

**Forced Swim Test in Mice**  
**IACUC Standard Procedure**  
**Effective Date: August 2021**

**Description of Procedure:**

The Forced Swim Test is a mouse behavioral test used to evaluate “depressive-like” states and behavioral despair. This test was first developed in 1977 by Porsolt to test anti-depressant efficacy of new compounds. Animals undergoing this test must be placed in **Category E**.

**Procedure Steps:**

In this test, animals are placed in a cylinder tank or other IACUC approved container\* that is partially filled with water from which escape is impossible. The time spent immobile or floating is recorded, which does not include any amount of time spent swimming or attempting to climb the walls. The immobility time is considered a measure of behavioral despair or learned helplessness. Testing is performed under normal light conditions and animals are given a minimum of 60 minutes to acclimate to the test room before initiating the test. If sudden loud noises could startle the animals (depending on the specific laboratory environment), the use of a white noise generator is recommended. The Plexiglas container is filled 2/3 of the way with water, which is maintained at room temperature of 24°C ± 1°C. Water can be colored with non-toxic agents. Temperature is tested before each test with an infra-red or glass thermometer. Each mouse is inserted gently by her/his tail into the water for a 6-minute testing session. However, only the final 4 minutes is analyzed as nearly all mice will swim continuously while trying to escape in the first 2 minutes. The mice are closely observed throughout the test and immediately removed if in danger of drowning or if they are unable to keep their head above water (this is a very rare occurrence when using only a 6-minute duration test).

After completion, mice are removed from the tank and placed in their home cage where they will be monitored for 10 minutes. Mice are expected to be active and begin grooming themselves to remove excess water. If grooming behavior is delayed and/or mice appear hunched, they can be placed in a clean cage – with the bottom half on/half off a heating pad (37°C) - for 10-15 minutes or gently dried with a clean paper towel.

\*Submit with your IACUC protocol request to use forced swim test a completed [LARC Behavioral Equipment Sanitation SOP](#) for the cylinder tank or IACUC approved container that will be used.

**Adverse effects:** exhaustion, drowning, hypothermia

**References**

Can A, Dao DT, Arad M, Terrillion CE, Piantadosi SC, Gould TD. The mouse forced swim test. *J Vis Exp.* 2012;(59):e3638. Published 2012 Jan 29. doi:10.3791/3638

Yankelevitch-Yahav R, Franko M, Huly A, Doron R. The forced swim test as a model of depressive-like behavior. *J Vis Exp.* 2015;(97):52587. Published 2015 Mar 2. doi:10.3791/52587