

# Open Field ICSLA\_OFD\_001

## Purpose

The Open Field test is used to assess anxiety and exploratory behaviors. It is based on the natural tendency of an animal to explore and to protect itself using avoidance which translates to a normal animal spending more time in the periphery of the Open Field arena than in the center (the most anxiogenic area).

## Experimental Design

- **Minimum number of animals** : 7M + 7F
- **Age at test**: Week 51
- **Sex**: We would expect the results of this test to show sexual dimorphism

## Procedure

1. Animals are transported to the testing room (or ideally an antechamber) and left undisturbed for 30 minutes before the test.
2. Ensure that lighting conditions are as desired (150-200 lux) and that all equipment is working correctly:
  1. If using a beam break system, ensure that beams are not interrupted before putting the mouse and if measuring vertical activity (rears), check that height of the infrared frame for rears is correctly set.
  2. If using a videotracking system, set detection parameters appropriate for the coat color of the mice.
  3. For analysis, each openfield arena is divided into a peripheral zone measuring 8 cm from the edge of the arena walls, and a central zone around 40% of the total surface of the arena.
3. Testing is conducted during the light phase of the cycle with 1 hour gap from the light/dark change. Testing should be conducted during the same period of day.
4. Wipe the apparatus clean and allow time for it to dry
5. Each mouse is placed in the middle of a peripheral zone of the arena facing the wall and allowed to explore freely the apparatus, with the experimenter out of the animal's sight.

*If more than one mouse can be tested in parallel, in adjacent open field arenas and mice are video-tracked, it is important to ensure that the tracking of each mouse starts as soon as the mouse is released to make data comparable.*

*Males and females must be run in separate tests; ideally males are tested first, then followed by females*

6. At the end of the 20 min run, animals are labeled (if necessary) and put back into their home cage.
7. After each run, any feces are removed and the arena is thoroughly wiped.
8. Analysis of the recording is done to measure the activity of each mouse in each of the zones per 5 minute bins.

## Notes

1. Please ensure that the mice are not handled prior to the test, except handling for cage change.
2. Ear clipping should be done after the test if necessary .

## Data QC

1. Verify total time of run.
2. Coherence between latency, number of entries and time in the center; e.g. it is not possible to have zero entries and have spent some time spent in the center.

## Parameters and Metadata

### Color of arena ICSLA\_OFD\_029\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Options: White, Transparent, Black, Grey,

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### Percentage center time ICSLA\_OFD\_022\_001 | v1.2

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Unit Measured: %

Derivation:  $\text{mul}(\text{div}(\text{'ICSLA\_OFD\_016\_001'}, \text{'ICSLA\_OFD\_008\_001'}), 100)$

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## Date equipment last calibrated

ICSLA\_OFD\_041\_001 | v1.2

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

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## Whole arena resting time series

ICSLA\_OFD\_001\_001 | v1.1

seriesParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Unit Measured: s

Increments: 20, 15, 10, 5,

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## Disinfectant

ICSLA\_OFD\_036\_001 | v1.1

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

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## Whole arena average speed

ICSLA\_OFD\_009\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Unit Measured: cm/s

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## Software Version ICSLA\_OFD\_039\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

**Options:** Activity Monitor V6.02, Topscan Lite, Image OF, Opto-Varimex 4 AutoTrack System 4.97, TSE ActiMot Vers. 08.00, Ethovision XT v8.5, TimeOFCR4, Versamax 4.2, 06.15 / 07.01, Actitrack system, Fusion v6.3, Ethovision XT v15,

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## Periphery permanence time ICSLA\_OFD\_012\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Unit Measured: s

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## Center resting time ICSLA\_OFD\_015\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Unit Measured: s

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## Distance from light source: if direct illumination ICSLA\_OFD\_

031\_001 | v1.1

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Unit Measured: cm

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## Number of animals per cage ICSLA\_OFD\_028\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

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## Periphery average speed ICSLA\_OFD\_013\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Unit Measured: cm/s

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## Arena ID ICSLA\_OFD\_038\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

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## Number of center entries ICSLA\_OFD\_019\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

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## Experimenter ID ICSLA\_OFD\_035\_001 | v1.1

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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## Center average speed series ICSLA\_OFD\_047\_001 | v1.2

seriesParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Unit Measured: cm/s

Increments: 5, 15, 10, 20,

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## Light beam barrier height (Z axis) ICSLA\_OFD\_049\_001 | v1.1

procedureMetadata

**Req. Analysis:** true

**Req. Upload:** false

**Is Annotated:** false

**Unit Measured:** cm

**Description:** height of the Z axis light beam used to determine when mouse is rearing

**Options:** 8.6, 6.8, 8.0, 7.5,

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## Whole arena average speed series ICSLA\_OFD\_002\_001 | v1.2

seriesParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Unit Measured:** cm/s

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

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## Height of the wall ICSLA\_OFD\_030\_001 | v1.0

procedureMetadata

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** false

**Unit Measured:** cm

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## Latency to center entry ICSLA\_OFD\_018\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Unit Measured: s

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## Number of center entries series ICSLA\_OFD\_048\_001 | v1.1

seriesParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Increments: 10, 20, 5, 15,

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## Center average speed ICSLA\_OFD\_017\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Unit Measured: cm/s

