Gross Pathology and Tissue Collection IMP C_PAT_002

Purpose

To perform a complete necropsy to detect and record abnormal external findings and macroscopic alterations in internal and external organs, record body and heart weights (see IMPC Heart Weight SOP), and collect a standardized list of tissues for fixation with or without further processing (see non-mandatory IMPC Tissue Embedding & Block Banking SOP).

Experimental Design

- **Minimum number of animals**: 2M + 2F
- **Age at test**: Week 16

Equipment

- Corkplate or wax board
- pins
- jar containing tap water to rinse tools
- labelled container with fixative
- fine scissors
- bigger scissors
- forceps
- small spatula
- scalpel
- laboratory balance

Procedure

1. Sacrifice the mouse
2. Weigh and record total body weight (if not done separately)
3. Place mouse on its back and pin the mouse onto board with extended extremities (inner side of hands and foot)
4. Wipe or spray the mouse with 70% ethanol to control hair and dander
5. Proceed with a complete necropsy and tissue collection according to Center-specific technical SOP but be sure to collect the IMPC 'Tissue Collection List' (below) and remove the heart and record its weight according to the IMPC Heart Weight SOP. Individual Centers may collect any additional tissue according to Centre-specific technical SOPs.
6. Capture any images of abnormal findings and save images in Centre-specific database
7. Place all tissue collected in a labelled jar containing a sufficient volume of fixative (minimum of 10:1 fixative to tissue)
8. Record all abnormal findings in a Center-specific database using the standardized IMPC Gross Pathology ontology:
   1. MA ontology terms for location/topography
   2. MP ontology terms for presence/absence/large/small/abnormal
   3. PATO ontology terms for descriptors (size, shape, colour, consistency, distribution of lesions)

Notes

Banking of the fixed tissue for long-term storage is according to Centre-specific SOPs (including storage fixative). Options for long-term storage of the fixed tissue include:

- Store in labelled jar in wet fixative for future use or requests
- Trim, process, and embed fixed tissue in paraffin blocks (store or discard tissue not trimmed in)
- Trim, process, and embed fixed tissue in paraffin blocks followed by microtomy and staining of sections on glass slides (store or discard tissue not trimmed in)

Data QC

Images of significant gross findings will be captured as static image files (.tiff or .jpg) and made available to the DCC. Images will be not be annotated but linked by metadata to the mouse line.

Parameters and Metadata

**Brain IMPC_PAT_001_002 | v2.0**

*ontologyParameter*


**Description:** brain

**Ontology Options:** abnormal brain morphology, flat, yellow, multiple, decreased brain size, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, increased brain size, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, inflated, hydrocephaly, length, ovate, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular,
**Eye with optic nerve** IMPC_PAT_002_002 | v2.0

*ontologyParameter*

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

**Description:** eye_with_optic_nerve

**Ontology Options:** abnormal eye morphology, flat, yellow,  
abnormal optic nerve morphology, multiple, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, microphthalmia, anophthalmia, macrophthalmia, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, absent optic nerve, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, optic nerve hypoplasia, inflated, length, ovate, pink, orange, grey, enlarged optic nerve, volume, raised, area, diameter, obsolete absolute number value, circular,

**Spinal cord** IMPC_PAT_003_002 | v2.0

*ontologyParameter*

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

**Description:** spinal_cord

**Ontology Options:** flat, yellow, multiple, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, abnormal spinal cord morphology, inflated, length, ovate, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular,
Thymus IMPC_PAT_004_002 | v2.0

Description: thymus

Ontology Options: flat, enlarged thymus, abnormal thymus morphology, athymia, small thymus, yellow, multiple, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, inflated, length, ovate, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular,

Thyroid IMPC_PAT_005_002 | v2.0

Description: thyroid

Ontology Options: flat, yellow, multiple, small thyroid gland, abnormal thyroid gland morphology, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, absent thyroid gland, enlarged thyroid gland, inflated, length, ovate, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular,
Heart  IMPC_PAT_006_002 | v2.0

Description: heart

Ontology Options: flat, abnormal heart morphology, abnormal heart position or orientation, yellow, multiple, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, enlarged heart atrium, small heart, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, enlarged heart, inflated, length, ovate, pink, orange, grey, volume, abnormal heart shape, raised, area, diameter, obsolete absolute number value, circular,

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Trachea  IMPC_PAT_007_002 | v2.0

Description: trachea

Ontology Options: flat, yellow, multiple, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, abnormal trachea morphology, inflated, length, ovate, small trachea, short trachea, pink, orange, grey, volume, enlarged trachea, raised, area, diameter, obsolete absolute number value, circular, tracheoesophageal fistula,

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Esophagus  IMPC_PAT_008_002 | v2.0
**ontologyParameter**

