Tail Suspension JAX_TLS_001

Purpose

To monitor the immobility response to tail suspension to test behavioral despair in mice, an induced depression model.

Experimental Design

- **Minimum number of animals :** 7M + 7F
- **Age at test:** Week 11
- **Sex:** We would expect the results of this test to show sexual dimorphism

Procedure

Equipment: A metal bar is suspended on clamp stands at 36.6 cm above the lab bench; in front of a neutral color background to ensure mice with coat color variation can be detected equally well. Noldus Ethovision XT records a single mouse per camera. A plastic cone is placed over the tail and masking tape is used to gently attach the tail to the bar.

Procedure (modified from Lad et al, 2007)

1. Mice are allowed to acclimatise to the phenotyping room for a period of 30 minutes prior to testing.
2. The method of recording is set up with:
    a. Detection parameters appropriate to the coat color of the mice;
    b. Time duration set at 5 min and 15 s.
    c. A short (30 s) video of the tail suspension apparatus without a mouse is recorded at the beginning of each testing day. This ensures an accurate calibration background for the Ethovision detection software.
3. A single trial of the tail suspension test is performed on each mouse.
    a. Recording begins before the mouse is suspended to guarantee that information is not lost in the first portion of the trial.

b. A plastic cone is placed around the tail of each mouse immediately before the test, with its tail extending through the tip, to prevent tail climbing behaviors.
c. The mouse is suspended at approximately one-third from the end of its tail; masking tape is used to secure the mouse to the line.
d. Each trial is 5 min 15 s long and analyzed using the mobility detection module in EthoVision.

4. At the end of the 5 min 15 s trial, the mice are removed from the arena and returned to a holding cage until all mice within the home cage have been tested.

5. Analysis of the recording is done to measure the latency to immobility and total time spent immobile.
6. Only the first 5 min of the recording after the experimenter has moved from view are analysed.
7. An unscented 1% solution of Virkon S is used to clean the apparatus.

Notes

Local QC: Video from major outlier values should be reviewed for video tracking errors. These criteria should be evaluated periodically. Three SD from population mean will be used as a conservative initial value.

1. Total duration of recording should be 5 min 15 s (615 s).

2. Cone is in place to prevent tail climbing. Mice that climb will not be included in analysis of time immobile or latency to immobility. The presence of climbing behaviour will be the only data associated with these mice.

3. DCC should report all > 5 standard deviation outliers.

Parameters and Metadata

Time immobile JAX_TLS_001_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Unit Measured: s

Latency to immobility JAX_TLS_002_001 | v1.1

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Unit Measured: s

Climbing JAX_TLS_003_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** false

Options: Yes, No,

Experimenter ID JAX_TLS_004_001 | v1.3

procedureMetadata

Req. Analysis: true **Req. Upload:** true **Is Annotated:** false

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Equipment ID (1) JAX_TLS_005_001 | v1.0

procedureMetadata

Req. Analysis: false **Req. Upload:** false **Is Annotated:** false

Options: Tail suspension rod apparatus,

Equipment manufacturer (1) JAX_TLS_006_001 | v1.1

procedureMetadata

Req. Analysis: true **Req. Upload:** true **Is Annotated:** false

Options: Jackson Laboratory in-house,

Equipment ID (2) JAX_TLS_008_001 | v1.0

procedureMetadata

Req. Analysis: false **Req. Upload:** false **Is Annotated:** false

Options: Video Tracking Software,

Equipment manufacturer (2) JAX_TLS_009_001 | v1.0

procedureMetadata

Req. Analysis: true **Req. Upload:** true **Is Annotated:** false

Options: Noldus,

Equipment model (2) JAX_TLS_010_001 | v1.0

procedureMetadata

Req. Analysis: true **Req. Upload:** true **Is Annotated:** false

Options: Ethovision XT 7.1 and MPEG Recorder,

Time of test JAX_TLS_011_001 | v1.1

procedureMetadata

Req. Analysis: false **Req. Upload:** true **Is Annotated:** false