STANDARD OPERATING PROCEDURE

TITLE: PhenoTyper

CATEGORY: Behavioral Assay

Introduction

Goal: PhenoTyper is an automated video-based observation system for quantitative acquisition and analysis of behavior in rodents within PhenoTyper home cages. No prior training is required and data acquisition initiates from the moment the animals are placed in the cages. Rodents are given wood chips as bedding and *ad libitum* access to food and water. The cages can be equipped with accessories such as a running wheel, shelters, feeder and drinking bottle. Home-cage like environment minimizes stress or discomfort and access to accessories can be manipulated according to experimental needs. The studies should be conducted with the animals in the chamber undisturbed over multiple days. Multiple cages (16-32 cages) should be simultaneously monitored using Ethovision XT to facilitating a high throughput screening and data should subsequently be analyzed by the investigator.

Materials

- Subjects – any species of mouse or rat may be used.
- Apparatus – Cages (Mouse 30cmx30cm, Rat 45cmx45cm) with cameras mounted on individual cages.
- Software – The PhenoTyper is run using the Ethovision XT software. Dongle key required.
- Accessories: Running Wheel, Feeders, Water Bottles, Shelters

Test Settings

- Controlled environment for Light/Dark cycle, Temperature, and Humidity.

Testing procedures

- Each test subject is introduced into an individual cage and their activity is tracked once they are in the cages
- Cages are cleaned frequently during long term testing

Data Analysis

- The following parameters are collected for analysis
    - Distance Moved over 24 hour periods
    - Mean velocity
    - Time in Food, Water, Running Wheel
    - Amount of Food and Water consumption
    - Distance Moved in Running Wheel
- Data sets are nested into 1 hour, 24 hours, or during light and dark cycle.