjects are tested in their homecage.

3.2 General Procedures

All testing occurs during the dark-phase (the active phase) of the light cycle. Testing is conducted under dim white-light illumination (about 150 lux). The subjects are moved from their housing room to the testing room and allowed to acclimate for at least 10min before testing. After testing is completed, the mice are immediately returned to the housing room. The test is recorded using digital video cameras.

3.3 Testing Procedure

1. Prepare the odor stimuli. Two odors are required: Odor A for odor stimulus 1-3 and Odor B for odor stimulus 4. Generally an assistant is necessary to maintain the proper timing.

1a. Pipet 50 μ l of the odor onto a 1cm square of Whatman filter paper.

1b. Place the filter paper into a tissue capsule.

1c. Prepare the stimulus immediately before use.

2. Prepare the homecage for testing.

2a. Remove the lid.

2b. Remove the hut/nesting material so the animal is visible for the test.

2c. Replace the lid with an inverted, clean metal cage lid.

3. Begin recording. Hold the test card (with the date, test name, and testing conditions) in view. Hold the subject's cage card in view.

4. Place the tissue capsule containing odor sample one onto the top of the wire mesh cage top.

5. After one minute, remove the stimulus.

6. After one minute, place the tissue capsule containing odor sample two onto the top of the wire mesh cage top.

7. Place the tissue capsule containing odor sample three onto the top of the wire mesh cage top.

8. After one minute, remove the stimulus.

9. After one minute, place the tissue capsule containing odor sample four (a novel odor) onto the top of the wire mesh cage top.

10. Return the material removed in step two and place the original lid onto the cage.