

**Neurological Exam**  
**IACUC Standard Procedure**  
**Effective Date: October 2021**



**Description of procedure:**

The neurological exam assesses a mouse's basic sensory and motor functions.

**Procedure Steps:**

1. Assessment of General Health: Each mouse is weighed to ensure its body weight is appropriate for its age and strain. The mouse is also inspected visually for any physical abnormalities including wounds, skin lesions, bite marks, and poor grooming.
2. Activity Level: A mouse is observed in a novel cage for 5 minutes. Every 10 seconds, an observer notes the behavior the mouse is currently engaged in (i.e. locomotion, sniffing, freezing, rearing, grooming, etc.). This test should reveal major abnormalities in activity level as well as the occurrence of unusual behaviors or stereotypies (i.e. circling, biting, head-weaving, repetitive movements, etc.).
3. Righting Reflex: When the mouse is placed on its back, it should immediately right themselves to an upright position on all four paws (principally labyrinthine and body righting mechanisms).
4. Crossed Extensor Reflex: Pinching the paw of one hind limb causes the flexion of the stimulated limb, while the opposite hind limb is extended (reflex mediated at the spinal level).
5. Forelimb and Hindlimb Placing Responses: Contact of the dorsum of the paw against the edge of an object causes the paw to be raised and placed on the surface of that object when the animal is suspended and no other paw is in contact with a solid surface.
6. Grasp Reflex: When the forepaw or hindpaw is stroked with a blunt instrument, it is flexed to grasp the instrument.
7. Postural Reflex: Mouse is placed on the floor of a clean cage. Experimenter gently lifts the cage, then, suddenly lowers it 3-6 inches. Normal response for the mouse is to splay all four limbs outward to maintain balance and upright posture.
8. Rooting Reflex: Bilateral stimulation of the face region causes the mouse to crawl forward, pushing its head in a rooting fashion (mediated by the 5th sensory cranial nerve).
9. Placing Response: When the mouse is suspended by the tail and lowered so that the vibrissae make contact with a solid object (e.g., a bar or table top), the head raises and the forelimbs are extended to grasp the object.
10. Vibrissae Orientation: When the vibrissae of a mouse are lightly touched with a swab, the head turns to orient toward the stimulus.
11. Visual Placing Response: When the mouse is suspended by the tail and lowered toward a solid object, it raises its head and extends its forelimbs toward the object.
12. Eyeblink Response: When a soft cotton swab is moved toward the open eye of a mouse, the mouse should blink before the swab touches the mouse.
13. Negative Geotaxis: When the mouse is placed on a 45 degree slope with its head pointing down the incline, it turns around and crawls up the slope.
14. Acoustic Startle Response: A loud sharp noise (bell or Galants whistle) causes an immediate startle response, seen either as a sudden extension of the head, forelimbs and hindlimbs followed by withdrawal into a crouching position, or a flight response (e