# 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

### 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

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### 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)

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### 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)

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## Transition IMPC_LDT_009_001 | v1.1

simpleParameter

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

**Description:** transition

**Options:** No, Yes,

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## 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,

## 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,

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## Experimenter ID IMPC_LDT_018_001 | v1.0

procedureMetadata

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

**Description:** experimenter_id

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## Start time IMPC_LDT_019_001 | v1.0

procedureMetadata

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

**Description:** start_time

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## Arena ID IMPC_LDT_020_001 | v1.0

procedureMetadata

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

**Description:** arena_id

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## 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,

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## 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,

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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,

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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,

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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,

## 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,

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## 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,

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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,

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## 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,

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## Side changes IMPC_LDT_001_001 | v1.0

seriesParameter

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

**Unit Measured:** count

**Increments:** 5, 10, 15, 20,

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## Light side time spent IMPC_LDT_002_001 | v1.0

seriesParameter

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

**Unit Measured:** s

**Increments:** 20, 10, 5, 15,

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## Time mobile light side IMPC_LDT_003_001 | v1.0

seriesParameter

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

**Unit Measured:** s

**Increments:** 10, 15, 5, 20,

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## Dark side time spent IMPC_LDT_004_001 | v1.0

seriesParameter

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

**Unit Measured:** s

**Increments:** 20, 10, 15, 5,

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## Time mobile dark side IMPC_LDT_005_001 | v1.0

seriesParameter

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

**Unit Measured:** s

**Increments:** 15, 20, 5, 10,

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## Light side distance travelled IMPC_LDT_010_001 | v1.0

seriesParameter

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

**Unit Measured:** cm

**Increments:** 15, 5, 20, 10,

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## Dark side distance travelled IMPC_LDT_011_001 | v1.0

seriesParameter

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

**Unit Measured:** cm

**Increments:** 5, 20, 15, 10,

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## Vertical activity (rearing) IMPC_LDT_012_001 | v1.0

seriesParameter

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

**Unit Measured:** count

**Increments:** 10, 5, 15, 20,

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## Horizontal activity IMPC_LDT_013_001 | v1.0

seriesParameter

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

**Unit Measured:** count

**Increments:** 20, 15, 5, 10,

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

seriesParameter

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

**Unit Measured:** count

**Increments:** 15, 10, 5, 20,

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## Total distance travelled IMPC_LDT_015_001 | v1.0

seriesParameter

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

**Unit Measured:** cm

**Increments:** 5, 15, 20, 10,

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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)

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## Test duration IMPC_LDT_033_001 | v1.0

procedureMetadata

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

**Unit Measured:** min

**Options:** 20, 5, 10, 15,

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## 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,

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