Supplementary Table 1 Behavioral tests in contemporary use. Frequency of use was evaluated for the period 2010-2012 where "Low" means less than five publications/year, "Medium" five to twenty publication/year and "High" more than twenty publications/year. Year introduced refers to the first description of the test in rodents. In some cases, marked with *, a definite first description could not be located, and the oldest description found is used instead. The references include initial descriptions and reviews of the tests as well as publications evaluating parameter settings or contain detailed protocols, pictures or films of the tests. The tests in the table were primarily identified using reviews on functional evaluation in major disease models with additional test identified when searching for references of already identified tests. The list aims to be exhaustive and any omissions are purely unintentional and should not be seen an indication of low quality. Due to the large number of existing test, and the fact that new tests are continuously developed, there may be useful tests which are not mentioned in this table. FOU Frequency of use, Aka, Also known as.

Test	Domain	FOU	Year	Description
0-maze				See Zero maze
5-choice continuous performance task[1,2]	Attention	Low	2009	In the majority of trials the animal has to nose-poke in one of five possible locations identified by a brief visual stimulus to receive a reward. In a subset of trials all five locations display the visual stimulus and the animal has to withhold action in these trials to receive the reward. Also see 5-choice serial reaction task.
5-choice serial reaction task[3–9]	Attention	Medium	1983	Guided by a brief visual stimulus the animal nose-pokes in one out of five holes and correct choices are rewarded. Since the visual stimulus is only presented briefly, animals with attention deficits will have impaired performances. Also see 5-choice continuous performance task.
Acetone test[10,11]	Nociception	Medium	1994*	The test evaluates the cold-evoked response caused by application of a drop of acetone to the animals' skin, which reduces temperature due to evaporation.
Acoustic startle[12–22]	Reflexive behavior	High	1939*	The startle response induced by a sudden loud acoustic stimulus is assessed. Also see Prepulse inhibition and Tactile startle.
Active avoidance				See One-way active avoidance, Passive avoidance and Shuttle-box
Adhesive removal test[23–26]	Sensory-motor function, Laterality	Medium	1982	The time to initiation and to successful removal of an adhesive tape placed on the animal's forepaws is noted. By using adhesive tape patches of different size for each forepaw, asymmetry caused by unilateral impairments can be graded. Optionally, the adhesive tape is placed on the hind paws or snout. Aka Bilateral tactile stimulation test, Sticky tape test and Sticky paper test.

Angle board				See Inclined plane
Ankle-bend test[27–29]	Nociception	Low	1987*	The amount of squeaks and struggle during paw manipulation is assessed. This test is mainly used in arthritis models. Also see Knee-bend test.
Attentional set-shifting[30–38]	Learning and memory, Cognitive flexibility	Low	1998*	The ability of an animal to locate a buried reward, located in one out of several cups filled with a digging medium, is analyzed. The correct location can be based on the type of digging medium or its scent, cup surface texture or cup location. The protocol can be modified to allow both intra- and extra dimensional set shifts as well as delayed non-matching to sample testing. Also see Dig task, Odor span task and Spatial span task.
Autoshaping[39–43]	Learning and memory	Medium	1974*	When a spatially localized sensory cue is used in Pavlovian conditioning the animal tends to approach and interact with the source of the cue which is utilized in autoshaping procedures. The sensory cue is initiated on a variable schedule and lasts for a set time interval. If the animal interacts with the source of the sensory cue the reward is delivered immediately and otherwise at the end of the preset time interval. These procedures are therefore often described as a mix between Pavlovian and operant conditioning.
Balance beam[44–47]	Sensory-motor function	High	1976*	The time the animal is able to remain on a narrow, elevated beam without falling down is measured. Aka Beam balance, Dowel test and Fixed bar test. Also see Beam walk and Ledged tapered beam.
Barbering[48–53]	Social status, Obsessive-compulsive like behavior	Low	1972*	The behavior of dominant animals to remove whiskers and/or fur from submissive animals is evaluated to determine social status. Excessive barbering may also be interpreted as an obsessive-compulsive like behavior. Aka Whisker trimming and Dalila effect.
Bar test[54–58]	Catalepsy	Medium	1972*	The animal's forepaws are placed on a bar and the time it retains this position is recorded.
Barnes maze[59–64]	Visuo-spatial learning and memory	High	1979	The test is performed using a brightly lit circular arena where one of several openings leads to an escape route. The time required to locate the escape route during repeated testing is used to evaluate learning and memory. Aka Circular platform maze.

Basso, Beattie, Bresnahan (BBB) Locomotor Rating Scale[65–70]	Neurological function, Gait	Medium	1995	A 21 point categorical scale used to assess locomotion in the open field following spinal cord injury. Aka BBB scale. Also see Basso Mouse Scale for Locomotion (BMS).
Basso Mouse Scale for Locomotion (BMS)[71]	Neurological function, Gait	Medium	2006	A 9 point categorical scale used to assess locomotion in mice following spinal cord injury. Also see Basso, Beattie, Bresnahan (BBB) Locomotor Rating Scale.
Baton test[72,73]	Sensory-motor function	Low	2008*	The mouse is held by the tail and the ability to grasp a vertically held applicator stick is evaluated.
BBB scale				See Basso, Beattie, Bresnahan (BBB) Locomotor Rating Scale
Beam balance				See Balance beam
Beam walk[74–77]	Sensory-motor function	Medium	1982*	The time required to traverse a narrow beam to reach a goal box is evaluated. Optionally, vertical pegs may be placed along the beam to increase test difficulty. Also see Balance beam and Ledged tapered beam.
Bederson scale				See Neurological score
Behavioral sensitization				See Locomotor sensitization
Bilateral tactile stimulation test				See Adhesive removal test
Bin cotton use				See Nest building
Block test (catalepsy)[78–80]	Catalepsy	Low	1981*	The animal is placed on top of a small block and the time to descend from it is measured.
Block test (odor)[81–84]	Olfaction, Social interactions	Low	2006*	The time the animal spends investigating a wooden block scented with its own bedding and another block scented with another animal's bedding is measured.
Bowl test				See Rotometer
Bracing test				See Lateral pulsion
Buried food test[85–87]	Olfaction	Low	1971	The latency to locate a food item hidden under bedding material is used to assess olfactory abilities. Aka Buried pellet test.
Buried pellet test				See Buried food test
Burrowing[88–91]	Species-typical behavior	Medium	2001*	The test determines to what extent the animal removes material from a tube to create a burrow.