**Description:** esophagus

**Ontology Options:** flat, yellow, multiple, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, abnormal esophagus morphology, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, inflated, length, ovate, enlarged esophagus, pink, orange, grey, volume, small esophagus, raised, area, diameter, obsolete absolute number value, circular,

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**Lung** IMPC_PAT_009_002 | v2.0

**ontologyParameter**

**Description:** lung

**Ontology Options:** abnormal lung morphology, absent lungs, flat, yellow, multiple, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, small lung, enlarged lung, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, inflated, length, ovate, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular,

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**Liver** IMPC_PAT_010_002 | v2.0

**ontologyParameter**
Description: liver

Ontology Options: abnormal liver morphology, flat, yellow, multiple, brown, absent liver, enlarged liver, soft, hard, irregular spatial pattern, small liver, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, inflated, length, ovate, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular,

Gall bladder IMPC_PAT_011_002 | v2.0

Description: gall_bladder

Ontology Options: flat, yellow, multiple, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, small gallbladder, abnormal gallbladder morphology, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, enlarged gallbladder, inflated, length, ovate, pink, orange, grey, absent gallbladder, volume, raised, area, diameter, obsolete absolute number value, circular,

Stomach IMPC_PAT_012_002 | v2.0

Description: stomach

Ontology Options: flat, yellow, multiple, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, small stomach, abnormal stomach morphology, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, enlarged stomach, inflated, length, ovate, pink, orange, grey, absent stomach, volume, raised, area, diameter, obsolete absolute number value, circular,
Description: stomach

Ontology Options: flat, enlarged stomach, abnormal stomach morphology, yellow, multiple, absent stomach, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, small stomach, bilateral, unilateral, symmetrical, inflated, length, ovate, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular.

Small intestine IMPC_PAT_013_002 | v2.0

 ontologyParameter


Description: small_intestine

Ontology Options: flat, yellow, multiple, brown, enlarged duodenum, abnormal duodenum morphology, absent duodenum, soft, hard, irregular spatial pattern, right, left, abnormal ileum morphology, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, distended jejunum, abnormal jejunum morphology, firm, random pattern, multi-localised, friable, watery, fluid-filled, absent jejunum, absent ileum, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, inflated, length, ovate, pink, orange, grey, volume, intussusception, raised, enlarged ileum, area, diameter, obsolete absolute number value, circular.

Large intestine IMPC_PAT_014_002 | v2.0

 ontologyParameter

**Description:** large_intestine

**Ontology Options:** flat, absent rectum, abnormal rectum morphology, abnormal cecum morphology, yellow, multiple, brown, absent colon, abnormal colon morphology, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, rectal prolapse, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, inflated, megacolon, length, ovate, pink, orange, grey, volume, microcolon, enlarged cecum, small cecum, raised, absent cecum, area, diameter, obsolete absolute number value, circular, rectoperineal fistula, rectovaginal fistula,

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**Pancreas** IMPC_PAT_015_002 | v2.0

**ontologyParameter**

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

**Description:** pancreas

**Ontology Options:** abnormal pancreas morphology, flat, small pancreas, yellow, multiple, enlarged pancreas, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, inflated, length, absent pancreas, ovate, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular,

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**Spleen** IMPC_PAT_016_002 | v2.0

**ontologyParameter**

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

Ontology Options: flat, abnormal spleen morphology, yellow, multiple, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, inflated, small spleen, enlarged spleen, length, ovate, pink, orange, grey, volume, absent spleen, raised, area, diameter, obsolete absolute number value, circular,

Kidney  IMPC_PAT_017_002 | v2.0

ontologyParameter


Description: kidney

Ontology Options: flat, yellow, multiple, brown, small kidney, abnormal kidney morphology, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, enlarged kidney, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, inflated, single kidney, length, ovate, pink, orange, grey, polycystic kidney, volume, raised, area, diameter, obsolete absolute number value, circular,

Adrenal gland  IMPC_PAT_018_002 | v2.0

ontologyParameter


Description: adrenal_gland
Ontology Options: flat, yellow, multiple, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, absent adrenal gland, abnormal adrenal gland morphology, inflated, small adrenal glands, length, ovate, pink, orange, grey, volume, enlarged adrenal glands, raised, area, diameter, obsolete absolute number value, circular.

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**Mammary gland** IMPC_PAT_019_002 | v2.0

*ontologyParameter*

**Description:** mammary_gland

**Ontology Options:** flat, yellow, multiple, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, abnormal mammary gland morphology, increased mammary gland number, inflated, length, ovate, pink, orange, grey, volume, absent mammary gland, raised, area, diameter, obsolete absolute number value, circular.

