Combined SHIRPA and Dysmorphology NIN GLA_CSD_002

Purpose

SHIRPA and dysmorphology were originally always separate assessments. However they have recently been combined as assessments, so that they take place at the same time.

The purpose of the assessments is to examine mice for obvious physical characteristics, behaviors and morphological abnormalities.

Descriptions include abnormal locomotion/appearance/behavior/reflex reactions.

Experimental Design

- **Minimum number of animals :** 7M + 7F
- **Age at test:** Week 52
- **Sex:** We would expect the results of this test to show sexual dimorphism

Equipment

- Viewing Jar
- SHIRPA arena
- Grid above arena
- Click Box
- Geotaxis grid
- Tube for contact righting
- Photo and/or video camera

Procedure

1. Allow the mice to acclimatise to the phenotyping room for a period of 30 minutes prior to testing.
2. Throughout the test note any vocalisation, aggression, salivation or unexpected behaviours.
3. During this test, note any unexpected dysmorphological characteristics (morphological irregularities are recorded by video sequences or photos).
4. Place the mouse in a clear cylinder over a wire grid and observe for activity and tremors.
5. Transfer the mouse out of the cylinder by removing the metal plate/grid whilst positioning 30cm over an arena and record the transfer arousal.

6. Record the number of $10cm^2$ squares the mouse moves into in the first 30 seconds in the arena (locomotor activity).
7. Allow the mouse to move freely around the arena whilst being observed for gait and tail elevation.
8. Hold the click box approximately 30cm above the arena and press the button, record the response of the mouse.
9. Approach the mouse from the front with a bent finger, aiming to touch the mouse on the back of the neck rather than on the face. Ensure the mouse is looking at the finger before approach is started. Record whether the mouse moves away before the finger touches the mouse, when the finger touches the mouse or if the mouse does not move at all.
10. Pick up the mouse by the tail and observe for limp grasping and trunk curl. Trunk curl must only be recorded if the mouse curls forward without twisting its body, bending to one side is not scored as a trunk curl.
11. Place the mouse in a small transparent tube. Turn the tube quickly so the mouse is fully upside down and record if the mouse rights itself.
12. Record any vocalisation and/or aggression which were observed throughout the entire test

Notes

1. If wiping down with ethanol prior to the use of equipment, make sure no ethanol residue remains as the ethanol may affect the behaviour of the animals.
2. The validity of results obtained from behavioural phenotyping is largely dependent on methods of animal husbandry. It is important that individuals following this procedure are experienced and aware of the animal's welfare, and is familiar with the animal being tested, in order to reduce the anxiety levels of the animal prior to testing.
3. The majority of mouse behavioural studies are age/sex/strain dependent. It is important to keep these parameters comparable throughout a single experiment.
4. Environmental factors may contribute to the levels of anxiety within the mouse. The temperature, humidity, ventilation, noise intensity and light intensity must be maintained at levels appropriate for mice. It is essential that the mice be kept in a uniform environment before and after testing to avoid anomalous results being obtained.
5. It is recommended that all phenotyping experimentation is conducted at approximately the same time of day because physiological and biochemical parameters change throughout the day.
6. When a number of mice are tested continuously, residual odours from the equipment used in the preceding test may affect the test results. The floor and walls of the arena, ruler, and metal net should be wiped clean before introducing the next mouse. To prevent infection, the equipment should be washed with water at the completion of the day's tests. Some specific pathogen-free facilities use ultraviolet irradiation when tests are not being performed. Care needs to be taken, however, to ensure that ultraviolet irradiation does not crack any acrylate equipment covered with residual alcohol.

Parameters and Metadata

Genitalia - presence NINGLA_CSD_071_001 | v1.1

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, Absent,

Lower lip morphology NINGLA_CSD_076_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, Not as expected,

Tremor NINGLA_CSD_030_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Present, Absent,

Snout size NINGLA_CSD_028_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Increased, As expected, Decreased,

Teeth presence NINGLA_CSD_068_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, Not as expected,

Upper teeth appearance NINGLA_CSD_069_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, No data, Not as expected,

Location of test NINGLA_CSD_082_001 | v1.1

procedureMetadata

Req. Analysis: false **Req. Upload:** true **Is Annotated:** false

Options: Open bench, LAF cabinet,

Hindlimb nail - length NINGLA_CSD_053_002 | v2.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: One hindlimb - decreased length, Both hindlimbs - decreased length, As expected, No data, Both hindlimbs - increased length, One hindlimb - increased length,

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Hindpaw - size NINGLA_CSD_041_002 | v2.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: One hindpaw - decreased, One hindpaw - increased, Both hindpaws - decreased, Both hindpaws - increased, As expected,

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Aggression NINGLA_CSD_079_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Excessive aggression, As expected,