Capellini handling test				See Pasta handling
CatWalk[92–102]	Gait, Nociception	Medium	1999*	The animal walks on top of a horizontal transparent pane. Light enters the pane from the side and can only leave the pane at points of paw contact which illuminates the paws and the animal can be filmed from below to record the gait pattern. Limb pain may also be detected by this test if it alters the gait pattern. Also see Paw print analysis.
Challenging beam				See Ledged tapered beam
Cheeseboard maze				See Holeboard
Chimney test[103,104]	Sensory-motor function	Medium	1960	The animal is introduced into a narrow horizontal plastic tube. As soon as the animal almost has reached the other end of the tube, it is turned to a vertical position and the animal is now facing head down. The normal response for the animal is to start backing out of the tube.
Circle exit test				See Exit circle test
Circular platform maze				See Barnes maze
Cliff avoidance[105–107]	Developmental stage	Medium	1975*	The time it takes for a pup to back away after it is placed with its head and forelimbs hanging over a cliff is recorded.
Coat hanger test[108–110]	Sensory-motor function	Low	1992*	The ability to remain on or climb to the top of a wire coat hanger is evaluated.
Coherent motion detection[111–113]	Vision	Low	2006	A number of dots are moving randomly on a computer screen while a small subset of them coherently move either left or right. The animal has to detect the direction of the coherent motion and respond correctly to it in order to receive a reward.
Cold plate[114–119]	Nociception	Medium	1988*	Cold-induced behavior is assessed by placing the animal on a cold plate. Also see Double plate and Hot plate.
Collins test				See Paw preference testing
Composite neuroscore				See Neurological score

Conditioned place preference[120–132]	Substance dependence	High	1957	The animal is administered a rewarding substance and placed in a test chamber and is then administered vehicle and placed in a second test chamber. The animal is then allowed free access to both chambers to see which one it prefers by comparing the time spent in each chamber. The use of aversive substances or drug withdrawal may cause a conditioned place aversion.
Conditioned odor aversion				See Conditioned taste aversion
Conditioned taste aversion[133–144]	Learning and memory	High	1955	The animal is presented with, and consumes, a novel food/fluid and is thereafter administered a test substance/treatment. If the test substance/treatment has aversive effects the animal may associate the novel food/fluid with the aversive effects and avoid the food/fluid on future presentations if it has an intact learning and memory capacity. The novel food/fluid is usually recognized by its taste but odor can also be used which creates a conditioned odor aversion.
Cork test[145–147]	Catalepsy	Low	1979*	The animal is placed with each paw on top of a cork and the time it retains this position is recorded.
Corner test[23,148–150]	Sensory-motor function, Laterality	Low	2002	The animal approaches and rears into a corner and the direction it turns to following the rear is evaluated. Unilateral impairments in the whisker sensory system may influence turning direction.
Cross maze[151–157]	Visuo-spatial learning and memory, Cognitive flexibility	Low	1974*	A maze shaped like a cross and can for example be used to evaluate spatial learning, procedural learning and to implement rule shifting tasks. The maze can also be filled with water (Water cross maze).
Cylinder test[158–162]	Sensory-motor function, Laterality	Medium	2000	The animal is placed in a transparent cylinder and the rearing behavior is evaluated. Asymmetry in forelimb use during rearing indicates unilateral motor impairments. Aka Spontaneous forelimb use (Fig 2B).
Dalila effect				See Barbering

Delayed alternation[163–165]	Learning and memory, Working memory	Medium	1957*	The animal first performs one of two possible actions, for example turning left or right in a T-maze. After a delay it has to make the alternate choice to receive a reward. Delayed alternation tasks can be performed in mazes (spatial delayed alternation) and operant chambers (operant delayed alternation).
Dig task[33,37]	Learning and memory	Low	2012	The animal is presented with two cups filled with digging media, although only one contains a reward, and therefore has to rely on olfactory cues to identify the correct cup (Fig 2D). Also see Attentional set-shifting, Odor span task and Spatial span task.
Digging for rewards				See Attentional set-shifting, Dig task, Odor span task and Spatial span task.
Distractor sustained attention task				See Sustained attention task
Double plate[118]	Nociception	Low	2006	The time spent on each plate is measure in an arena with one cold plate and one plate at room temperature which the animal can freely move between. Also see Cold plate and Hot plate.
Dowel test				See Balance beam
Drug discrimination[166–185]	Substance dependence	Medium	1951*	The animal is injected with either drug or vehicle and placed in an operant chamber with two levers. One lever results in a food reward only following drug injection and the other only following vehicle injection. Following extensive training, the animal learns the correct response. By then injecting the animal with another drug, its similarity with the first drug can be assessed. The ability of a compound to block the effect of the injected drug can also be evaluated.
Elevated open platform[186–188]	Stress response, Anxiety-like behavior	Low	1979*	The animal is placed on an inescapable elevated open platform to either induce a stress response or to assess anxiety-like behavior.
Elevated plus maze[189–215]	Anxiety-like behavior	High	1985	The time spent in closed (safe) versus open (unsafe) arms, and transitions between them, is used as a measure of anxiety-like behavior. Also see Graded anxiety test and Zero maze.
Elevated T-maze[216–225]	Anxiety-like behavior, Learning and memory	Medium	1993	A T-maze with one enclosed and two open arms is used to assess both anxiety-like behavior as well as memory and learning. Also see Elevated plus maze and T-maze.

