

# 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 9
- **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

### Equipment model IMPC\_LDT\_024\_001 | v1.0

procedureMetadata

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

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

---

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

procedureMetadata

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

Unit Measured: Lux

Options: 4 - 7,

---

### 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, 15, 10, 20,

---

## Light-Dark box set-up IMPC\_LDT\_028\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Options: Standalone, Cabinet enclosure,

---

## Arena version IMPC\_LDT\_021\_001 | v1.0

procedureMetadata

Req. Analysis: true

Req. Upload: true

Is Annotated: false

Options: MED-OFAS-RSU, Custom made,

---

## 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, 10, 20, 5,

---

# 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

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

---

# 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,

---

# Equipment manufacturer IMPC\_LDT\_023\_001 | v1.0

procedureMetadata

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

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

---

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

seriesParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** false

**Unit Measured:** count

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

---

## **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,

---

## **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, 20, 5, 10,

---

## **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

---

## Experimenter ID IMPC\_LDT\_018\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

---

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

seriesParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Unit Measured: count

Increments: 20, 15, 5, 10,

---

## Equipment ID IMPC\_LDT\_022\_001 | v1.0

procedureMetadata

Req. Analysis: true

Req. Upload: true

Is Annotated: false

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

---

**Starting position** IMPC\_LDT\_026\_001 | v1.0  
procedureMetadata

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

**Options:** Facing towards entry, Facing away from entry,

---

**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

**Options:** 433 x 215 x 305, 431.8 x 212.725 x 203.2, 250 x 190 x 250, 180 x 207 x 140,

---

**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

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

---

## Light-Dark box's walls opaque IMPC\_LDT\_027\_001 | v1.0

procedureMetadata

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

Options: Yes, No,

---

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

seriesParameter

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

Unit Measured: count

Increments: 5, 15, 10, 20,

---

## 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,

---



# Percent time in light IMPC\_LDT\_008\_001 | v1.0

simpleParameter

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

Unit Measured: %

**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)

---

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

seriesParameter

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

Unit Measured: cm

Increments: 5, 10, 20, 15,

---

# Start time IMPC\_LDT\_019\_001 | v1.0

procedureMetadata

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

---

# Dark side distance travelled IMPC\_LDT\_011\_001 | v1.0

seriesParameter

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

Unit Measured: cm

Increments: 15, 20, 10, 5,

---

# 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)

---

# Percent time in dark IMPC\_LDT\_007\_001 | v1.0

simpleParameter

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

Unit Measured: %

**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)

**Arena ID** IMPC\_LDT\_020\_001 | v1.0

procedureMetadata

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

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

simpleParameter

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

Options: Yes, No,

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

procedureMetadata

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

Unit Measured: Lux

Options: 100 - 200, 275 Lux,

---

## Disinfectant IMPC\_LDT\_025\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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

---

## Dark side time spent IMPC\_LDT\_004\_001 | v1.0

seriesParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Unit Measured: s

Increments: 5, 15, 10, 20,

---

## 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, 15, 5, 10,

-----