

Operant Behavioral Assay

Tech ID: 33556 / UC Case 2023-527-0

ABSTRACT

Researchers at the University of California, Davis have developed an operant behavioral assay to study thermosensation, pain, or avoidance and tolerance of an animal to noxious environments.

FULL DESCRIPTION

This technology involves a specially designed apparatus that is used to assess temperature-dependent effort-based decision-making. The apparatus forces an animal to make a choice between remaining in an aversive environment or crossing temperature-controlled plates to escape. It is a modification of the traditional two-plate temperature preference test, adjusted to become an operant behavioral assay. The apparatus consists of a light chamber with an opening that fits around temperature-controlled plates, and a small entryway into a dark chamber. The animal must choose to stay in the brightly lit aversive area or traverse the plates to escape to the enclosed dark chamber. The apparatus could also be equipped with video recording to quantify the latency of the animal to cross into the enclosed dark chamber.

APPLICATIONS

- ▶ Behavioral neuroscience research
- ▶ Pharmaceutical research for pain medication development
- ▶ Study of nerve damage, sensitivities, and disorders

FEATURES/BENEFITS

- ▶ New cost-effective approach that incorporates the motivational aspect of behavior
- ▶ Adjustable temperature control for varying test conditions
- ▶ Video recording for accurate behavioral tracking and latency measurement
- ▶ Allows modifications for different research needs
- ▶ Solves the lack of existing methods to assess the interaction between motivation and thermosensory behaviors and thermal pain
- ▶ Addresses limitations of reflexive paw withdrawal or observational test methods

PATENT STATUS

Country	Type	Number	Dated	Case
Patent Cooperation Treaty	Published Application	WO 2025/064356	03/27/2025	2023-527

Additional Patent Pending

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INVENTORS

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OTHER INFORMATION

KEYWORDS

behavioral assay,

operant,

thermosensation, thermal

pain

CATEGORIZED AS

- ▶ **Agriculture & Animal Science**
 - ▶ Animal Science
 - ▶ Devices
 - ▶ Other
- ▶ **Medical**
 - ▶ Disease: Central Nervous System
 - ▶ Other
 - ▶ Research Tools
- ▶ **Research Tools**
 - ▶ Animal Models
 - ▶ Other

RELATED CASES

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