

Tail Suspension Test
IACUC Standard Procedure
Effective Date: 8/31/2021

Description of Procedure:

The Tail Suspension Test is a mouse behavioral paradigm measuring behavioral despair or “depression-like” behavior and learned helplessness. It is useful in the screening of potential antidepressant drugs and in assessing other manipulations that are expected to affect depression-related behaviors. It is conducted in a small 3-sided chamber in which the mice are suspended by the tail from a hook extending from the ceiling of the chamber, in such a position that they cannot escape or hold on to nearby surfaces; its primary measure is immobility. Mice undergoing this test must be placed in **Category E**.

Procedure Steps:

Equipment set-ups may vary. The mouse must be suspended using a piece of adhesive tape. The tape should be strong enough to prevent the mouse from falling and should not damage the skin of the tail. Tape length may vary with specific systems) and should only be applied to the very end of the tail (with 2-3 millimeters of tail remaining outside of the tape), Fig. 1a.

Fig 1a.

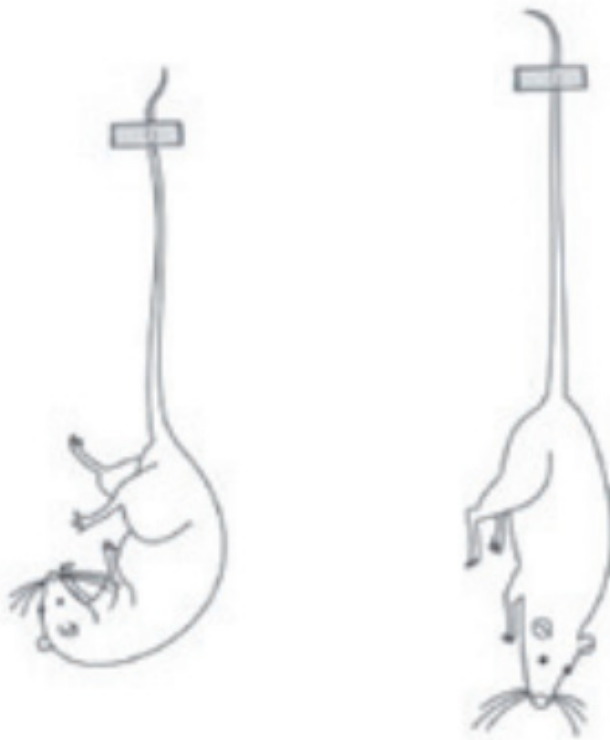


Fig. 1b. depicts a system in which the tape is about 15 cm long and is attached to the bar.

Figure 1b.



In other systems, a small amount of adhesive tape attaches the very end of the tail (with 2-3 millimeters of tail remaining outside of the tape) to a hook that hangs from the suspension bar, Fig. 2.

Figure 2.



The test lasts for 6 min and the immobility time is usually measured during the final 4 minutes as nearly all mice attempt to escape in the first 2 minutes, but immobility scores can be reported for the entire time of suspension. The total amount of immobility time (defined as the time during which the animal is hanging passively and motionless) is measured for each animal, and considered as an index of “depression-like” behavior ([Steru et al., 1985](#)).

If a mouse climbs up his/her tail, they will be gently guided back down with a probe by the investigator and the trial is continued. Mice that climb up their tails for approximately more than 20% of the total trial time should be removed from the analysis. As some mouse strains (i.e. C57BL/6) have an especially high propensity toward tail climbing, investigators can consider placing hollow Plexiglas cylinders around the base of the animal's tail (as described in [Can et al., 2011](#)).

All mice are carefully monitored for any adverse effects during the test and are quickly removed if they display signs of unusual distress (i.e. constant vocalization or damage to their tails). The chambers are cleaned with approved disinfectant at the start and end of the day and before and after each animal is tested.

References:

1. Can A, Blackwell RA, Piantadosi SC, Dao DT, O'Donnell KC, Gould TD. Antidepressant-like responses to lithium in genetically diverse mouse strains. *Genes Brain Behav.* 2011;10(4):434-443.
2. Can A, Dao DT, Terrillion CE, Piantadosi SC, Bhat S, Gould TD. The tail suspension test. *J Vis Exp.* 2012;(59)
3. Steru L, Chermat R, Thierry B, Simon P. The tail suspension test: a new method for screening antidepressants in mice. *Psychopharmacology (Berl).* 1985;85(3):367-70.