

**Acoustic Startle Response**  
**IACUC Standard Procedure**  
**Effective Date: October 2021**



**Description of procedure:**

The acoustic startle response can be used to assess anxiety levels and sens-motor gating and is measured by placing an animal on a platform device that records motion in an enclosed chamber. The enclosure allows the animal to turn and freely move its limbs and tail, but does not permit it to rear or ambulate. During testing, a number of different acoustic stimuli are presented to the mouse, ranging from background white noise (65dB) to a loud startling stimulus (100-120 dB) for 30-40ms. Acoustic stimuli  $\geq 100$  dB has been shown to elicit a reliable whole-body startle response in most inbred strains of mice. To assess differences in hearing sensitivity, animals can also be tested for hearing threshold in the acoustic startle response.

**Procedure Steps:**

Acoustic Startle Response:

1. At the start of each trial, the animal is given 5 minutes to acclimate to the testing apparatus.
2. Acoustic stimulus is administered inside chamber for approximately 30-40ms.
3. The magnitude of the animal's startle response is measured and recorded.
4. The process is repeated for up to approximately 80 stimuli, which can last a total of approximately 25 minutes.

Acoustic Startle Threshold Test:

1. In this test, 8 different intensities of acoustic stimuli are used (40, 50, 60, 70, 80, 90, 110, and 120 dB).
2. Animals are given two ascending and two descending series of acoustic stimuli
3. The amplitude of the acoustic startle response is recorded.

The mean startle response that is significantly different from baseline at the lowest intensities in the ascending and descending series is used to estimate the threshold for startle based on hearing acuity. The testing is completed within approximately 25 minutes for each mouse.