\*Title: OpenField

\*Centre: IMPC

\*Date\_modified: 16-06-2012

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\*Version: 1.1

{Sections:}

## \*1. 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).

|  |  |
| --- | --- |
| **Description** | **MP Term or Comment** |
| [abnormal anxiety-related response](http://www.informatics.jax.org/searches/Phat.cgi?id=MP:0001362) | MP:0001362 |
| [abnormal locomotor activity](http://www.informatics.jax.org/searches/Phat.cgi?id=MP:0003313) | MP:0001392 |
| [abnormal response to novel environment](http://www.informatics.jax.org/searches/Phat.cgi?id=MP:0001449) | MP:0001449 |

## \*2. Experimental Design

* **Minimum number of animals :** 7 per experimental group
* **Age at test :** 9 weeks.
* **Sex:** both males and females (sexually dimorphic)

## \*3. Procedure

1. Animals are transported to the testing room (or ideally an antechamber) and left undisturbed for at least 30 minutes before the test.
2. Ensure that lighting conditions are as desired 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 colour 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, and then followed by females*

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

## \*4. Notes

1. Please ensure that mice are not handled prior to the test, except handling for cage change.

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| --- | --- | --- | --- |
| **Metadeta** | **Example Value** | **Required For Upload** | **Required for Data Analysis** |
| Equipment ID |  | Yes | No |
| Equipment manufacturer | TSE Systems | Yes | Yes |
| Equipment model | ActiMot / MoTil | Yes | Yes |
| Central zone surface area | 40% of whole arena | Yes | Yes |
| Light intensity in the centre of the arena | 150-200lux | Yes | No |
| Number of animals per cage | 4 | No | No |
| Color of arena | White | No | No |
| Height of the wall | 33cm | No | No |
| Distance from light source: if direct illumination | 49cm | No | No |
| Periphery zone | 8 cm wide | Yes | Yes |
| Type of analysis | Wide beam break, Video tracking | Yes | Yes |
| Arena Size | 40 x 40 cm | Yes | No |
| Arena Material | Plastic | No | No |
| Experimenter ID | Name or ID | Yes | No |
| Disinfectant | Clidox | No | No |
| Start Time |  | No | No |
| Arena ID | Chamber and version number | No | No |
| Software Version |  | Yes | No |
| Date equipment last calibrated | A Date | No | No |

### 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

## \*6 . Measured Parameters - list

{Placed in Parameters spreadsheet}

## \*7. MetaData Parameters - list

{Placed in Paramters spreadsheet