Emergence test[226–228]	Anxiety-like behavior	Low	1986*	The time before the animal leaves a safe start box to explore a novel open field is used to evaluate anxiety-like behavior. Also see Light-Dark box and Open field.
Exit circle test[229,230]	Locomotor activity	Low	1988*	The test measures the time needed to exit a 20 to 50 cm diameter circle surrounded by a wall with a single opening. Aka Circle exit test.
Fear conditioning and extinction[231–247]	Learning and memory, Associative learning	High	1941*	The response when exposed to a sensory cue, usually an auditory tone, followed by an aversive event such as an electric foot shock is evaluated. If the animal makes an association between the two events it displays a fear response, typically freezing, when re-exposed to the sensory cue or the context it was delivered in. Repeated exposure to the sensory cue in the absence of the aversive event leads to extinction of the fear response.
Fixed bar test				See Balance beam
Floor projection maze[248]	Vision assessment	Low	2009	Visual information presented on the floor of a maze is used to evaluate visual function.
Food carrying				See Hoarding
Food competition test[249–254]	Social status, Social interactions	Low	1972*	Social status is determined by assessing the animals' behavior when competing for desirable food items.
Forced swim test[255–272]	Depressive-like behavior	High	1977	The time spent trying to escape versus floating in a small water tank with no escape route is measured. A low level of escape behavior is considered to be a depressive-like behavior. Aka Porsolt test.
Forelimb flexion[273–276]	Neurological function, Laterality	Medium	1986*	The ability to extend both forelimbs to break an anticipated fall when suspended by the tail above a surface is evaluated. Neurologically intact animals will extend both forelimbs symmetrically.
Forelimb locomotor assessment scale (FLAS)[277]	Gait	Low	2009	A qualitative scale used to assess gait patterns following cervical spinal cord injury.
Forelimb placing				See Vibrissae-evoked forelimb placing
Formalin test[278–307]	Nociception	High	1977	Pain-evoked behavior following formalin forepaw, orofacial or tail injection is assessed.

Four plate test[308–310]	Anxiety-like behavior	Low	1971	An animal is placed in a cage where the floor consists of four metal plates separated by a small distance and the number of crossing between plates is counted. Every time the animal crosses from one plate to another, it receives a foot shock which creates a conflict between exploratory behavior and avoidance of foot shocks. Also see Geller-Seifter conflict test and Vogel conflict test.
Frey filaments, von				See von Frey filaments
Functional neuroscore				See Neurological score
Gait kinematics[311–319]	Gait	Medium	1993*	The gait pattern when walking or wading is evaluated when the animal is viewed from the side, aided by a high-speed video camera and reflective disks attached to the animal. Optionally, X-ray video recordings may be used to visualize the skeleton.
Gap crossing[320–322]	Sensory function	Low	1986*	The ability to move between two platforms in the dark is used to assess the function of the whisker sensory system.
Geller-Seifter conflict test[202,323–325]	Anxiety-like behavior	Low	1960	The test determines the behavior evoked when lever pressing results in both a food reward and occasionally a mild electric shock. Also see Four plate test and Vogel conflict test.
Graded anxiety test[326]	Anxiety-like behavior	Low	2002	A combination of the Elevated plus maze and Light-dark box with several compartments gradually transitioning from safe to risky. Also see Successive alleys.
Grid performance test				See Inverted grid
Grid walk[95,159,327–330]	Sensory-motor function	Medium	1987*	The number of foot slips made by an animal walking on top of an elevated horizontal grid is recorded. Optionally, the grid can be tilted. Also see Ladder rung walk.
Grip strength[331–336]	Sensory-motor function	High	1978*	The test measures the maximum force exerted by an animal on a bar it holds on to while being pulled backwards by the base of its tail. Can be modified for individual measurement of each forepaw to assess unilateral impairments. Also see Wire grip and Inverted grid.
Grooming evaluation[337–348]	Species-typical behavior	Medium	1960*	The quality and/or amount of grooming are evaluated. Grooming may be evoked by swimming or water application.
Gross neuroscore				See Neurological score

Gustatory neophobia[349–355]	Species-typical behavior, Learning and memory, Anxiety-like behavior	Low	1963*	The test determines to what extent the animal displays the normal rodent behavior of initially avoiding, but eventually accepting, novel types of food. Attenuation of gustatory neophobia during repeated exposure requires intact learning and memory. Gustatory neophobia may also be considered to be an anxiety-like behavior. Aka Hyponeophagia.
Hargreaves test[356–360]	Nociception	High	1988	A beam of light is directed to the animal's hind paw and the withdrawal latency is measured. Aka Plantar test.
Head twitch response[361–366]	Drug induced behavior	Medium	1956	Administration of various hallucinogenic drugs induces rapid side-to-side twitching of the animals head. The response frequency can be evaluated by manual observation, either directly or using video recordings. The head twitch responses can also be automatically assessed by measuring voltage changes caused by the movement of a small magnet attached to the skull of the animal. Also see Locomotor sensitization.
Hoarding[91,367–384]	Species-typical behavior	Low	1939*	The test determines to what extent the animal retrieves food from an external location and hoards it near its nest. Aka Food carrying.
Holeboard[385–396]	Exploratory behavior, Learning and memory	Medium	1962	The extent of exploratory head dips into the holes of an arena with several small holes in the floor is used to assess exploratory behavior. Optionally, certain holes may be baited with food pellets to determine if the animal learns and remembers the location of the baited holes upon repetition.
Horizontal ladder				See Ladder rung walk
Horizontal rope walking[397–399]	Sensory-motor function	Low	2001*	The number of foot slips made when crossing a horizontally suspended rope by walking on top of it is determined. Aka Rope walking.
Hot plate[305,400–411]	Nociception	High	1944	Latency to initiate paw-licking and escape behavior when placed on a hot surface is measured. Also see Cold plate and Double plate.
Hyponeophagia				See Gustatory neophobia
Inclined ladder				See Ladder climb
Inclined plane[276,412,413]	Sensory-motor function, Laterality	Medium	1977	The animal is placed on a horizontal plane which is gradually turned towards the vertical position. The angle the plane is at when the animal loses its grip is recorded. The animal is placed so that either its left or right side is facing down when the plane is inclined. Aka Angle board.
IntelliCage[414–417]	Learning and memory	Medium	2005*	Various tests of learning and memory are carried out in a large cage which serves as both test device and animal housing.

