Hot Plate ICS_HOT_001

Purpose

The hot plate test is used to assess acute pain sensitivity to a thermal stimulus.

Equipment

1. Different Hot plate variants from different suppliers can be used (e.g. Panlab, Spain; TSE GmBH, Germany).
2. A viewing jar made of PVC (Suitable diameter and height to observe correctly the mouse behaviour; generally about 20cm diameter and 25cm height.).

Procedure

General design:

1. The mice are submitted to a single trial during which they are placed into a glass cylinder on a hot plate adjusted to 52°C and the latency of the first reaction (lick, shake, jump) is recorded (cut off for the first trial 30 seconds).

Transportation and acclimation:

1. Transport animals to the testing room in their rack (whenever possible) and left undisturbed for at least 15 minutes before the test (assuming the conditions in the testing room are the same as in the rest of the facility – if they are not, allow 1 hour for acclimatisation).

Testing:

1. Prepare a work sheet containing the day of experiment, the title of the study, the list of the animals and the parameters of the heat stimulus.
2. Switch on the hot plate apparatus and wait until the plate reaches the defined temperature (52°C, adjust if necessary). Put the cylindrical jar on the plate.
3. Clean the metal surface and the plastic cover with disinfectant (e.g. 70% ethanol). Wait 1 minute to re-establish the surface temperature before commencing with the test.
4. Put the first mouse on the plate and simultaneously start the stopwatch to measure the withdrawal latency.
5. Stop the stopwatch after the mouse displays any reaction to heat (paw shaking, licking, jumping or other reaction). If the mouse does not react to heat after 30 seconds, remove it from the hot plate. If there is no reaction, 30 seconds is considered as latency by default.
6. Note the type of the first reaction: shake, lick, jump or other. Only the actions of the hind paws should be recorded.
7. Clean the hot plate and the jar water and disinfectant (e.g. 70% ethanol) before testing another animal. Wait 1 minute to re-establish the surface temperature.

8. At the end of testing, return the mice to the housing rooms and thoroughly clean the equipment.

Notes

1. The validity of results obtained from behavioural phenotyping is largely dependent on methods of animal husbandry. It is of vital importance that individuals following this procedure are experienced and aware of the animal's welfare.
2. The majority of mouse behavioural studies are age/sex/strain dependent. It is important to keep these parameters comparable throughout a single experiment.
3. Environmental factors may contribute to the levels of anxiety within the mouse. The temperature, humidity, ventilation, noise intensity and lighting intensity must be maintained at levels appropriate for mice. It is essential that the mice be kept in a uniform environment before and after testing to avoid anomalous results being obtained.
4. It is recommended that all phenotyping experimentation is conducted at approximately the same time of day because physiological and biochemical parameters change throughout the day.

Parameters and Metadata

Body weight ICS_HOT_002_001 | v1.0

simpleParameter

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

Unit Measured: g

Hot plate latency ICS_HOT_003_001 | v1.0

simpleParameter

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

Unit Measured: s

Type of response ICS_HOT_004_001 | v1.0

simpleParameter

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

Options: shake, lick, jump, other,

Equipment manufacturer ICS_HOT_005_001 | v1.0

procedureMetadata

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

Options: Bioseb,

Equipment model ICS_HOT_006_001 | v1.0

procedureMetadata

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

Options: LE 7406,

Type of recording ICS_HOT_008_001 | v1.0

procedureMetadata

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

Options: Manual,

Plate temperature ICS_HOT_009_001 | v1.0

procedureMetadata

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

Unit Measured: C

Options: 52,

Experimenter ID ICS_HOT_001_001 | v1.0

procedureMetadata

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

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