Light-Dark Test IMPC_LDT_001

Purpose

To monitor the anxiety-related behaviour of mice in a two-chambered light-dark arena over a defined period of time in order to assess the anxiety phenotype.

Experimental Design

- **Minimum number of animals :** 7M + 7F
- **Age at test:** Week 10
- **Sex:** We would expect the results of this test to show sexual dimorphism

Procedure

1. Light levels are set so that the light intensity within the light arena is between 100 – 200 lux and the dark arena is at 4-7 lux. Light metering is performed at the start of each test day.

2. The method of recording is set up with each arena defined. The light arena is approximately one third to half of entire chamber.

3. One mouse is placed in each ***light arena*** and recording is started.

4. A minimum of 5 minute should be recorded up to a maximum of 20 minutes.

5. At the end of the trial, the mice are removed from the arena and returned to their home cages.

6. The chambers are cleaned with disinfectant between mice to decontaminate and remove scent cues from previously tested mice.

7. Analysis of the recording is done to measure the activity of each mouse in each of the two zones and the number of transitions between zones.

Notes

Local data processing may be implemented to calculate derived measures from this data.

Data QC

Local QC data to assure all data fields have recorded data. In the case all data fields have a value of 0 that particular mouse data will be removed.

1. Verify the total time of each run

Parameters and Metadata

Side changes IMPC_LDT_001_001 | v1.0

seriesParameter

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

Unit Measured: count

Description: side_changes

Increments: 5, 10, 15, 20,

Light side time spent IMPC_LDT_002_001 | v1.0

seriesParameter

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

Unit Measured: s

Description: light_side_time_spent

Increments: 5, 10, 15, 20,

Time mobile light side IMPC_LDT_003_001 | v1.0

seriesParameter

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

Unit Measured: s

Description: time_mobile_light_side

Increments: 5, 10, 15, 20,

Dark side time spent IMPC_LDT_004_001 | v1.0

seriesParameter

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

Unit Measured: s

Description: dark_side_time_spent

Increments: 5, 10, 15, 20,

Time mobile dark side IMPC_LDT_005_001 | v1.0

seriesParameter

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

Unit Measured: s

Description: time_mobile_dark_side

Increments: 5, 10, 15, 20,

Latency to first transition into dark IMPC_LDT_006_001 | v1.0

simpleParameter

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

Unit Measured: s

Description: latency_to_first_transition_into_dark

Percent time in dark IMPC_LDT_007_001 | v1.0

simpleParameter

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

Unit Measured: %

Description: percent_time_in_dark

Derivation:
mul(div(sumOfIncrements('IMPC_LDT_004_001',1), add(sumOfIncrements ('IMPC_LDT_004_001',1), sub(sumOfIncrements('IMPC_LDT_002_001',1), 'IMPC_LDT_006_001'))), 100)

Percent time in light IMPC_LDT_008_001 | v1.0

simpleParameter

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

Unit Measured: %

Description: percent_time_in_light

Derivation:
mul(div(sub(sumOfIncrements('IMPC_LDT_002_001',1), 'IMPC_LDT_006_001'), add (sumOfIncrements('IMPC_LDT_004_001',1), sub(sumOfIncrements('IMPC_LDT_002_001', 1), 'IMPC_LDT_006_001'))), 100)