Inverted grid[418–420]	Sensory-motor function	Low	1977	The animal is placed on top of a horizontal grid which is then turned upside down and the animal's ability to hang on to the grid is evaluated. Optionally, the grid is turned to the vertical position. Aka Grid performance test, Screen test and Wire grip. Also see Wire hanging.
Jet ball				See Virtual reality spatial navigation systems
Knee-bend test[421,422]	Nociception	Low	2008*	The animal is gently restrained and the knee joint extended and flexed five times and the amount of squeaks and/or struggle is evaluated. Also see Ankle-bend test.
Ladder climb[423–425]	Sensory-motor function	Low	2006*	The time required for an animal to climb up an inclined ladder is measured. Aka Inclined ladder. Also see Stairway test.
Ladder rung walk[426–430]	Sensory-motor function	Medium	1997*	The number of paw slips, which additionally may be precisely categorized, is counted when the animal walks along a horizontal ladder made of irregularly or regularly spaced rungs. Aka Horizontal ladder. Also see Grid walk.
Lashley III maze[431–434]	Learning and memory	Low	1929	The time required to navigate through a relatively simple maze to reach a reward at the end is measured.
Latent inhibition[435–440]	Sensory information processing	High	1959*	If an animal is repeatedly exposed to a sensory cue which is not paired with a positive or negative reinforcer the animal will consider the sensory cue irrelevant and start to ignore it. If the sensory cue thereafter is paired with a reinforcer it will take a longer time than usual for the animal to make the association between them, latent inhibition, because the sensory cue is initially ignored. Reduced latent inhibition is interpreted as a schizophrenia-like behavior. Also see Prepulse inhibition.
Lateral pulsion[23,273,274,276,441]	Neurological function, Laterality	Medium	1979*	The resistance an animal exerts towards being gently pushed sideways using one hand on each side of the animal is evaluated. Intact animals normally resist the push while unilateral brain insults reduces resistance when pushed towards the contra-lateral side. Aka Bracing test.
Lateralized reaction time task[151,442–445]	Attention, Laterality	Low	1985	To initiate a trial the animal has to perform an extended nose-poke in a centrally located hole. After a short delay a light is turned on to either the left or right side. To receive a reward the animal has to perform another nose-poke at the side indicated by the light.

Ledged tapered beam[446–448]	Sensory-motor function	Low	2002	The test determines the number of foot slips and the time required for an animal to traverse a tapering beam with ledges on either side to reach a goal box. Aka Challenging beam. Also see Beam walk.
Light-dark box[202,449–456]	Anxiety-like behavior	High	1980	Time spent in different chambers and transitions between them is measured in an arena divided into one dark and one brightly illuminated chamber. Also see Emergence test.
Location discrimination[457–459]	Spatial learning and memory	Low	1998*	The animal has to be able to discriminate between two locations and choose the correct one to receive a reward.
Locomotor sensitization[127,185,460–462]	Substance dependence	High	1990*	To what extent repeated drug injections cause an increased spontaneous locomotor activity is assessed. Aka Behavioral sensitization. Also see Head twitch response.
Louisville swim scale[463]	Sensory-motor function	Low	2006	The swimming pattern following spinal cord injury is assessed using a qualitative scale. Also see Swimming test.
Marble burying[464–473]	Obsessive-compulsory like behavior	High	1981*	Glass marbles placed in the cage are buried with bedding material by the rodent. Burying of large amounts of marbles is considered to be an obsessive-compulsory like behavior.
Modified neurological severity score				See Neurological score
Montoya staircase test				See Staircase test
Morris water maze[474–491]	Visuo-spatial learning and memory	High	1981	Upon repeated testing the animal learns the position of a platform hidden under the water surface of a large tank. The latency to swim to the platform is used as a measure of learning and memory. Also see Radial arm water maze.
Multiple T-maze				See T-maze
Multivariate concentric square field[492–494]	Exploratory behavior	Low	2006	Complex behavioral patterns are measured in an arena with several zones of different characteristics and the results are evaluated using multivariate statistics (Fig 2A).
Negative geotaxis[106,495–501]	Vestibular function, Developmental stage, Laterality	Medium	1926	The time required for the animal to turn around (against gravity) to face upwards is measured when placed facing down on an inclined plane. By repeating and noting the number of left and right turns, laterality can be assessed.

Nest building[91,502–505]	Species-typical behavior	Medium	1949*	The animal is given access to nest building material and the quality of the constructed nest is assessed. Aka Bin cotton use.
Neurological score[229,274,276,506–514]	Neurological function	High	1968	A combination of several easily performed tests to evaluate neurological function. The tests included vary widely and several combinations have been used. Aka Bederson scale, Composite neuroscore, Functional neuroscore, Gross neuroscore, Modified neurological severity score, Neurological severity score and Neuroscore.
Neurological severity score				See Neurological score
Neuroscore				See Neurological score
Novel object recognition[515–523]	Learning and memory, Episodic memory	High	1988	Time spent investigating a novel versus a previously encountered object is recorded to determine if an animal remembers the previously encountered object. Aka Spontaneous object recognition. Also see Novel odor recognition.
Novel odor recognition[524,525]	Learning and memory, Episodic memory	Medium	2004*	The amount of time spent exploring a novel odor is used to assess learning and memory. An animal is placed in an arena with a single odor presented at two locations and after a delay, the animal is returned to the arena where a novel odor is presented at one location while the previously encountered odor is presented at the other location. Also see Novel object recognition.
O-maze				See Zero-maze
Oasis maze[526]	Visuo-spatial learning and memory	Low	2005	The time required for a water-deprived animal to locate a source of water in a maze during repeated testing is measured.
Object-location paired associate learning				See Paired associate learning
Odor span task[527–531]	Learning and memory, Working memory, Olfaction	Low	2000	In the first trial the animal digs in a cup filled with scented digging material to retrieve a reward. Two cups are used in the second trial; one cup has the original scent while the other has a novel scent and also contains the reward. As long as the animal correctly chooses the cup with the novel scent an additional cup is introduced in the next trial. Also see Attentional set-shifting, Dig task and Spatial span task.

