

# Combined SHIRPA and Dysmorphology KM

## PCLA\_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 53
- **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

### Lower lip morphology KMPCLA\_CSD\_076\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

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

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**Limb grasp** KMPCLA\_CSD\_039\_001 | v1.0

simpleParameter

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

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

---

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

simpleParameter

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

**Options:** Present, Absent,

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**Coat - hair texture / appearance - abdomen** KMPCLA\_CSD\_016\_001 | v1.0

simpleParameter

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

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

---

## Forelimbs - position KMPCLA\_CSD\_017\_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 KMPCLA\_CSD\_059\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: As expected, Not as expected,

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

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

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

---

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

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

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

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## Mouth morphology KMPCLA\_CSD\_074\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: Not as expected, As expected,

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## Startle response KMPCLA\_CSD\_036\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Options: No data, None, Present,

---

## Hindlimb nail - length KMPCLA\_CSD\_053\_002 | v2.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

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

---

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

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

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

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

## **Teeth presence** KMPCLA\_CSD\_068\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

**Forelimb nail - length** KMPCLA\_CSD\_052\_002 | v2.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

**Tail - presence** KMPCLA\_CSD\_001\_001 | v1.1

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

**Options:** Present, Absent,

---

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

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

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

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: Not as expected, As expected,

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

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

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

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## Trunk curl KMPCLA\_CSD\_038\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: Absent, Present, No data,

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## Genitalia - morphology KMPCLA\_CSD\_073\_001 | v1.1



simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

## Forelimb nail - shape KMPCLA\_CSD\_054\_002 | v2.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

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

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

**Unit Measured:** Squares crossed

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## Coat - hair distribution - abdomen KMPCLA\_CSD\_013\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

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

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

---

**Hindlimbs - shape** KMPCLA\_CSD\_021\_001 | v1.1  
simpleParameter

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

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

---

**Skin color - tail** KMPCLA\_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 - snout KMPCLA\_CSD\_057\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: Not as expected, As expected,

---

## Hindlimb nail - shape KMPCLA\_CSD\_055\_002 | v2.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

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

---

## Coat - hair texture / appearance - head KMPCLA\_CSD\_015\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

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

---

## Hindlimb nail - number KMPCLA\_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,

---

## Activity (body position) KMPCLA\_CSD\_029\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

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

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

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

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

**Hindlimb digit - size** KMPCLA\_CSD\_047\_001 | v1.2

simpleParameter

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

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

---

**Coat - hair distribution - back** KMPCLA\_CSD\_011\_001 | v1.0

simpleParameter

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

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

---

**Coat - color pattern - abdomen** KMPCLA\_CSD\_010\_001 | v1.0

simpleParameter

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

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

---

## Upper teeth appearance KMPCLA\_CSD\_069\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

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

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## Coat - color pattern - back KMPCLA\_CSD\_008\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

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

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## Ears KMPCLA\_CSD\_027\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: As expected, Not as expected,

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**Experimenter ID** KMPCLA\_CSD\_081\_001 | v1.0

procedureMetadata

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** false

**Forepaw - size** KMPCLA\_CSD\_040\_002 | v2.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

**Skin texture - front paws** KMPCLA\_CSD\_065\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

**Head size** KMPCLA\_CSD\_025\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

**Hindlimbs - position** KMPCLA\_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,

---

**Coat - hair texture / appearance - back** KMPCLA\_CSD\_014\_001 | v1.0

simpleParameter

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

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

---

**Lower teeth appearance** KMPCLA\_CSD\_070\_001 | v1.0

simpleParameter

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

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



---

## Coat - color - abdomen KMPCLA\_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 KMPCLA\_CSD\_049\_002 | v2.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

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

---

## Skin texture - ear KMPCLA\_CSD\_064\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: Not as expected, As expected,

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

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: As expected, Not as expected,

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

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: As expected, Not as expected,

---

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

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

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

---

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

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

**Options:** Present, Absent,

---

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

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

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

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

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

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

## Comments (in English) KMPCLA\_CSD\_087\_001 | v1.2

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

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## Vocalization KMPCLA\_CSD\_078\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: As expected, Not as expected,

---

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

seriesMediaParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

---

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

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

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

---

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

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

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

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

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

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

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## Head morphology KMPCLA\_CSD\_026\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: Not as expected, As expected,

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

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

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

---

## Forepaw - shape KMPCLA\_CSD\_042\_002 | v2.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

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

---

## Location of test KMPCLA\_CSD\_082\_001 | v1.1

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Options: Open bench, LAF cabinet,

---

## Vibrissae - appearance KMPCLA\_CSD\_024\_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 KMPCLA\_CSD\_083\_001 | v1.2

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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## Size of squares in arena KMPCLA\_CSD\_086\_001 | v1.0

procedureMetadata

Req. Analysis: true

Req. Upload: true

Is Annotated: false

Unit Measured: cm^2

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

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

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

---

## Coat - color pattern - head KMPCLA\_CSD\_009\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

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

---

## Transfer arousal KMPCLA\_CSD\_031\_001 | v1.2

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

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

---

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



simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

**Options:** As expected, Excessive aggression,

---

## **Gait** KMPCLA\_CSD\_033\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

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

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

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

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

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

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

**Genitalia - size** KMPCLA\_CSD\_072\_001 | v1.1

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

---

**Forelimb nail - number** KMPCLA\_CSD\_050\_002 | v2.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

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## Coat - color - head KMPCLA\_CSD\_006\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

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

---

## Genitalia - presence KMPCLA\_CSD\_071\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: As expected, Absent,

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

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: No data, Absent, Present,

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

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

-----

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

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** true

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

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