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## Number of Rears ICSLA\_OFD\_006\_001 | v1.1

seriesParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Increments: 20, 10, 5, 15,

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## Periphery resting time ICSLA\_OFD\_011\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Unit Measured: s

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## Periphery distance travelled series ICSLA\_OFD\_003\_001 | v1.2

seriesParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Unit Measured: cm

Increments: 10, 5, 15, 20,

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## Distance travelled - total ICSLA\_OFD\_020\_001 | v1.2

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Unit Measured: cm

**Derivation:** sumOfIncrements('ICSLA\_OFD\_005\_001', 4)

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## **Periphery zone** ICSLA\_OFD\_032\_001 | v1.2

procedureMetadata

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** false

**Unit Measured:** cm

**Options:** 7.9, 7.5, 7.6, 8, 9.39, 7.35,

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## **Light intensity in the centre of the arena** ICSLA\_OFD\_027\_001 | v1

.1

procedureMetadata

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** false

**Unit Measured:** Lux

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## **Periphery average speed series** ICSLA\_OFD\_043\_001 | v1.3

seriesParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Unit Measured:** cm/s

Increments: 10, 15, 20, 5,

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## Whole arena permanence ICSLA\_OFD\_008\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Unit Measured: s

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## Whole arena resting time ICSLA\_OFD\_007\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Unit Measured: s

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## Type of analysis ICSLA\_OFD\_033\_001 | v1.1

procedureMetadata

Req. Analysis: true

Req. Upload: true

Is Annotated: false

Options: Wide beam break, Video tracking,

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## Central zone surface area ICSLA\_OFD\_026\_001 | v1.1

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Unit Measured: % of total area

Options: 39, 41, 42, 40,

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## Center resting time series ICSLA\_OFD\_045\_001 | v1.3

seriesParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Unit Measured: s

Increments: 15, 10, 5, 20,

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## Equipment ID ICSLA\_OFD\_023\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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## Equipment manufacturer ICSLA\_OFD\_024\_001 | v1.1

procedureMetadata

**Req. Analysis:** true

**Req. Upload:** true

**Is Annotated:** false

**Options:** San Diego, MED Associates Inc, Columbus Instruments, O'hara CO Ltd., Biobserve, Noldus, Panlab, TSE Systems, Accuscan, Omnitech,

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## **Equipment model** ICSLA\_OFD\_025\_001 | v1.0

procedureMetadata

**Req. Analysis:** true

**Req. Upload:** true

**Is Annotated:** false

**Options:** LE8822, ActiMot / MoTil 480 x 480 mm, ActiMot / MoTil, TijmeOF9, VMX 1.4b, MED-OFA-RS, 2325-0248, Unknown, Opto-Varimex 4, SuperFlex Fusion,

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## **Number of rears - total** ICSLA\_OFD\_021\_001 | v1.3

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Derivation:** sumOfIncrements('ICSLA\_OFD\_006\_001', 4)

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## **Arena Material** ICSLA\_OFD\_040\_001 | v1.0

procedureMetadata

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** false

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## Periphery resting time series ICSLA\_OFD\_004\_001 | v1.2

seriesParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Unit Measured: s

Increments: 15, 20, 5, 10,

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## Distance travelled ICSLA\_OFD\_005\_001 | v1.2

seriesParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Unit Measured: cm

Increments: 10, 5, 15, 20,

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## Periphery permanence time series ICSLA\_OFD\_042\_001 | v1.2

seriesParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Unit Measured: s

Increments: 10, 20, 15, 5,

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## Center permanence time series ICSLA\_OFD\_046\_001 | v1.2

seriesParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Unit Measured: s

Increments: 10, 20, 5, 15,

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## Start Time ICSLA\_OFD\_037\_001 | v1.1

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

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## Center permanence time ICSLA\_OFD\_016\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Unit Measured: s

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## Periphery distance travelled ICSLA\_OFD\_010\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Unit Measured: cm

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## Center distance travelled series ICSLA\_OFD\_044\_001 | v1.3

seriesParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Unit Measured: cm

Increments: 20, 5, 10, 15,

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## Center distance travelled ICSLA\_OFD\_014\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Unit Measured: cm

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## Arena Size ICSLA\_OFD\_034\_001 | v1.0

procedureMetadata

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** false

**Options:** 44.5x44.5, 42x42, 50x50, 43.2x43.2, 45x45, 40.5x40.5, 40x40, 44x44,

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## Percentage center movement time ICSLA\_OFD\_050\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Unit Measured:** %

**Description:** percentage\_center\_movement\_time

**Derivation:**

$\text{mul}(\text{div}(\text{sub}(\text{'ICSLA\_OFD\_016\_001'}, \text{'ICSLA\_OFD\_015\_001'}), \text{'ICSLA\_OFD\_008\_001'}), 100)$

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## Resting definition threshold ICSLA\_OFD\_051\_001 | v1.0

procedureMetadata

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** false

**Description:** Parameter measuring how the equipment defines a 'resting' animal

**Options:** Stationary for > 1 second, Stationary for any time, Within grid for > 2 seconds,

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## Rearing definition threshold ICSLA\_OFD\_052\_001 | v1.0

procedureMetadata

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** false

**Description:** Parameter measuring how the equipment defines a 'rearing' animal

**Options:** No threshold, 1 second,

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