Olfactometry[532–540]	Olfaction	Low	1958*	Olfactory function can be assessed using an operant conditioning approach. The animal is trained to lick on a metal spout in the presence of an odor, correct response, which results in the delivery of a liquid reward. Licking in the absence of odor, incorrect response, results in a time-out period.
Olfactory discrimination[541–549]	Learning and memory, Olfaction	Medium	1972*	The test determines whether the animal is able to discriminate between odors and use the obtained information to perform the correct choice. Testing can for example be performed using an olfactometer or carried out in the home cage.
Olfactory habituation/dishabituation[87,550,551]	Olfaction	Low	1981	The same odor is repeatedly presented to the animal which gradually loses interest in this odor (habituation). Switch to a novel odor restores interest (dishabituation) if the animal is able to discriminate between the two odors.
Olfactory tubing maze[552–554]	Learning and memory, Olfaction	Low	2002	The test determines the ability of a water-deprived animal to learn and remember how to use olfactory cues to find water in a maze made up of plastic tubing.
One-way active avoidance[555–557]	Learning and memory	Medium	1974*	The test evaluates the ability to learn that a tone in a dark compartment is followed by a foot-shock that can be avoided by escaping to a brightly illuminated compartment. Also see Passive avoidance and Shuttle-box.
Open field[558–569]	Anxiety-like behavior, Locomotor activity	High	1934	The behavioral patterns of animals placed in an open circular or square arena are recorded. Also see Emergence test.
Operant chamber vision assessment[570–572]	Vision assessment	Low	2000*	A grating is displayed on one of several monitors in the operant chamber. If the animal is able to detect the grating it can use this information to perform the correct response and receive a reward.
Operant chamber[39,539,573–581]	Cognitive function, Sensory function	High	1958*	The animal is placed in a small chamber where it can perform nose-pokes, lever presses or touch-screen interactions (responses) to receive a reward. Typically the animal can choose between different responses where only the correct one is rewarded. The number of responses required for a reward can be fixed or progressively increased over a trial. Operant chambers are very versatile and can be used to evaluate several kinds of cognitive and sensory function. Aka Skinner box.
Operant delayed alternation				See Delayed alternation
OptoMotry				See Virtual optomotor system

Paired associate learning[582–589]	Learning and memory, Associative learning	Medium	1993*	The animal has to learn to associate two things to receive a reward. The association can for example be object-location, object-odor or odor-location. The test can be performed in for example operant chambers or in custom designed test equipment.
Partition test[590–592]	Social interaction	Low	1965*	The test determines the amount of investigative behavior evoked when two animals are placed in a cage separated by a perforated divider. Also see Urinary marking patterns.
Passive avoidance[593–612]	Learning and memory	High	1960*	The animal is placed in a test chamber where a certain behavior results in an aversive event (typically an electric shock). After a delay the animal is re-introduced to the test chamber and the avoidance of the behavior which resulted in the aversive event is assessed. The behavior the animal has to avoid can e.g. be to move from a brightly lit to a dark compartment (step-through passive avoidance), stepping down from a platform (step-down passive avoidance) or drinking from a water spout. Also see Active avoidance.
Pasta handling	Skilled forelimb use	Low	1996*	Paw use when handling and eating strands of dry pasta is evaluated. Aka Vermicelli handling test and Capellini handling test.
Paw preference testing[613–620]	Skilled forelimb use, Laterality	Low	1968	The extent of left versus right paw use is assessed when the animal reaches for food through a small opening. A single medial opening (Collins test) or two lateral openings can be used. Aka Collins test.
Paw print analysis[76,621–627]	Gait	Medium	1963*	The gait pattern is assessed by evaluating the paw prints made when an animal, with the paws dyed using two colors of non-toxic paint, is made to run across a sheet of paper. Also see CatWalk.
Pin-prick[421,628,629]	Nociception	Medium	1991*	The animal is lightly pricked with a thin needle and the evoked withdrawal response is assessed.
Plantar test				See Hargreaves test
Play fighting[630–636]	Species-typical behavior	Low	1899	The extent and quality of play fighting between juvenile animals is assessed.
Pole test[637–640]	Sensory-motor function	Medium	1985*	The time required for an animal placed on top of a pole to turn around and descend is measured. Also see Vertical grid.
Porsolt test				See Forced swim test

Postural instability test[162]	Neurological function	Low	2012*	The animal is held by the trunk, head down in an almost vertical position, with its forepaws on a table and the distance the animal has to be moved forward to trigger a step is measured. Also see Stepping test.
Predator odor induced fear[242,641–645]	Anxiety-like behavior	High	1919	The animal's reaction when exposed to odors of predator species such as cats, ferrets and foxes is assessed. Also see Fear conditioning and extinction.
Prehensile traction				See Wire hanging
Prepulse inhibition[646–652]	Sensory information processing	High	1973*	The inhibition of the acoustic startle and tactile startle response by a warning signal (prepulse) is evaluated. Absence of prepulse inhibition is interpreted as a schizophrenia-like behavior. Also see Acoustic startle, Latent inhibition and Tactile startle.
Pull up test[653,654]	Neurological function	Low	1984	The ability of the animal to pull up from a head-down vertical position when held in the hind paws is evaluated.
Radial arm maze[655–664]	Visuo-spatial learning and memory, Working memory	High	1976	The test arena consist of several arms arranged like spokes on a wheel surrounding a central area where all, or some, of the arms are baited with food. The ability of the animal to remember the location of the baited arms between sessions (long term memory) and visited arms during a single session (working memory) is evaluated. Also see Radial arm water maze.
Radial arm water maze[665–669]	Learning and memory	Medium	1985	A hybrid of the Radial arm maze and Morris water maze tests. A Radial arm maze is filled with water and the animal has to find a platform located at the end of one of the arms to escape. Upon repetition the latency to find the platform decreases in animals with an intact learning and memory. Aka Water radial arm maze. Also see Morris water maze and Radial arm maze.
Randall-Selitto test[670–673]	Nociception	Medium	1957	The mechanical pressure required to evoke a withdrawal response is assessed by applying gradually increasing mechanical pressure to the paw. Also see von Frey filaments.
Reaching box				See Tray task
Resident-intruder test[592,674–676]	Social interactions	High	1975*	The behavior evoked by placing an animal (intruder) in the home cage of another animal (resident) is assessed. Typically, the resident will attack the intruder to defend its territory.

