

CENTRAL NERVOUS SYSTEM

Step-Down Passive Avoidance in Rats

The inhibitory avoidance involves learning to inhibit a response (explore the apparatus) in order to avoid an aversive stimulus (electric shock). The paradigm consists of two phases. In the training session animals are placed on the elevated platform from which it can step down onto the floor. When stepping down the animal will receive a foot shock (1mA, 2s duration) and will be immediately withdrawn from the apparatus. After a variable retention delay (here we used 24 hours), animals are reintroduced to the apparatus in the test session¹. Normal rats will inhibit their exploring behavior and increase the latency to step down to the box floor. Scopolamine administered 30 min before the training phase can affect the animal's learning and memory capabilities².

Species: *Rattus norvegicus* (Sprague Dawley)

Main read-outs: latency to step down

Number of animals/group: 8 - 10 animals

Route of administration: upon request

Treatment mode: upon request

Validation Data

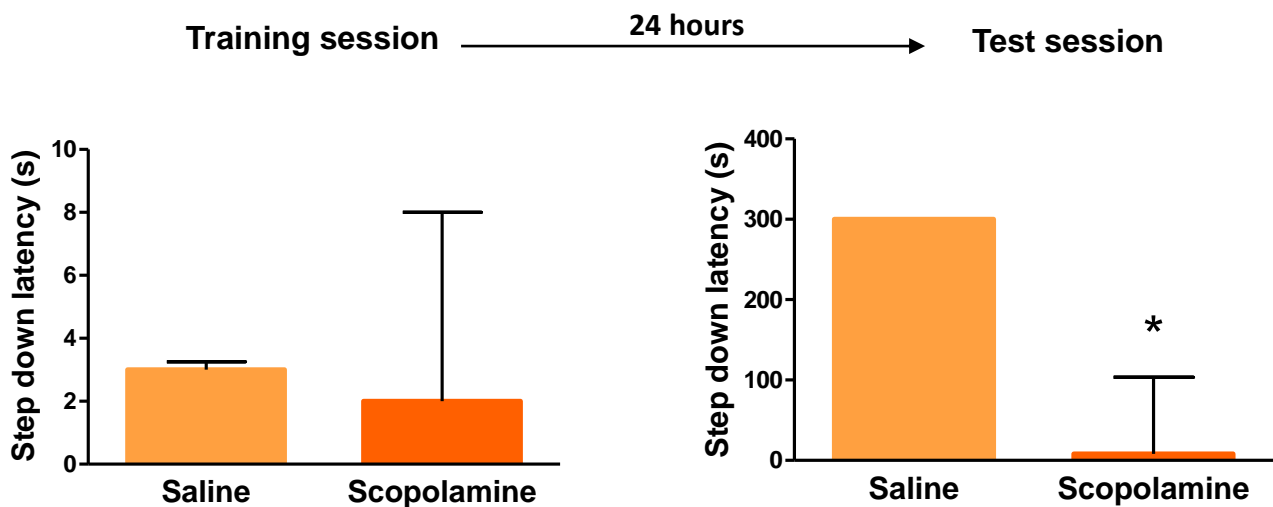


Figure: Step down latency in the Training session and in the Test session. In the Training session both vehicle and scopolamine treated animal latency is the same. In the Test session vehicle-treated animals increase their latency to step down compared to scopolamine-treated animals. Each column represents median ± interquartile range. Non-paired Mann-Witney test was used for statistical analysis *, P < 0.05.

To avoid bias and to allow reproducibility all *in vivo* experiments follow the ARRIVE guidances³. Rat colony originated from Charles River Laboratories is breed and maintained in SPF conditions. Raw data are inspected by quality assurance unity. The experimental procedures were approved by the CIEnP Committee on the Ethical Use of Animals.

References:

- 1 – Ögren S.O., Stiedl O. Passive Avoidance. In: Stolerman I.P. (eds) Encyclopedia of Psychopharmacology. Springer, Berlin, Heidelberg, 2010.
- 2 - Ghasemi S, Moradzadeh M, Hosseini M, Beheshti F, Sadeghnia HR. Beneficial effects of *Urtica dioica* on scopolamine-induced memory impairment in rats: protection against acetylcholinesterase activity and neuronal oxidative damage. *Drug Chem Toxicol.* 2019 Mar;42(2):167-175
- 3 - Kilkenny C, Browne WJ, Cuthill IC, Emerson M, Altman DG. Animal research: reporting in vivo experiments: The ARRIVE guidelines. *PLoS Biol.* 8 (6): e1000412, 2010.

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