

Hot Plate Test
IACUC Standard Procedure
Effective Date: June 2024

Description of Procedure:

The Hot Plate test is used to measure acute thermal nociception in rodents. It is useful for assessing pain sensitivity. The latency to respond to a thermal stimulus applied to the paws is determined by the time it takes the mouse or rat to lick or flick the hind paw or jump from the hot plate surface. These reflexive behaviors involve both cerebral and spinal mediated circuits.

Supplies:

- Hot plate test apparatus



Procedure Steps:

1. Mice or rats are brought into the testing room and a period of acclimation is provided (at least 30 min).
2. The surface of the hot plate is cleaned with appropriate disinfectant prior to each trial.
3. The surface of the hot plate is heated to a maximum temperature of 55°C as determined by a built-in digital thermometer. When measuring surface temperature, the acceptable range may be within +/- 0.2.
4. The animal is placed on the testing apparatus inside the transparent cylinder and the timer is started.
5. The latency to show a nociceptive response with either hind paw lick, hind paw flick, or a jump (whichever comes first) is recorded. The animal is immediately removed once this response is observed.
6. With temperature at maximum, if there is no response within 30 seconds, the test is terminated, and the animal is removed from the hotplate to prevent heat-related injury.
7. The surface of the hotplate is cleaned with disinfectant between the testing of each animal.

Protocol requirements:

Section G.

- State how often a single animal will undergo this test.
- Describe the criteria that will exclude an animal from participating in this test.

Section J. Adverse Events

- Describe management of adverse effects such as pain, tissue injury.

RIO Documents Section:

- Email a completed "[LARC Behavioral Equipment Sanitation SOP](#)" form to LARC (ORRodentNurses@ucsf.edu) for review and to request ATP testing. Once sanitation procedure is approved, upload the completed form to Documents section of RIO protocol and post the form in the procedure room.