Reversal learning[30,581,677–681]	Learning and memory, Cognitive flexibility	High	1957*	The animal first learns that one of two possible responses is rewarded. When performance has reached a criterion the rules are changed and the alternate response is rewarded. Reversal learning can be performed in for example an Operant chamber, the T-maze or Morris water maze. In serial reversal paradigms the correct choice is repeatedly reversed as soon as the criterion is reached.
Rope climbing[427,682–687]	Sensory-motor function	Low	1951*	The ability to climb a vertically suspended rope is evaluated.
Rope walking				See Horizontal rope walking
Rotarod[76,688–700]	Sensory-motor function	High	1957	To avoid falling down, the animal has to run on top of an accelerating, or constant speed, rotating rod. Aka Rotorod.
Rotating pole[701–704]	Sensory-motor function	Low	1995*	The animal has to traverse a horizontal rotating pole and the number of foot slips as well as the time required is measured. Also see Beam walk and Ledged tapered beam.
Rotatory swimming test[705–708]	Lateralization	Low	1990*	The rotational/circling/turning behavior while swimming in a bowl filled with water is assessed by counting the number of clockwise and counter-clockwise laps made around the edge. Also see Rotometer.
Rotometer[620,709–722]	Sensory-motor function, Laterality	Medium	1970*	The animal is placed in a bowl and the rotational/circling/turning behavior is measured by counting the number of clockwise and counter-clockwise circles made around edge of bowl. Aka Bowl test. Also see Rotatory swimming test.
Rotorod				See Rotarod
Round stick balancing[230,723]	Sensory-motor function	Low	2000*	The ability of the animal to perch on a 5 mm diameter stick is evaluated. Also see Wire hanging and Wire traversal.
Running wheel				See Wheel running
Sarter's sustained attention task				See Sustained attention task
Screen test				See Inverted grid
Self-administration[185,724–738]	Substance dependence	High	1962*	The test measures the number of responses, typically lever presses, made to receive a small amount of the substance under investigation via the intra-venous, intra-cranial or oral route. Also see Two-bottle preference test.

Serial implicit learning task[739,740]	Procedural learning	Low	2005	Learning is assessed by determining the degree to which the animal is able to make the correct response to two stimuli in a row in order to receive a reward.
Servo ball				See Virtual reality spatial navigation systems
Set-shifting				See Attentional set-shifting
Shock probe burying[202,741–745]	Anxiety-like behavior, Learning and memory	Medium	1978	The behavior of an animal placed in a cage containing a shock probe is evaluated. Rodents normally bury objects perceived as dangerous and the shock probe is typically promptly covered with cage bedding material immediately following the shock received when investigating the shock probe. Animals re-exposed to the shock probe will bury it before being shocked if they recall the first encounter.
Shuttle-box[556,746–753]	Learning and memory	High	1960*	The animal is placed in a two-compartment arena where a light or sound signal in one of the compartments is followed by an aversive event such as a foot-shock or air puff. The animal must learn to move to the other compartment to avoid the aversive event and the number of aversive events successfully avoided by actively shuttling to the other compartment is recorded. Aka Two-way active avoidance. Also see Passive avoidance.
Single pellet reaching[754–759]	Skilled forelimb use	Medium	1990*	The animal reaches horizontally through a slit for a single pellet at a time. The movement is either described in detail or the amount of dropped pellets counted. Also see Tray task.
Skinner box				See Operant chamber
Social choice				See Social discrimination
Social discrimination[760–763]	Social memory, Social interactions	Medium	1995	The test animal is first exposed to a stimulus animal and after a delay it is exposed to both the first stimulus animal and a second, novel, stimulus animal. If the test animal is able to discriminate between the two stimulus animals the amount of ano-genital investigation directed towards the novel stimulus animal is expected to be higher.
Social habituation/ dishabituation[760,762, 764,765]	Social memory, Social interactions	Medium	1995*	The test animal is repeatedly exposed to the same stimulus animal which normally reduces the amount of ano-genital investigations (habituation). On the last trial the test animal is exposed to a novel stimulus animal which normally leads to increased ano-genital investigatory response if the test animal is able to discriminate between the stimulus animals (dishabituation).

Social interaction induced conditioned place preference[766–771]	Social memory, Social interactions	Low	1992	The test evaluates if the animal considerers social interactions to be rewarding by determining if they induce a conditioned place preference.
Social interaction test of anxiety[772–775]	Anxiety-like behavior	Medium	1978	The amount of social interaction is used to evaluate anxiety-like behavior.
Social interaction testing				The amount of investigative behavior towards novel and previously encountered animals can be evaluated using several different protocols. It is typically used to evaluate social memory but can also be used to test anxiety-like behavior. To avoid agonistic behaviors (see Resident-intruder test) and sexual behavior the stimulus animals can be juveniles or ovarectomized females.
Social preference				See Three chamber social approach
Social recognition[760,762,776,777]	Social memory, Social interactions	Medium	1982	The test animal is exposed to a novel stimulus animal and after a delayed it is exposed to the same stimulus animal. If the test animal is able to recognize and remember the stimulus animal the amount of ano-genital investigation typically decrease between trials. As a control experiment two trials with different novel animals can be performed. This typically results in a similar amount of ano-genital investigation in the two trials.
Socially transmitted food preference[778–783]	Learning and memory, Olfaction, Social interactions	Low	1983*	One animal (demonstrator) is allowed to consume a novel food and then allowed to interact with another animal (observer). Guided by olfactory cues in the breath of the demonstrator, the observer animal will then prefer the demonstrated food over other kinds of food if it has an intact learning and memory capacity as well as olfactory ability. By introducing an aversive event in the demonstrator animal, a socially transmitted food aversion may be induced.
Spatial delayed alternation				See Delayed alternation

