



## Learned Helplessness

Cat. No. 47500 Rat - 47550 Mouse

### General

When rodents are exposed to inescapable and unpredictable stress, such as forced swim or inescapable footshock, they often develop deficits in memory and learning tasks (**e.g. Active Avoidance**), and they often show also analgesic reactions (**S.I.A. Stress-Induced Analgesia**).

The **Ugo Basile Set-Up for Learned Helplessness** is based on a sophisticated generator of unpredictable random shocks delivered to the grid floor of a rodent box where no escape is possible.

Electric shocks can be randomized in terms of shock length, interval and complex trains can be programmed.

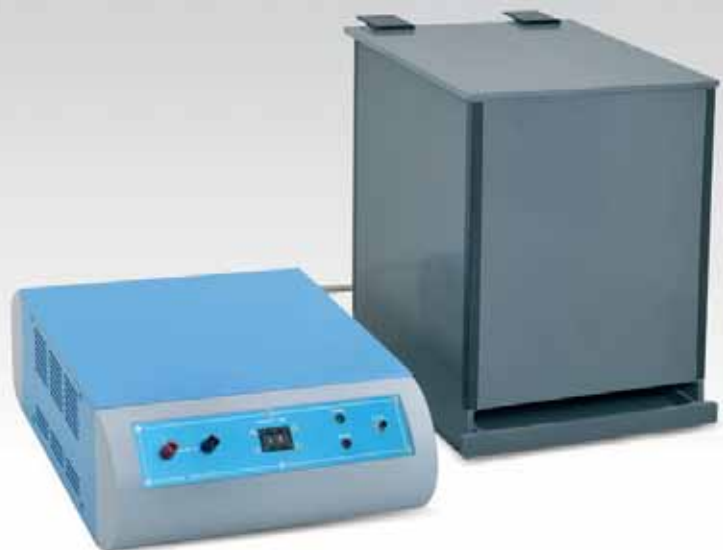
**Up to 4 animals** can be treated simultaneously in 4 independent boxes.

**Analgesia**

**Depression**

#### IDEAL TO STUDY:

- Depression & Stress
- Learning & Memory Impairment
- Stress-Induced Analgesia (S.I.A.)



### Main Features

- Fully randomizable shock patterns
- Up to 4 independent rodent boxes

## System Components

The Ugo Basile Helplessness system is composed of the parts listed below:

- Mouse or Rat cage with electrified grid floor
- Shocker
- Timer with randomizer
- Report software

The system includes all necessary cables and connectors: ready to use!

### Mouse and Rat Cage

(with electrified floor)

Mouse cage dimensions are 17x17x20 (h) cm.

Rat cage dimensions are 22x22x20(h)



### Shocher

- Constant current (from 0.1 to 2.9 mA in 0.1 mA steps)
- Manual or external operation (via 5V TTL signals)



### Timer with randomizer

- Connects to up to 4 cages
- Fully programmable shock patterns
- Randomized shocks include random length, random intervals and shock trains



### Software

The system includes a user-friendly reporting software to collect, visualize and export into spreadsheets the delivered shocks.

This is especially important to analyze the randomized shocks and have full control on the performed stimulation.

## Ordering Information

- 47500 Set-up for Rat Learned Helplessness**, including: 47502 Rat Cage, 47510 Timer, 47554 Shocker
- 47550 Set-up for Mouse Learned Helplessness**, including: 47503 Mouse Cage, 47510 Timer, 47554 Shocker

## Bibliography

- Borsini & Cesana 2001. **Mechanisms of action of flibanserin in the learned helplessness in rats.** *European Journal of Pharmacology* 433: 81-89.
- Grau et al. 1981. **Long-term analgesia and activation of the opiate system.** *Science* Vol. 213, pp. 1409 - 1411.
- Guilherme dos Santos et al. 2008. **Antidepressive-like effects of electroacupuncture in rats.** *Physiology & Behavior* 93:155-159.
- Kademian et al. 2005. **Biphasic effects of adrenal steroid on learned helplessness behavior by inescapable shock.** *Neuropsychopharmacology* 30:58-66.