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**Lymph node** IMPC_PAT_020_002 | v2.0

*ontologyParameter*

**Description:** lymph_node

**Ontology Options:** flat, enlarged lymph nodes, abnormal lymph node morphology, yellow, multiple, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red,
green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, decreased lymph node number, increased lymph node number, small lymph nodes, bilateral, unilateral, symmetrical, inflated, absent lymph nodes, length, ovate, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular,
random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, inflated, length, ovate, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular,
fluid-filled, small testis, enlarged testis, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, cryptorchism, inflated, length, ovate, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular,

Epididymis  IMPC_PAT_025_002  | v2.0

ontologyParameter

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

Description: epididymis

Ontology Options: flat, yellow, multiple, brown, soft, hard, irregular spatial pattern, absent epididymis, abnormal epididymis morphology, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, inflated, enlarged epididymis, small epididymis, length, ovate, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular,

Prostate  IMPC_PAT_026_002  | v2.0

ontologyParameter

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

Description: prostate

Ontology Options: absent prostate gland, abnormal prostate gland morphology, flat, yellow, multiple, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, inflated, enlarged prostate gland, small prostate gland, length, ovate, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular,
**Seminal vesicle**  IMPC_PAT_027_002 | v2.1

*ontologyParameter*

**Description:** seminal_vesicles

**Ontology Options:** small seminal vesicle, abnormal seminal vesicle morphology, flat, yellow, multiple, brown, enlarged seminal vesicle, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, inflated, absent seminal vesicle, length, ovate, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular,

**Ovary**  IMPC_PAT_028_002 | v2.0

*ontologyParameter*

**Description:** ovary

**Ontology Options:** abnormal ovary morphology, flat, yellow, multiple, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, small ovary, enlarged ovary, distributed, beige, localized, sunken, bilateral, absent ovary, unilateral, symmetrical, inflated, length, ovate, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular,
**Uterus** IMPC_PAT_029_002 | v2.0

ontologyParameter

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

**Description:** uterus

**Ontology Options:** flat, abnormal uterus morphology, yellow, multiple, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, small uterus, distributed, beige, localized, sunken, absent uterus, bilateral, unilateral, symmetrical, hydrometra, inflated, enlarged uterus, length, ovate, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular, blind uterus,

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**Body Weight** IMPC_PAT_049_002 | v2.0

simpleParameter

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

**Unit Measured:** g

**Description:** body_weight

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**Images** IMPC_PAT_057_002 | v2.0

seriesMediaParameter

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

Increments: Minimum 1

Comments (in English) IMPC_PAT_032_002 | v2.0

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

Description: General comments, in English

Experimenter ID IMPC_PAT_052_002 | v2.0

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

Description: experimenter

Method of sacrifice IMPC_PAT_054_002 | v2.0

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

Description: sacrifice
**Options:**Isoflurane overdose, Exsanguination, Carbon dioxide, Avertin, Ketamine (100mg/kg)/Xylazine (10mg/kg), Ketamine(100mg/kg)/ Xylazine (10mg/kg )/ Antisedan (1mg/kg), Ketamine (110mg/kg)/Xylazine (11mg/kg), Ketamine (110mg/kg)/Xylazine (11mg/kg)/ Antisedan (1mg/kg), Pentobarb (0.1ml), None, Cervical dislocation, Isoflurane overdose and exsanguination, Pentobarb (0.05ml), Pentobarb (0.15ml), Pentobarb (0.2ml),

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**Method of Blood Collection** IMPC_PAT_055_002 | v2.0

procedureMetadata

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

**Description:** blood_collection

**Options:** Cardiac puncture, 1ml EDTA tubes, Braun-Melsungen, GER, Retro-orbital puncture, Not bled,

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**Equipment ID** IMPC_PAT_056_002 | v2.0

procedureMetadata

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

**Description:** equipment_name

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**Fixative** IMPC_PAT_058_002 | v2.0

procedureMetadata
Description: fixative

Options: 10% buffered formalin phosphate, 4% NBF-24hrs, Neutral buffered formalin, 4% PFA/PBS, 10% neutral buffer formalin, RT, O/N, Formol, Bouin, 10% buffered formalin,
Options: AV2101, ASP200S, VHX-100, AV213C, SC100, Z6 ApoE, M651, 1 x AW 110, 1 x 4500, SZ61, C-5060, MS104S, AV313, M165C, Coolpix P520, EOS 1200D, MZ APO, VHX-6000,