Spatial span task[151,530]	Learning and memory, Working memory	Low	2000	For the first trial a cup with digging medium, baited with a reward, is placed in one of 24 possible locations. Following each successful trial a cup is added in a novel location and only this cup is baited with a reward. Digging in an un-baited cup is considered a failed trial and the animal has to try again with the same setup. Also see Attentional set-shifting, Dig task and Odor span task.
Spontaneous forelimb use				See Cylinder test
Spontaneous object recognition				See Novel object recognition
Staircase maze[784–787]	Visuo-spatial learning and memory	Low	1970	The animal runs up a wide stair on the left side where only certain steps contain sucrose pellets on right side. Upon repetition, the animal only searches for pellets on correct steps and the time required to find all pellets and the number of errors is used to evaluate learning and memory.
Staircase test[95,758,759,788–794]	Skilled forelimb use	Medium	1991	The amount of successfully retrieved food pellets placed at ledges located at different heights below the animal is recorded. Aka Montoya staircase test.
Stairway test[795]	Sensory-motor function, Laterality	Low	2006	The time required and the extent of left/right deviations made by an animal climbing a broad vertical ladder to reach its home cage is evaluated. Also see Ladder climb.
Step-down passive avoidance				See Passive avoidance
Step-through passive avoidance				See Passive avoidance
Stepping test[441,796,797]	Neurological function	Low	1979*	The test evaluates the stepping pattern evoked when an animal is held above and moved along a horizontal surface with one or both forepaws in contact with it. Also see Postural instability test.
Sticky paper test				See Adhesive removal test
Sticky tape test				See Adhesive removal test
String test				See Wire traversal

Stop signal task[30,38,798,799]	Executive control	Low	2003*	The experimental setup contains a hole for nose-poking and two levers. The animal starts a trial with a nose poke and then presses the first lever. It then has to rapidly press the second lever to receive a reward unless an auditory stop signal is given. In these cases refraining from a lever press is rewarded.
Successive alleys[800,801]	Anxiety-like behavior	Low	2003	The test apparatus consist of four alleys in a row. Each alley is narrower than the previous one and therefore perceived as less safe. The time spent in each alley is used to evaluate anxiety-like behavior. Also see Graded anxiety test.
Sucrose preference test[802–805]	Depressive-like behavior	High	1958*	To what extent the animal prefers a sucrose solution over water is determined, usually using a two-bottle choice procedure. Decreased sensitivity to reward is considered to be a depressive-like behavior similar to anhedonia in patients. Also see Two-bottle preference test.
Sustained attention task[1,806–810]	Attention	Low	1994*	The introduction of two levers into the test chamber can be preceded by a sensory signal or an absence of a signal. The correct response (left or right lever) depends on whether the lever introduction was preceded by a sensory signal or not. The difficulty of the task can be increased by distracting sensory cues (Distractor sustained attention task). Also see 5-choice continuous performance task and 5-choice serial reaction task.
Swimming test[463,811–816]	Sensory-motor function	Low	1970*	The animal is filmed from the side while swimming from one end to the other of a transparent tank. Limb and tail use as well as body posture may be evaluated. Also see Louisville swim scale.
Tactile startle[817–819]	Reflexive behavior	Low	1975*	An unexpected air-puff directed towards the animals back typically causes a startle response which can be automatically measured. Also see Acoustic startle and Pre-pulse inhibition.
Tail suspension test[820–827]	Depressive-like behavior	High	1985	The mouse is suspended by its tail and the time spent immobile versus struggling to escape is measured. Low level of escape behavior is considered to be a depressive-like behavior.

Tail flick[287,305,406,828–834]	Nociception	High	1941	The time to withdrawal of the tail following thermal stimulation using a light beam is measured. Also see Tail immersion.
Tail immersion[835–838]	Nociception	High	1963	The time to withdrawal of the tail following immersion in hot water is measured. Also see Tail flick.
Tarlov scale[839–844]	Gait	Low	1954	A qualitative rating scale used in spinal cord injury research to evaluate gait patterns. Also see Basso, Beattie, Bresnahan (BBB) Locomotor Rating Scale.
Three chamber social approach[592,845–849]	Social interaction	Low	2004	A mouse (test mouse) is introduced into a central empty chamber connected to one chamber with an empty cage and one chamber containing a mouse (target mouse) trapped in a cage. The way the test mouse interacts with the target mouse is evaluated. Optionally, a final phase with two target mice can be performed to evaluate if the test mouse interacts more with the novel target mouse (Fig 2C).
Three-panel runway[850,851]	Visuo-spatial learning and memory	Low	1988	The animal traverses a runway to reach a goal box and at four points along the way it has to choose the correct gate among the three available at each point. The time required to traverse the runway decrease when the test is repeated if the animal learns and remembers the position of the correct gates.
T-maze[163,852–866]	Learning and memory	High	1939*	The ability to choose the right arm of a T-shaped maze is evaluated. The animal can determine the correct choice using sensory cues or by alternating between the left and right arm each trial. Motivation is provided by food deprivation, foot shocks or by filling the maze with water. Optionally, several mazes can be connected (Multiple T-maze) or the maze can be Y-shaped (Y-maze). Access to the maze can optionally be provided by an automated sorting mechanism. Also see Elevated T-maze.
Tongue protusion[789,867,868]	Neurological function	Low	1972*	The ability to use the tongue to obtain food pellets or peanut butter through a small opening is evaluated.
Tray task[869–872]	Skilled forelimb use	Low	1986*	The test determines number of successful horizontal reaches made for food pellets placed on a tray, separated from the animal by vertical metal bars. Optionally, the use of one paw may be restricted using adhesive tape or a bracelet. Aka Reaching box. Also see Single pellet reaching.

