

**Murine Neurobehavioral Laboratory
Core Services**

Core personnel can train technicians, students, and investigators from other labs on basic behavioral testing, data reduction, and statistical analysis. The core also provides some fee-for-service testing. Investigators requiring Core services should contact Dr. Fiona Harrison or Dr. John Allison. In consultation with them, a battery of behavioral tests will be tailored to the expected phenotype of the mouse and the needs of the investigator. The behavioral tasks available are listed below. Behavioral tasks not included in the list may be considered in consultation with Core personnel.

**Experimental Procedures:**

**Gross Neurological Exam (Irwin Screen):** The screen involves assessment of body temperature, spontaneous behavior in a novel environment, and response to approaching object. Reflexes such as righting, touch escape, toe and tail pinch, trunk curl, reaching, Preyer, negative geotaxis, vibrissae, corneal, and pupillary contraction are also assessed.

**Somatosensory.** Von Frey (Semmes-Weinstein) filaments are available as a test of somatosensory perception. In addition, the hot plate test of nociception is offered. Shock threshold analysis is performed automatically when using any other behavioral task involving administration of electric shock. Tests of auditory, visual, spatial, or olfactory discrimination may be developed if the need arises.

**Motor Coordination.** Available tests include of motor coordination include rotorod, wire hang, and inverted screen, which assess balance, coordination, and grip strength. High speed video-based gain analyses are also possible using TreadScan (Clever Systems).

**Startle/sensorimotor gating.** Acoustic startle response (ASR) and prepulse inhibition of the ASR are available. Sensorimotor gating is impaired in many neurological disorders, including autism and schizophrenia. Habituation of ASR may also be assessed.

**Locomotor activity.** Exploratory locomotor activity is measured in open field. Infrared beams and detectors automaticallyrecord horizontal activity and rearings in the open field. Habituation oflocomotor activity, circling, and repetitive movements are also measured during the session. In addition, the task provides several measures of anxiety in response to a novel environment. Video-based assessments of body position and head movements are under development.

**Anxiety.** The light/dark exploration and elevated maze (plus and zero) tests of anxiety are available. In addition, measures of anxiety can be derived from the open field test, as described above. The compulsive burying test, which has predictive validity for drugs effective against obsessive/compulsive disorder, is also offered.

**Depression-related behaviors.** The Porsolt forced swim test is available. This test has predictive validity for drugs with antidepressant efficacy.

**Cognition.** The latent inhibition and reaction time tests of attention are available. Tests of learning and memory include spontaneous alternation, Morris water maze, Barnes maze, conditioned freezing, active and passive avoidance, object recognition, and social learning.

**Social Behavior.** Observation and scoring of videotaped home cage behavior is available for the assessment of social behaviors. Social interaction test, the tube test for social dominance, and dyadic aggression models are available Ultrasonic vocalizations and maternal behaviors can also be monitored.

**Home Cage Behavior**Video-based (HomeCage Scan), running wheel and transmitter-based (Minimitter) assessments of home field behavior and activity are possible.

**Drug abuse**. Conditioned place preference is a standard test to assess the reinforcing properties of drugs. Operant drug discrimination tests and the assessment of drug effects on schedule-controlled behavior are also available.