

# Combined SHIRPA and Dysmorphology TC

## PIP\_CSD\_003

### 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 26
- **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<sup>2</sup> 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. 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.
10. 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.
11. 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

**Coat - color - head** TCPIP\_CSD\_006\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

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

---

**Coat - hair texture / appearance - head** TCPIP\_CSD\_015\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

**Unexpected behaviors** TCPIP\_CSD\_037\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

**Gait** TCPIP\_CSD\_033\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

**Options:** Lack of fluidity in movement, Fluid movement,

---

## Skin texture - snout TCPIP\_CSD\_063\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: As expected, Not as expected,

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## Locomotor activity TCPIP\_CSD\_032\_001 | v1.2

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Unit Measured: Squares crossed

---

## Hindlimbs - size TCPIP\_CSD\_022\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

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

---

## Coat - color pattern - abdomen TCPIP\_CSD\_010\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

**Forelimb digit - number** TCPIP\_CSD\_044\_002 | v2.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

**Size of squares in arena** TCPIP\_CSD\_086\_001 | v1.0

procedureMetadata

**Req. Analysis:** true

**Req. Upload:** true

**Is Annotated:** false

**Unit Measured:** cm^2

---

**Forelimb digit - shape** TCPIP\_CSD\_048\_002 | v2.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

**Activity (body position)** TCPIP\_CSD\_029\_001 | v1.0

simpleParameter

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

**Options:** Increased activity, Inactive, As expected,

---

**Head morphology** TCPIP\_CSD\_026\_001 | v1.0

simpleParameter

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

**Options:** Not as expected, As expected,

---

**Transfer arousal** TCPIP\_CSD\_031\_001 | v1.2

simpleParameter

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

**Options:** As expected, Immediate movement, Extended freeze,

---

**Coat - color - back** TCPIP\_CSD\_005\_001 | v1.0

simpleParameter

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

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

-----

**Coat - hair distribution - abdomen** TCPIP\_CSD\_013\_001 | v1.0

simpleParameter

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

Options: As expected, Not as expected,

-----

**Genitalia - morphology** TCPIP\_CSD\_073\_001 | v1.1

simpleParameter

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

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

-----

**Vibrissae - appearance** TCPIP\_CSD\_024\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

## Hindlimb nail - shape TCPIP\_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,

---

## Forelimb nail - length TCPIP\_CSD\_052\_002 | v2.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

## Head bobbing TCPIP\_CSD\_080\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true



**Options:** Present, Absent,

---

**Skin texture - ear** TCPIP\_CSD\_064\_001 | v1.0

simpleParameter

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

**Options:** Not as expected, As expected,

---

**Coat - hair distribution - back** TCPIP\_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** TCPIP\_CSD\_008\_001 | v1.0

simpleParameter

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

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

---

# Hindlimb digit - size TCPIP\_CSD\_047\_001 | v1.2

simpleParameter

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

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

-----

# Head size TCPIP\_CSD\_025\_001 | v1.0

simpleParameter

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

**Options:** Increased, Decreased, As expected,

-----

# Skin color - whole body TCPIP\_CSD\_056\_001 | v1.0

simpleParameter

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

**Options:** Not as expected, As expected,

-----

# Skin texture - front paws TCPIP\_CSD\_065\_001 | v1.0

simpleParameter

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

Options: Not as expected, As expected,

---

**Trunk curl** TCPIP\_CSD\_038\_001 | v1.0

simpleParameter

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

Options: No data, Present, Absent,

---

**Tail - morphology** TCPIP\_CSD\_004\_001 | v1.1

simpleParameter

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

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

---

**Snout size** TCPIP\_CSD\_028\_001 | v1.0

simpleParameter

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

**Options:** Decreased, As expected, Increased,

---

**Forelimb nail - shape** TCPIP\_CSD\_054\_002 | v2.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

**Startle response** TCPIP\_CSD\_036\_001 | v1.1

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Options:** None, Present, No data,

---

**Forepaw - shape** TCPIP\_CSD\_042\_002 | v2.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

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---

## Tail elevation TCPIP\_CSD\_034\_001 | v1.2

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

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

---

## Coat - hair distribution - head TCPIP\_CSD\_012\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: As expected, Not as expected,

---

## Hindlimb nail - number TCPIP\_CSD\_051\_002 | v2.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

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

---

# Upper lip morphology TCPIP\_CSD\_075\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: As expected, Not as expected,

