# 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

Reg. Analysis: false Reg. 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:** mul(div('ICSLA\_OFD\_016\_001', 'ICSLA\_OFD\_008\_001'), 100)

Date equipment last calibrated ICSLA_OFD_041_001   v1.2 procedureMetadata				
Req. Analysis: false	Req. Upload: false	Is Annotated: false		
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,				
Disinfectant ICSLA_OFD_036_001   v1.1 procedureMetadata				
Req. Analysis: false	Req. Upload: false	Is Annotated: false		
Whole arena average speed ICSLA_OFD_009_001   v1.1 simpleParameter				

Req. Upload: true

Is Annotated: true

Req. Analysis: false

Unit Measured: cm/s				
Software Version IC procedureMetadata	CSLA_OFD_039_001   v1.0			
Req. Analysis: false	Req. Upload: true	Is Annotated: false		
<b>Options:</b> 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,				
Periphery permanence time ICSLA_OFD_012_001   v1.1 simpleParameter				
Req. Analysis: false	Req. Upload: true	Is Annotated: true		
Unit Measured: s				

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

simpleParameter

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

**Unit Measured:** s

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 Number of animals per cage ICSLA\_OFD\_028\_001 | v1.0 procedureMetadata Req. Analysis: false Req. Upload: false Is Annotated: false Periphery average speed ICSLA\_OFD\_013\_001 | v1.1 simpleParameter Req. Analysis: false Req. Upload: true Is Annotated: true Unit Measured: cm/s

Req. Upload: false				
entries ICSLA_OFD_019_	001   v1.1			
Req. Upload: false	Is Annotated: true			
SLA_OFD_035_001   v1.1				
Req. Upload: true	Is Annotated: false			
Center average speed series ICSLA_OFD_047_001   v1.2 seriesParameter				
Req. Upload: false	Is Annotated: true			
	Req. Upload: false  SLA_OFD_035_001   v1.1  Req. Upload: true			

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,

## 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 Number of center entries series ICSLA OFD 048 001 I v1.1 seriesParameter Req. Analysis: false Req. Upload: false Is Annotated: true Increments: 10, 20, 5, 15, Center average speed ICSLA\_OFD\_017\_001 | v1.0 simpleParameter Req. Analysis: false Req. Upload: true Is Annotated: true

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

seriesParameter

Unit Measured: cm/s

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

Increments: 20, 10, 5, 15,

## 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

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

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

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,

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

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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,				
Whole arena permanence ICSLA_OFD_008_001   v1.1 simpleParameter				
Req. Analysis: false	Req. Upload: true	Is Annotated: false		
Unit Measured: S				
Whole arena resting time ICSLA_OFD_007_001   v1.1 simpleParameter				
Req. Analysis: false	Req. Upload: true	Is Annotated: true		
Unit Measured: s				
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,				

### 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

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

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,

## 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,

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

simpleParameter

Reg. Analysis: false Reg. 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,

## 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,

## 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,				
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,				
Start Time ICSLA_OFD procedureMetadata	D_037_001   v1.1			
Req. Analysis: false	Req. Upload: false	Is Annotated: false		
Center permanence simpleParameter	<b>e time</b> ICSLA_OFD_016_0	001   v1.1		
Req. Analysis: false	Req. Upload: true	Is Annotated: true		
Unit Measured: s				

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

simpleParameter

Req. Analysis: false Req. Upload: true Is Annotated: true Unit Measured: cm 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, Center distance travelled ICSLA OFD 014 001 | v1.1 simpleParameter Req. Analysis: false Req. Upload: true Is Annotated: true Unit Measured: cm

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

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

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

## 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:** 

mul(div(sub('ICSLA\_OFD\_016\_001', 'ICSLA\_OFD\_015\_001'),'ICSLA\_OFD\_008\_001'),100)

## 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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### 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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