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
### Latency to first transition into dark

**IMPC_LDT_006_001 | v1.0**

**Simple Parameter**

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

**Unit Measured**: s

**Description**: latency_to_first_transition_into_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 dark

**IMPC_LDT_007_001 | v1.0**

**Simple Parameter**

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

**Unit Measured**: %

**Description**: percent_time_in_dark

### Percent time in light

**IMPC_LDT_008_001 | v1.0**

**Simple Parameter**

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

**Unit Measured**: %
Description: percent_time_in_light

Derivation:
\[ \text{mul} \left( \frac{\text{div} \left( \text{sub} \left( \text{sumOfIncrements}'IMPC\_LDT\_002\_001',1), 'IMPC\_LDT\_006\_001' \right), \text{add} \left( \text{sumOfIncrements}'IMPC\_LDT\_004\_001',1), \text{sub} \left( \text{sumOfIncrements}'IMPC\_LDT\_002\_001',1), 'IMPC\_LDT\_006\_001' \right) \right)}{100} \right) \]

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**Transition** IMPC\_LDT\_009\_001 | v1.1

simpleParameter


Description: transition

Options: No, Yes,

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**Light level light chamber** IMPC\_LDT\_016\_001 | v1.0

procedureMetadata


Unit Measured: Lux

Description: light_level_light_chamber

Options: 100 - 200, 275 Lux,

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**Light level dark chamber** IMPC\_LDT\_017\_001 | v1.0

procedureMetadata
**Unit Measured:** Lux

**Description:** light_level_dark_chamber

**Options:** 4 - 7,

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**Experimenter ID** IMPC_LDT_018_001 | v1.0

**Description:** experimenter_id

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**Start time** IMPC_LDT_019_001 | v1.0

**Description:** start_time

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**Arena ID** IMPC_LDT_020_001 | v1.0

**Description:**
Description: arena_id

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**Arena version** IMPC_LDT_021_001 | v1.0

**Description:** arena_version

**Options:** Custom made, MED-OFAS-RSU,

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**Equipment ID** IMPC_LDT_022_001 | v1.0

**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

**Description:** equipment_manufacturer

**Options:** Accuscan, Custom made, Med Association Inc., Med Associates,
**Equipment model** IMPC_LDT_024_001 | v1.0

**Description:** equipment_model

**Options:** Versamax, Custom made, Activity Test Chamber ENV-515,

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**Disinfectant** IMPC_LDT_025_001 | v1.0

**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

**Description:** starting_position

**Options:** Facing away from entry, Facing towards entry,
**Light-Dark box's walls opaque** IMPC_LDT_027_001 | v1.0

**Description:** light_dark_box_s_walls_opaque

**Options:** Yes, No,

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

**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

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

**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**

**Description:** entry_way_dimensions_l_x_w_x_h_in_mm

**Options:** 5 x 100 x 40, 101.6 x 3.175 x 101.6, 90 x 3 x 115, 5 x 100 x 50,

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**Side changes**  
**IMPC_LDT_001_001 | v1.0**

**Unit Measured:** count

**Increments:** 10, 20, 15, 5,
Light side time spent  IMPC_LDT_002_001 | v1.0


Unit Measured: s

Increments: 10, 15, 20, 5,

Time mobile light side  IMPC_LDT_003_001 | v1.0


Unit Measured: s

Increments: 20, 5, 15, 10,

Dark side time spent  IMPC_LDT_004_001 | v1.0


Unit Measured: s

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

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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, 20, 10, 5,

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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, 10, 15,

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Vertical activity (rearing) IMPC_LDT_012_001 | v1.0

**seriesParameter**
Horizontal activity IMPC_LDT_013_001 | v1.0

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

Total distance travelled IMPC_LDT_015_001 | v1.0
Time spent in the light side in the first 5 minutes IMPC_LDT_032_001 | v1.0

simpleParameter

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

Software version IMPC_LDT_034_001 | v1.0

procedureMetadata
Options: Activity Monitor V7.0.5.10, Activity Monitor V6.02, Versamap Version 1.7,