Triple test[873,874]	Anxiety-like behavior, Locomotor activity	Low	2008	A combination of Elevated plus maze, Open field and Light-dark box. Designed to avoid the problem of test order effects by running all three tests in a single session.
Tube domination test[592,875–878]	Social status, Social interaction	Low	1961	The behavior of two animals which are introduced at each end of a narrow tube is analyzed. Since they are unable to pass each other, the dominant animal pushes the other backwards.
Two-bottle preference test[879–884]	Substance dependence	High	1940*	Two bottles, commonly one with alcohol and one with water, are placed in the animal's home cage to determine the preferred solution. Also see Self-administration and Sucrose preference test.
Two odor discrimination[885–887]	Learning and memory, Olfaction	Low	1989*	To receive a reward the animal has to nose poke at the correct location, identified by discriminating between two odors. Increased numbers of correct nose pokes over time indicates intact olfactory ability as well as learning and memory capacity.
Two-way active avoidance				See Shuttle-box
Ultrasonic vocalization[16,303,736,888–895]	Species-typical behavior, Developmental stage	Medium	1970*	Pups removed from their nest normally emit ultrasonic vocalizations if they are developing normally. Recordings of ultrasonic vocalizations from adult animals may also aid in the understanding of their behavior by analyzing the type and frequency of vocalizations.
Urinary marking patterns[878,896,897]	Social status, Social interactions	Low	1973	The social status of two animals is evaluated by visualizing urination patterns using ultraviolet light. The animals are placed on each side of a screen in a cage with absorbent material covering the floor. Typically, dominant animals mark the entire area in contrast to subordinate animals that mark only the corners. Also see Partition test.
Vermicelli handling test				See Pasta handling
Vertical grid[420]	Sensory-motor function	Low	2010	The animal is placed on a vertical grid, head up, and the time required to turn around and descend is measured. Also see Pole test.

Vibrissae-evoked forelimb placing[158,161,898–901]	Neurological function, Laterality	Medium	1990*	The motor response evoked by vibrissae touch is evaluated by holding the animal by the torso and moving it either head on or sideways towards the edge of a table or Plexiglas surface. Typically, intact animals place the forelimbs on the table/Plexiglas when the vibrissae touch the side of the table/Plexiglas.
Virtual optomotor system[902–904]	Vision assessment	Medium	2004	The animal is placed on a small platform surrounded by four monitors. When a grating is displayed on the monitors the animal will reflexive move the head to follow the grating if it is able to detect the grating (Fig 2E).
Virtual reality spatial navigation systems[905–910]	Spatial navigation	Low	2005*	An animal with the head fixed or wearing a harness walks on top of a large air-supported Styrofoam ball. As the animal walks on top of the ball it moves around in a virtual reality world displayed on computer monitors in front of it. The system can be combined with operant conditioning techniques, electrophysiological recordings as well as 2-photon imaging.
Visible burrow system[878,911–916]	Species-typical behavior, Social interactions, Social status	Low	1985*	The test assesses social status as well as aggressive and defensive behaviors of a group of animals housed in a semi-natural arena.
Visual cliff avoidance[917–920]	Depth perception, Vision assessment	Low	1957	The animal is placed in an arena with a transparent bottom that extends beyond the edge of the table to create the optical illusion of a cliff. If the animal avoids the cliff or not is determined to assess depth perception ability.
Visual discrimination learning[43,921–927]	Associative learning and memory, Vision assessment	Medium	1954*	The animal is repeatedly presented with two visual stimuli and receives a reward if it is able to discriminate between the images and use this information to perform the correct action. By adjusting the protocol visual discrimination can be used to evaluate learning and memory as well as vision. Visual discrimination learning is typically performed in operant chambers but can also be performed using the Visual water task.
Visual water task[928–930]	Vision assessment	Low	2000	The animal is placed in a water-filled tank with a submerged platform in one of two possible locations. Visual cues guide the animal to the platform if it has sufficient visual acuity to detect them.

Vogel conflict test[202,931–933]	Anxiety-like behavior	Medium	1971	The behavior of water-deprived rodents given access to a water spout which occasionally delivers a mild electric shock is analyzed. The desire to both drink water and to avoid the electric shock creates a conflict situation. Also see Four plate test and Geller-Seifter conflict test.
von Frey filaments[94,360,406,934–944]	Nociception	High	1986*	The pain evoked response following stimulation of the ventral surface of the paw using filaments of different strength is recorded.
Water cross maze				See Cross maze
Water radial arm maze				See Radial arm water maze
Wheel running[945–964]	Locomotor activity, Circadian rhythms	High	1898*	The animal is given free access to a running wheel and its use is analyzed to assess both circadian rhythms and locomotor activity levels. Aka Running wheel.
Whisker nuisance test[965]	Sensory function	Low	2010	The whiskers of a rat are stimulated using a stick. Responses such as withdrawal or stick biting are used to evaluate hyper-sensitivity (Fig 2F).
Whisker trimming				See Barbering
Wire grip				See Grip strength, Inverted grid, Wire hanging and Wire traversal
Wire hanging[966]	Sensory-motor function	Low	2012*	The time the animal is able to hang onto a single horizontal wire with its forepaws is measured. Unlike the Wire traversal test lateral movement of the animal is prevented with screens in this test. Optionally, adhesive tape may be used to prevent hind paw use. Aka Wire grip. Also see Grip strength, Inverted grid and Wire traversal.
Wire traversal[966–968]	Sensory-motor function	Low	1978	The time required for an animal to grip and traverse a single horizontal wire is evaluated. Unlike the Wire hanging test all four paws and tail may be used to traverse the wire if the animal is able to do so. Aka String test and Wire grip. Also see Grip strength, Inverted grid and Wire hanging.
Y-maze				See T-maze
Zero maze[199,213,969–973]	Anxiety-like behavior	Medium	1994	A modification of the Elevated plus maze. By arranging the open and closed arms in a circle, the center zone is excluded. Also see Elevated plus maze.
Ziggurat task[974,975]	Visuo-spatial learning and memory	Low	2008	16 ziggurats (pyramid shaped towers) with a place for a food reward at the top are arranged in a 4x4 grid. The animals have to learn and remember the position of the reward containing ziggurats to obtain the rewards faster.

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