Behaviour: Novel Object Exploration (NOE)

1. Purpose

Mice are recorded with digital video equipment exploring an open field that is altered by the presence of a novel object for 5 minutes**.** Behaviours sensitive to detecting fear (or anxiety) and locomotion are analysed.

The purpose of the NOE is three-fold. Primarily it is used to establish the baseline level of anxiety-like behaviours. Secondly, some of the specific behaviours recorded are used to determine differences in locomotor activity. It is also used to determine a baseline for the conflict between exploration and inhibition, a fundamental aspect for learning.

2. Procedure

Mice are run in a white Perspex with matt finish open field, 75 cm square, with 42 cm high walls. The entire apparatus is placed on an InfraRed (IR) light bed to facilitate the recording with IR filtered cameras. The florescent lights are on at 1000 Lux. A full, clean Coke can (330 mL) is placed in the exact centre of the maze.

Each mouse is placed in the corner of the open field and allowed to explore for 5 minutes, after which they are removed to their home cage and the maze is cleaned. To clean the maze, the entire surface to the open field is wiped down with Trigene wipes and allowed to air-dry.

Use mice housed and treated according to environmental conditions in the Battery protocol.

HOME OFFICE LICENCED PROCEDURE?: YES (can be done under delegation).

3. Materials

- Noldus Ethovision version 3.1.16 (Tracksys, Nottingham UK)
- Elevated Open Field maze with IR lighting underneath (Tracksys, Nottingham UK) (75 x 75 cm (white matt interior), walls are 42 cm**)**
- Digital camera with IR filters (Tracksys, Nottingham UK)
- Trigene wipes (Medichem, Seven Oaks UK)
- Coke Can (readily available worldwide, without special labelling on it)
- AVID chip Identification reader,

4. Quality Control

A panel of inbred strains are used to establish protocol. The WT mice are monitored for drift in the baseline phenotype. Video record of each mouse is recorded and

archived so, if necessary, the tapes can be subsequently analysed. This may be for novel analysis or for confirmatory analysis.

5. Example Data

The list of variables (below) collected from each animal is is downloaded into the *g2c in_vivo*, the database for the behavioural data for subsequent analysis.

- for each of 3 separate zones (inner, outer and object):
    - In zone frequency
    - In zone total duration
    - In zone latency of first occurrence (only for inner and object zones)
- distance moved max
- distance moved total

6. Supporting Information

7. Document History

This document created on 21 January 2008.

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