Forelimbs - size NINGLA_CSD_019_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, One forelimb only - increased, Both forelimbs - increased, Both forelimbs - decreased, One forelimb only - decreased,

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Forelimb digit - size NINGLA_CSD_046_001 | v1.1

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Both forelimbs - fused, One forelimb - increased size, As expected, One forelimb - fused, Both forelimbs - decreased size, One forelimb - decreased size, Both forelimbs - increased size,

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Number of days since cage changed NINGLA_CSD_084_001 | v1.1

procedureMetadata

Req. Analysis: false **Req. Upload:** false **Is Annotated:** false

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Forelimbs - position NINGLA_CSD_017_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, One forelimb only - not as expected, Both forelimbs - not as expected,

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Hindlimbs - position NINGLA_CSD_020_001 | v1.1

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, Both hindlimbs - not as expected,
One hindlimb only - not as expected,

Tail elevation NINGLA_CSD_034_001 | v1.2

simpleParameter

Req. Analysis: false **Req. Upload:** false **Is Annotated:** false

Options: Dragging, As expected, Straub / elevated tail, No data,

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Hindlimb digit - size NINGLA_CSD_047_001 | v1.2

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: One hindlimb - decreased size, One hindlimb - increased size, As expected,
Both hindlimbs - fused, Both hindlimbs - decreased size, Both hindlimbs - increased size,
One hindlimb - fused,

Skin color - snout NINGLA_CSD_057_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Not as expected, As expected,

Coat - color - back NINGLA_CSD_005_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Not as expected, No data, As expected,

Forelimb nail - number NINGLA_CSD_050_002 | v2.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, One forelimb - decreased number, One forelimb - increased number, No data, Both forelimbs - increased number, Both forelimbs - decreased number,

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Head bobbing NINGLA_CSD_080_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Present, Absent,

Genitalia - size NINGLA_CSD_072_001 | v1.1

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, Not as expected, No data,

Skin texture - front paws NINGLA_CSD_065_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Not as expected, As expected,

Forepaw - size NINGLA_CSD_040_002 | v2.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Both forepaws - increased, Both forepaws - decreased, One forepaw - increased, As expected, One forepaw - decreased,

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Coat - color - head NINGLA_CSD_006_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, No data, Not as expected,

Skin texture - snout NINGLA_CSD_063_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, Not as expected,

Coat - hair texture / appearance - head NINGLA_CSD_015_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: No data, As expected, Not as expected,

Skin color - whole body NINGLA_CSD_056_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, Not as expected,

Locomotor activity NINGLA_CSD_032_001 | v1.2

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Unit Measured: Squares crossed

Images NINGLA_CSD_085_001 | v1.1

seriesMediaParameter

Req. Analysis: false **Req. Upload:** false **Is Annotated:** false

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Coat - hair texture / appearance - back NINGLA_CSD_014_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, No data, Not as expected,

Coat - hair texture / appearance - abdomen NINGLA_CSD_016_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, No data, Not as expected,

Coat - hair distribution - head NINGLA_CSD_012_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Not as expected, As expected,

Forelimb nail - length NINGLA_CSD_052_002 | v2.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Both forelimbs - decreased length, One forelimb - decreased length, One forelimb - increased length, No data, As expected, Both forelimbs - increased length,

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Comments (in English) NINGLA_CSD_087_001 | v1.2

simpleParameter

Req. Analysis: false **Req. Upload:** false **Is Annotated:** false

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Tail - thickness NINGLA_CSD_003_001 | v1.1

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Decreased, No data, Increased, As expected,

Limb grasp NINGLA_CSD_039_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Present, Absent, No data,

Gait NINGLA_CSD_033_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Fluid movement, Lack of fluidity in movement,

Tail - presence NINGLA_CSD_001_001 | v1.1

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Absent, Present,

Experimenter ID NINGLA_CSD_081_001 | v1.0

procedureMetadata

Req. Analysis: false **Req. Upload:** true **Is Annotated:** false

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Forelimbs - shape NINGLA_CSD_018_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Both forelimbs - not as expected, One forelimb only - not as expected, As expected,

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Vibrissae - appearance NINGLA_CSD_024_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: No data, Not as expected, As expected,

Tail - length NINGLA_CSD_002_001 | v1.1

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Short, No data, Long, As expected,

Forelimb nail - shape NINGLA_CSD_054_002 | v2.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, Both forelimbs - not as expected, No data,
One forelimb - not as expected,

Startle response NINGLA_CSD_036_001 | v1.1

simpleParameter

Req. Analysis: false **Req. Upload:** false **Is Annotated:** true

Options: No data, Present, None,

Forelimb digit - number NINGLA_CSD_044_002 | v2.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: One forelimb - increased number, Both forelimbs - decreased number, One forelimb - decreased number, Both forelimbs - increased number, As expected,

