

# 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

---

### 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:**

$$\text{mul}(\text{div}(\text{sub}(\text{sumOfIncrements}(\text{'IMPC\_LDT\_002\_001'}, 1), \text{'IMPC\_LDT\_006\_001'}), \text{add}(\text{sumOfIncrements}(\text{'IMPC\_LDT\_004\_001'}, 1), \text{sub}(\text{sumOfIncrements}(\text{'IMPC\_LDT\_002\_001'}, 1), \text{'IMPC\_LDT\_006\_001'}))), 100)$$

---

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

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

**Description:** transition

**Options:** No, Yes,

---

## Light 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,

---

## 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,

**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,

## 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,

---

## 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,

---

## 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,

---

## Light side arena dimensions (L x W x H, in mm) IMPC\_LDT\_02

9\_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,

---

## 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,

---

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

---

## Side changes IMPC\_LDT\_001\_001 | v1.0

seriesParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

**Unit Measured:** count

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

---

## Light side time spent IMPC\_LDT\_002\_001 | v1.0

seriesParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

**Unit Measured:** s

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

---

## Time mobile light side IMPC\_LDT\_003\_001 | v1.0

seriesParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

Unit Measured: s

Increments: 15, 20, 5, 10,

---

## 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, 15, 5, 10,

---

## Time mobile dark side IMPC\_LDT\_005\_001 | v1.0

seriesParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Unit Measured: s

Increments: 5, 20, 15, 10,

---

## Light side distance travelled IMPC\_LDT\_010\_001 | v1.0

seriesParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

**Unit Measured:** cm

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

---

**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, 15, 20, 10,

---

**Vertical activity (rearing)** IMPC\_LDT\_012\_001 | v1.0

seriesParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** false

**Unit Measured:** count

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

---

**Horizontal activity** IMPC\_LDT\_013\_001 | v1.0

seriesParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Unit Measured: count

Increments: 15, 20, 5, 10,

---

**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: 20, 10, 15, 5,

---

**Total distance travelled** IMPC\_LDT\_015\_001 | v1.0

seriesParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Unit Measured: cm

Increments: 15, 5, 20, 10,

---

# Time spent in the light side in the first 5 minutes IMPC\_LDT\_0

32\_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,

---