

Cold Plate Test
IACUC Standard Procedure
Effective Date: June 2025

Description of procedure:

In the cold plate test, a flinch of the rodent's paw is considered the stimulus response. This test helps in understanding cold allodynia and hyperalgesia.

Supplies:

- Cold plate test apparatus:

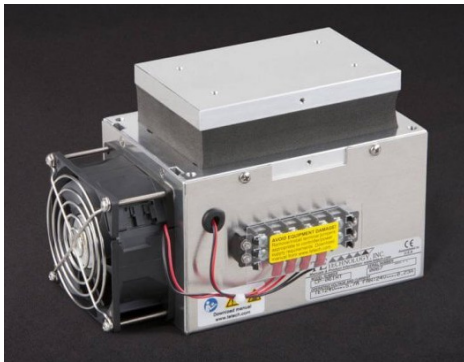


Fig 1. Peltier cold plate

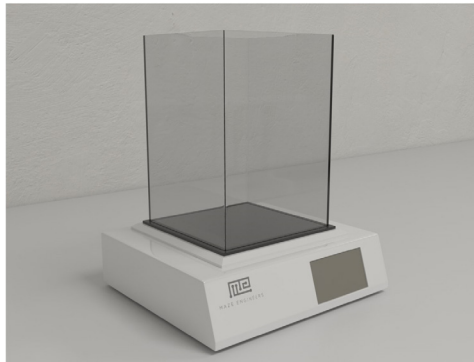


Fig 2. Maze Engineers hot/cold plate

Procedure Steps:

1. It is recommended that animals be acclimated to the testing room.
2. The surface of the cold plate is cleaned with an approved disinfectant prior to use. For the Maze Engineers system specifically, manufacturer recommends disinfecting the plate with 70% ethanol or a damp cloth with unscented soap and water; the clear chamber should be cleaned with unscented soap and water.
3. The surface of the cold plate is cooled to a temperature range of -5° to 15°C. Verify surface temperature with external thermometer.
4. The animal is placed into the testing apparatus. While general movement is limited, the animal is not restrained.
5. The latency to show a nociceptive response with a paw flinch, shaking, or jumping (less common) is recorded. The animal is immediately removed once this response is observed.
6. If there is no response within 20-30 seconds, the animal is removed from the apparatus.
7. The surface of the cold plate is cleaned with disinfectant between the testing of each animal.

Potential adverse effects to be considered: None anticipated.

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.

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.

Alternatives Search: The alternatives search completed on the date noted covers researchers using this standard procedure in the approved IACUC protocol:

<u>Date of Search</u>	<u>Key Words</u>	<u>Search Site</u>	<u>Years Covered</u>
6/9/2025	Hyperalgesia, stimulus response, allodynia, test, cold plate, alternative, refinement, distress, pain, rat, mouse	PubMed	1965-2025

References:

1. Allchorne AJ, Broom DC, Woolf CJ. Detection of cold pain, cold allodynia and cold hyperalgesia in freely behaving rats. Mol Pain. 2005
2. Luc Jasmin, Lynn Kohan, Michelle Franssen, Gabriella Janni, Jonathan R Goff, The cold plate as a test of nociceptive behaviors: description and application to the study of chronic neuropathic and inflammatory pain models. Pain. 1998