Transition IMPC_LDT_009_001 | v1.1

simpleParameter

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

Description: transition

Options: No, Yes,

Light side distance travelled IMPC_LDT_010_001 | v1.0

seriesParameter

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

Unit Measured: cm

Description: light_side_distance_travelled

Increments: 5, 10, 15, 20,

Dark side distance travelled IMPC_LDT_011_001 | v1.0

seriesParameter

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

Unit Measured: cm

Description: dark_side_distance_travelled

Increments: 5, 10, 15, 20,

Vertical activity (rearing) IMPC_LDT_012_001 | v1.0

seriesParameter

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

Unit Measured: count

Description: vertical_activity_rearing

Increments: 5, 10, 15, 20,

Horizontal activity IMPC_LDT_013_001 | v1.0

seriesParameter

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

Unit Measured: count

Description: horizontal_activity

Increments: 5, 10, 15, 20,

Repetitive beam break ('stereotypy counts') IMPC_LDT_014_001 | v1.0

seriesParameter

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

Unit Measured: count

Description: repetitive_beam_break_stereotypy_counts

Increments: 5, 10, 15, 20,

Total distance travelled IMPC_LDT_015_001 | v1.0

seriesParameter

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

Unit Measured: cm

Description: total_distance_travelled

Increments: 5, 10, 15, 20,

Light level light chamber IMPC_LDT_016_001 | v1.0

procedureMetadata

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

Unit Measured: Lux

Description: light_level_light_chamber

Options: 100 - 200, 275 Lux, 150 - 200,

Light level dark chamber IMPC_LDT_017_001 | v1.0

procedureMetadata

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

Unit Measured: Lux

Description: light_level_dark_chamber

Options: 4 - 7, 2 - 5,

Experimenter ID IMPC_LDT_018_001 | v1.0

procedureMetadata

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

Description: experimenter_id

Start time IMPC_LDT_019_001 | v1.0

procedureMetadata

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

Description: start_time

Arena ID IMPC_LDT_020_001 | v1.0

procedureMetadata

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

Description: arena_id

Arena version IMPC_LDT_021_001 | v1.0

procedureMetadata

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

Description: arena_version

Options: Custom made, MED-OFAS-RSU, SuperFlex ECC,

Equipment ID IMPC_LDT_022_001 | v1.0

procedureMetadata

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

Description: equipment_id

Options: Light-Dark Insert, Custom made, Dark Box Insert ENV-516, SuperFlex Dark Enclosure,

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Equipment manufacturer IMPC_LDT_023_001 | v1.0

procedureMetadata

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

Description: equipment_manufacturer

Options: Accuscan, Custom made, Med Association Inc., Med Associates, Omnitech,

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Equipment model IMPC_LDT_024_001 | v1.0

procedureMetadata

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

Description: equipment_model

Options: Versamax, Custom made, Activity Test Chamber ENV-515, SuperFlex Environmental Control Chamber,

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Disinfectant IMPC_LDT_025_001 | v1.0

procedureMetadata

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

Description: disinfectant

Options: Alcohol, Pursept-A, 50% alcohol, 1% Virkon solution, 10% Nolvasan Solution, 70% ethanol, Clidox, 70% Isopropanol, Distel 2%, 50% Ethanol,

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Starting position IMPC_LDT_026_001 | v1.0

procedureMetadata

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

Description: starting_position

Options: Facing away from entry, Facing towards entry,

Light-Dark box's walls opaque IMPC_LDT_027_001 | v1.0

procedureMetadata

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

Description: light_dark_box_s_walls_opaque

Options: Yes, No,

Light-Dark box set-up IMPC_LDT_028_001 | v1.0

procedureMetadata

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

Description: light_dark_box_set_up

Options: Cabinet enclosure, Standalone,

Light side arena dimensions (L x W x H, in mm) IMPC_LDT_029_001 | v1.0

procedureMetadata

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

Description: light_side_arena_dimensions_l_x_w_x_h_in_mm

Options: 180 x 207 x 140, 431.8 x 212.725 x 203.2, 433 x 215 x 305, 250 x 190 x 250, 408 x 202 x 300,

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Dark side arena dimensions (L x W x H, in mm) IMPC_LDT_030_001 | v1.0

procedureMetadata

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

Description: dark_side_arena_dimensions_l_x_w_x_h_in_mm

Options: 180 x 207 x 140, 431.8 x 212.725 x 203.2, 425 x 210 x 305, 150 x 190 x 250,

396 x 192 x 98,

Entry way dimensions (L x W x H, in mm) IMPC_LDT_031_001 | v1.0

procedureMetadata

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

Description: entry_way_dimensions_l_x_w_x_h_in_mm

Options: 101.6 x 3.175 x 101.6, 90 x 3 x 115, 50 x 100 x 5, 102 x 5 x 32,

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Time spent in the light side in the first 5 minutes IMPC_LDT_032_001 | v1.0

simpleParameter

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

Derivation:
ifElse('IMPC_LDT_006_001'<300, sub(incrementValue('IMPC_LDT_002_001', 1),'IMPC_LDT_006_001'), 300)

Test duration IMPC_LDT_033_001 | v1.0

procedureMetadata

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

Unit Measured: min

Options: 5, 20, 10, 15,

Software version IMPC_LDT_034_001 | v1.0

procedureMetadata

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

Options: Activity Monitor V6.02, Activity Monitor V7.0.5.10, Versamap Version 1.7, Fusion v6.5,

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