---

# Coat - hair texture / appearance - abdomen TCPIP\_CSD\_016\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

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

---

# Hindlimbs - shape TCPIP\_CSD\_021\_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,

---

# Forelimbs - shape TCPIP\_CSD\_018\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

## **Skin color - front paws** TCPIP\_CSD\_059\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

**Options:** As expected, Not as expected,

---

## **Experimenter ID** TCPIP\_CSD\_081\_001 | v1.0

procedureMetadata

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** false

---

## **Forelimbs - position** TCPIP\_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,

---

**Genitalia - presence** TCPIP\_CSD\_071\_001 | v1.1

simpleParameter

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

Options: As expected, Absent,

---

**Vibrissae - presence** TCPIP\_CSD\_023\_001 | v1.0

simpleParameter

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

Options: As expected, Not as expected,

---

**Location of test** TCPIP\_CSD\_082\_001 | v1.1

procedureMetadata

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

Options: LAF cabinet, Open bench,

---

**Vocalization** TCPIP\_CSD\_078\_001 | v1.0

simpleParameter



**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

**Options:** Not as expected, As expected,

---

**Number of days since cage changed** TCPIP\_CSD\_084\_001 | v1.1

procedureMetadata

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** false

---

**Mouth morphology** TCPIP\_CSD\_074\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

**Options:** Not as expected, As expected,

---

**Upper teeth appearance** TCPIP\_CSD\_069\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

**Comments (in English)** TCPIP\_CSD\_087\_001 | v1.2

simpleParameter

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

---

**Skin color - snout** TCPIP\_CSD\_057\_001 | v1.0

simpleParameter

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

Options: As expected, Not as expected,

---

**Tail - thickness** TCPIP\_CSD\_003\_001 | v1.1

simpleParameter

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

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

---

**Hindlimb nail - length** TCPIP\_CSD\_053\_002 | v2.0

simpleParameter

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

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

---

## Tail - length TCPIP\_CSD\_002\_001 | v1.1

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

## Forelimb digit - size TCPIP\_CSD\_046\_001 | v1.1

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

## Contact righting TCPIP\_CSD\_077\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

**Options:** Present, Absent, No data,

---

**Ears** TCPIP\_CSD\_027\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

**Options:** As expected, Not as expected,

---

**Skin color - ear** TCPIP\_CSD\_058\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

**Options:** As expected, Not as expected,

---

**Lower lip morphology** TCPIP\_CSD\_076\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

**Options:** As expected, Not as expected,

---

## Coat - hair texture / appearance - back TCPIP\_CSD\_014\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

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

---

## Genitalia - size TCPIP\_CSD\_072\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

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

---

## Hindpaw - size TCPIP\_CSD\_041\_002 | v2.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

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

---

## Coat - color - abdomen TCPIP\_CSD\_007\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

## Hindlimb digit - shape TCPIP\_CSD\_049\_002 | v2.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

## Images TCPIP\_CSD\_085\_001 | v1.1

seriesMediaParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** false

---

## Hindlimbs - position TCPIP\_CSD\_020\_001 | v1.1

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

## Skin texture - whole body TCPIP\_CSD\_062\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: Not as expected, As expected,

---

## Forepaw - size TCPIP\_CSD\_040\_002 | v2.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

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

---

## Hindpaw - shape TCPIP\_CSD\_043\_002 | v2.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

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

---

# Lower teeth appearance TCPIP\_CSD\_070\_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 TCPIP\_CSD\_009\_001 | v1.0

simpleParameter

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

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

---

# Number of animals in cage TCPIP\_CSD\_083\_001 | v1.2

procedureMetadata

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

---

# Skin texture - tail TCPIP\_CSD\_067\_001 | v1.0

simpleParameter

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

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



---

## Limb grasp TCPIP\_CSD\_039\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: No data, Present, Absent,

---

## Skin color - back paws TCPIP\_CSD\_060\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: Not as expected, As expected,

---

## Aggression TCPIP\_CSD\_079\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: Excessive aggression, As expected,

---

## Teeth presence TCPIP\_CSD\_068\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: As expected, Not as expected,

---

## Forelimbs - size TCPIP\_CSD\_019\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

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

---

## Tail - presence TCPIP\_CSD\_001\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: Absent, Present,

---

## Forelimb nail - number TCPIP\_CSD\_050\_002 | v2.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

## Hindlimb digit - number TCPIP\_CSD\_045\_002 | v2.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

## Skin color - tail TCPIP\_CSD\_061\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

## Skin texture - back paws TCPIP\_CSD\_066\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

**Options:** Not as expected, As expected,

-----

**Tremor** TCPIP\_CSD\_030\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

**Options:** Present, Absent,

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