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Skin texture - whole body NINGLA_CSD_062_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Not as expected, As expected,

Hindlimb digit - shape NINGLA_CSD_049_002 | v2.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Both hindlimbs - not as expected, One hindlimb - not as expected, As expected,

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Skin color - front paws NINGLA_CSD_059_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Not as expected, As expected,

Upper lip morphology NINGLA_CSD_075_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, Not as expected,

Ears NINGLA_CSD_027_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Not as expected, As expected,

Hindpaw - shape NINGLA_CSD_043_002 | v2.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, One hindpaw - not as expected, Both hindpaws - not as expected,

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Hindlimbs - size NINGLA_CSD_022_001 | v1.1

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: One hindlimb only - decreased, One hindlimb only - increased, Both hindlimbs - increased, Both hindlimbs - decreased, As expected,

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Transfer arousal NINGLA_CSD_031_001 | v1.2

simpleParameter

Req. Analysis: false **Req. Upload:** false **Is Annotated:** false

Options: Immediate movement, As expected, Extended freeze,

Skin texture - back paws NINGLA_CSD_066_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, Not as expected,

Head size NINGLA_CSD_025_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, Decreased, Increased,

Size of squares in arena NINGLA_CSD_086_001 | v1.0

procedureMetadata

Req. Analysis: true **Req. Upload:** true **Is Annotated:** false

Unit Measured: cm^2

Skin color - ear NINGLA_CSD_058_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, Not as expected,

Skin texture - ear NINGLA_CSD_064_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Not as expected, As expected,

Hindlimb nail - shape NINGLA_CSD_055_002 | v2.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: No data, Both hindlimbs - not as expected, As expected,
One hindlimb - not as expected,

Coat - color - abdomen NINGLA_CSD_007_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: No data, Not as expected, As expected,

Vibrissae - presence NINGLA_CSD_023_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, Not as expected,

Trunk curl NINGLA_CSD_038_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: No data, Present, Absent,

Unexpected behaviors NINGLA_CSD_037_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Other, Retropulsion, None, Circling, Jumping,

Activity (body position) NINGLA_CSD_029_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Increased activity, As expected, Inactive,

Hindlimbs - shape NINGLA_CSD_021_001 | v1.1

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: One hindlimb only - not as expected, As expected,
Both hindlimbs - not as expected,

Hindlimb digit - number NINGLA_CSD_045_002 | v2.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: One hindlimb - increased number, Both hindlimbs - decreased number,
Both hindlimbs - increased number, One hindlimb - decreased number, As expected,

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Lower teeth appearance NINGLA_CSD_070_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, No data, Not as expected,

Genitalia - morphology NINGLA_CSD_073_001 | v1.1

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, No data, Not as expected,

Tail - morphology NINGLA_CSD_004_001 | v1.1

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Not as expected, No data, As expected,

Mouth morphology NINGLA_CSD_074_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, Not as expected,

Touch escape NINGLA_CSD_035_001 | v1.2

simpleParameter

Req. Analysis: false **Req. Upload:** false **Is Annotated:** false

Options: Flees prior to touch, No response, Response to touch,

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Head morphology NINGLA_CSD_026_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, Not as expected,

Skin texture - tail NINGLA_CSD_067_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Not as expected, As expected, No data,

Forelimb digit - shape NINGLA_CSD_048_002 | v2.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, Both forelimbs - not as expected, One forelimb - not as expected,

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Vocalization NINGLA_CSD_078_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Not as expected, As expected,

Skin color - tail NINGLA_CSD_061_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Not as expected, As expected, No data,

Skin color - back paws NINGLA_CSD_060_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, Not as expected,

Hindlimb nail - number NINGLA_CSD_051_002 | v2.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Both hindlimbs - increased number, As expected,
One hindlimb - increased number, Both hindlimbs - decreased number,
One hindlimb - decreased number, No data,

Contact righting NINGLA_CSD_077_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Present, Absent, No data,

Number of animals in cage NINGLA_CSD_083_001 | v1.2

procedureMetadata

Req. Analysis: false **Req. Upload:** true **Is Annotated:** false

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Coat - color pattern - abdomen NINGLA_CSD_010_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, No data, Not as expected,

Coat - color pattern - head NINGLA_CSD_009_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: No data, Not as expected, As expected,

Coat - hair distribution - back NINGLA_CSD_011_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, Not as expected,

Coat - color pattern - back NINGLA_CSD_008_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Not as expected, No data, As expected,

Coat - hair distribution - abdomen NINGLA_CSD_013_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: Not as expected, As expected,

Forepaw - shape NINGLA_CSD_042_002 | v2.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Options: As expected, Both forepaws - not as expected, One forepaw - not as expected,

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