

# Open Field KMPCLA\_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 53
- **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

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

v1.1

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Unit Measured: Lux

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

seriesParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Unit Measured: s

Increments: 20, 5, 10, 15,

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

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Unit Measured: s

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

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

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## Whole arena average speed KMPCLA\_OFD\_009\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Unit Measured: cm/s

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

seriesParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Unit Measured: cm/s

Increments: 5, 20, 15, 10,

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

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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

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

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Unit Measured: cm

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

seriesParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Unit Measured: cm

Increments: 20, 5, 10, 15,

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

seriesParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Unit Measured: cm

Increments: 10, 15, 5, 20,

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

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Unit Measured: s

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**Number of animals per cage** KMPCLA\_OFD\_028\_001 | v1.0

procedureMetadata

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

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**Arena ID** KMPCLA\_OFD\_038\_001 | v1.0

procedureMetadata

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

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**Equipment manufacturer** KMPCLA\_OFD\_024\_001 | v1.1

procedureMetadata

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

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

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**Periphery resting time** KMPCLA\_OFD\_011\_001 | v1.1

simpleParameter

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

Unit Measured: s

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**Periphery average speed series** KMPCLA\_OFD\_043\_001 | v1.3  
seriesParameter

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

Unit Measured: cm/s

Increments: 10, 20, 15, 5,

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**Periphery distance travelled series** KMPCLA\_OFD\_003\_001 | v1.2  
seriesParameter

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

Unit Measured: cm

Increments: 20, 5, 15, 10,

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**Center resting time series** KMPCLA\_OFD\_045\_001 | v1.3  
seriesParameter

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

Unit Measured: s

Increments: 5, 15, 20, 10,

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

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Options: Transparent, Grey, Black, White,

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

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Unit Measured: %

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

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

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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

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**Height of the wall** KMPCLA\_OFD\_030\_001 | v1.0

procedureMetadata

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

**Unit Measured:** cm

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**Whole arena average speed series** KMPCLA\_OFD\_002\_001 | v1.2

seriesParameter

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

**Unit Measured:** cm/s

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

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**Center distance travelled** KMPCLA\_OFD\_014\_001 | v1.1

simpleParameter

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

Unit Measured: cm

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**Periphery zone** KMPCLA\_OFD\_032\_001 | v1.2

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Unit Measured: cm

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

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**Center resting time** KMPCLA\_OFD\_015\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Unit Measured: s

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**Start Time** KMPCLA\_OFD\_037\_001 | v1.1

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

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

procedureMetadata

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

Unit Measured: % of total area

Options: 41, 40, 42, 39,

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# Disinfectant KMPCLA\_OFD\_036\_001 | v1.1

procedureMetadata

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

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

seriesParameter

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

Unit Measured: s

Increments: 20, 10, 5, 15,

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# Equipment model KMPCLA\_OFD\_025\_001 | v1.0

procedureMetadata

**Req. Analysis:** true

**Req. Upload:** true

**Is Annotated:** false

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

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

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Unit Measured:** cm

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

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## Date equipment last calibrated KMPCLA\_OFD\_041\_001 | v1.2

procedureMetadata

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** false

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

seriesParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Unit Measured:** s

Increments: 15, 20, 10, 5,

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## Periphery permanence time KMPCLA\_OFD\_012\_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 KMPCLA\_OFD\_031\_001 | v1.1

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Unit Measured: cm

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## Whole arena resting time series KMPCLA\_OFD\_001\_001 | v1.1

seriesParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Unit Measured: s

Increments: 5, 20, 10, 15,

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## Type of analysis KMPCLA\_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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## Center permanence time KMPCLA\_OFD\_016\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Unit Measured: s

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## Center average speed KMPCLA\_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 KMPCLA\_OFD\_006\_001 | v1.1

seriesParameter

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

Increments: 15, 10, 5, 20,

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# Light beam barrier height (Z axis) KMPCLA\_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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# Number of center entries series KMPCLA\_OFD\_048\_001 | v1.1

seriesParameter

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

Increments: 10, 15, 20, 5,

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# Arena Material KMPCLA\_OFD\_040\_001 | v1.0

procedureMetadata

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

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**Periphery average speed** KMPCLA\_OFD\_013\_001 | v1.1

simpleParameter

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

Unit Measured: cm/s

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**Whole arena permanence** KMPCLA\_OFD\_008\_001 | v1.1

simpleParameter

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

Unit Measured: s

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

simpleParameter

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

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

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

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Unit Measured: %

Description: percentage\_center\_movement\_time

Derivation:

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

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## Resting definition threshold KMPCLA\_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 KMPCLA\_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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