Date of sacrifice IMPC_PAT_030_002 | v2.0
procedureMetadata


ID for sample banking protocol IMPC_PAT_031_002 | v2.0
procedureMetadata


Description: ID for center-specific cassette processing protocol

Balance manufacturer IMPC_PAT_033_001 | v1.0
procedureMetadata


Options: A&D, Sartorius, Ohaus,
**Balance model**  IMPC_PAT_034_001 | v1.0

procedureMetadata

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

Options: HR-100A, Secura, Adventurer AX223/E, AV313, AV213C,

**Camera resolution**  IMPC_PAT_035_001 | v1.0

procedureMetadata

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

**Eye fixative**  IMPC_PAT_036_001 | v1.0

procedureMetadata

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

**Salivary gland**  IMPC_PAT_062_001 | v1.0

ontologyParameter

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

Ontology Options: flat, enlarged salivary gland, abnormal salivary gland morphology, yellow, multiple, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable,
watery, fluid-filled, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, inflated, length, ovate, pink, orange, grey, volume, small salivary gland, absent salivary gland, raised, area, diameter, obsolete absolute number value, circular,

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**Sternum**  IMPC_PAT_063_001 | v1.0

ontologyParameter

**Ontology Options:** flat, yellow, multiple, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, split sternum, abnormal sternum morphology, short sternum, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, inflated, length, absent sternum, ovate, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular, wide sternum,

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**Femur**  IMPC_PAT_064_001 | v1.0

ontologyParameter

**Ontology Options:** flat, yellow, multiple, brown, soft, hard, abnormal femur morphology, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, long femur, absent femur, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, short femur, bilateral, unilateral, symmetrical, inflated, length, ovate, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular,
Bone marrow IMPC_PAT_065_001 | v1.0
ontologyParameter


Ontology Options: flat, yellow, multiple, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, inflated, length, ovate, abnormal bone marrow morphology, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular,

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Brown fat IMPC_PAT_066_001 | v1.0
ontologyParameter


Ontology Options: flat, yellow, multiple, brown, soft, hard, abnormal brown adipose tissue morphology, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, increased brown adipose tissue amount, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, inflated, length, ovate, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular, decreased brown adipose tissue amount,

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Tibia IMPC_PAT_067_001 | v1.0
ontologyParameter
Ontology Options: flat, yellow, multiple, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, long tibia, abnormal tibia morphology, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, inflated, absent tibia, short tibia, length, ovate, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular,

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**Knee joint**  
IMPC_PAT_068_001 | v1.0

Ontology Options: flat, yellow, multiple, brown, abnormal joint morphology, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, inflated, length, ovate, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular,

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**Trigeminal V nerve**  
IMPC_PAT_069_001 | v1.1

Ontology Options: flat, yellow, multiple, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, inflated, length, ovate, absent trigeminal nerve,
Is Annotated: false

 Req. Upload: false

 Ontology Options: flat, yellow, multiple, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, abnormal nasal cavity morphology, bilateral, unilateral, symmetrical, inflated, absent nasal cavity, length, ovate, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular,

Nasal cavity IMPC_PAT_070_001 | v1.0

ontologyParameter


Ontology Options: flat, abnormal ear morphology, yellow, multiple, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, abnormal ear morphology, bilateral, unilateral, symmetrical, inflated, big ears, distributed, beige, localized, sunken, small ears, bilateral, unilateral, symmetrical, inflated, length, absent ear lobes, ovate, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular,

Ear IMPC_PAT_071_001 | v1.0

ontologyParameter


Ontology Options: flat, abnormal ear morphology, yellow, multiple, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, big ears, distributed, beige, localized, sunken, small ears, bilateral, unilateral, symmetrical, inflated, length, absent ear lobes, ovate, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular,
**Tooth** IMPC_PAT_072_001 | v1.0

ontologyParameter

**Ontology Options:** flat, yellow, multiple, brown, soft, hard, irregular spatial pattern, right, left, abnormal tooth morphology, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, inflated, absent teeth, length, ovate, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular, abnormal tooth color,

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**Tongue** IMPC_PAT_073_001 | v1.0

ontologyParameter

**Ontology Options:** absent tongue, abnormal tongue morphology, increased tongue size, flat, decreased tongue size, yellow, multiple, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, inflated, length, ovate, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular,

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**Sciatic nerve** IMPC_PAT_074_001 | v1.0

ontologyParameter

**Ontology Options:**
Ontology Options: flat, yellow, multiple, brown, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, abnormal sciatic nerve morphology, bilateral, unilateral, symmetrical, inflated, length, ovate, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular,

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**Bone** IMPC_PAT_075_001 | v1.0
ontologyParameter


Ontology Options: flat, yellow, multiple, brown, abnormal bone structure, soft, hard, irregular spatial pattern, right, left, blue, black, blotchy, white, red, green, no abnormal phenotype detected, linear, firm, random pattern, multi-localised, friable, watery, fluid-filled, distributed, beige, localized, sunken, bilateral, unilateral, symmetrical, inflated, length, ovate, pink, orange, grey, volume, raised, area, diameter, obsolete absolute number value, circular,

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**Tissue available for distribution** IMPC_PAT_076_001 | v1.0
simpleParameter


Description: Are there tissue blocks available for distribution?

Options: Yes, No,