Embryo LacZ IMPC_ELZ_001

Purpose

To stain mutant and control embryos for bacterial beta-galactosidase (LacZ) activity in order to assess the embryonic gene expression of IKMC alleles at embryonic day 12.5 (E12.5).

Description: Whole-mount or sections of stained E12.5 embryos are scored for presence of LacZ staining. Intensity of staining is not required but can be reported. Anatomical terms to localize staining to the structure or substructure will use standard EMAP ontology terms.

Experimental Design

Outcrosses (Het x WT) or intercrosses (Het x Het) may be used for the protocol.

> For outcrosses, genotype confirmation should be performed if no embryos display positive staining.
>
> For intercrosses, genotype confirmation must be performed on ALL samples to distinguish heterozygous and homozygous stained embryos.

Mutants:

- Embryos are harvested, fixed, processed, and stained according to centre-specific protocols
- Embryos with staining are scored and imaged, concurrent with genotyping to determine zygosity and to identify controls
- **Minimum number of animals :** 1 mutant of any sex
- **Age at test:** E12.5

Controls:

- Wild type littermate E12.5 embryos that do not exhibit any endogenous mammalian b-galactosidase activity are used as controls. C57BL/6N litters can be stained at each centre's discretion.

Procedure

1. Embryos are stained in whole-mount according to centre-specific protocols. Centre-specific methods will be provided and be on file and linked to the data for each mutant line
2. If there is no staining, all embryos are genotype confirmed.

3. When positive staining is found, a representative image will be taken and uploaded for each mutant line. If heterozygous and homozygous embryos are stained, a representative image of each can be uploaded. The image will have a sizing reference bar.
4. The metadata collected for embryonic litter will be associated with the image
5. Annotations will derive from the heterozygous embryo only.
6. For each embryo the scoring system will be: “Expression” (specific staining), “No Expression” (no staining), “ Ambiguous” (non-specific, not clear), “imageOnly”. or "tissue not available"

If capturing images please attempt to capture left, right, front, and back views of the embryo.

Notes

Data QC

Quality control for each centre’s processes and annotation will be established by that centre’s staff and published as part of their detailed protocol

Parameters and Metadata

Showcase image IMPC_ELZ_087_001 | v1.0

procedureMetadata

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

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Free ontology annotation reason IMPC_ELZ_066_001 | v1.1

simpleParameter

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

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Bit depth IMPC_ELZ_081_001 | v1.1

procedureMetadata

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

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Rib pre-cartilage condensation IMPC_ELZ_057_001 | v1.0

simpleParameter

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

Options: expression, tissue not available, ambiguous, no expression, imageOnly,

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Date of staining IMPC_ELZ_089_001 | v1.3

procedureMetadata

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

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Trunk mesenchyme IMPC_ELZ_015_001 | v1.0

simpleParameter

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

Options: expression, imageOnly, ambiguous, no expression, tissue not available,

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Nose IMPC_ELZ_052_001 | v1.0

simpleParameter

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

Options: ambiguous, no expression, imageOnly, expression, tissue not available,

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Pixels per millimeter after processing IMPC_ELZ_086_001 | v1.1

procedureMetadata

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

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Cranium IMPC_ELZ_059_001 | v1.0

simpleParameter

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

Options: imageOnly, no expression, expression, tissue not available, ambiguous,

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Lung IMPC_ELZ_033_001 | v1.1

simpleParameter

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

Options: expression, tissue not available, imageOnly, no expression, ambiguous,

Forebrain IMPC_ELZ_043_001 | v1.1

simpleParameter

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

Options: ambiguous, expression, imageOnly, tissue not available, no expression,

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Skin IMPC_ELZ_017_001 | v1.0

simpleParameter

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

Options: tissue not available, no expression, expression, ambiguous, imageOnly,

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Forearm IMPC_ELZ_004_001 | v1.0

simpleParameter

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

Options: no expression, imageOnly, expression, tissue not available, ambiguous,

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Gut IMPC_ELZ_023_001 | v1.1

simpleParameter

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

Options: ambiguous, expression, tissue not available, imageOnly, no expression,

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Free text comment IMPC_ELZ_067_001 | v1.0

simpleParameter

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

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Hindbrain IMPC_ELZ_092_001 | v1.1

simpleParameter

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

Options: imageOnly, expression, tissue not available, no expression, ambiguous,

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Stomach IMPC_ELZ_026_001 | v1.0

simpleParameter

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

Options: tissue not available, expression, no expression, ambiguous, imageOnly,

Spinal cord IMPC_ELZ_046_001 | v1.0

simpleParameter

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

Options: no expression, tissue not available, imageOnly, expression, ambiguous,

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Inner Ear IMPC_ELZ_050_001 | v1.0

simpleParameter

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

Options: no expression, expression, ambiguous, imageOnly, tissue not available,

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Pharynx IMPC_ELZ_024_001 | v1.0

simpleParameter

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

Options: ambiguous, tissue not available, expression, imageOnly, no expression,

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Thoracic vertebral cartilage condensation IMPC_ELZ_058_001 | v1.1

simpleParameter

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

Options: ambiguous, no expression, tissue not available, imageOnly, expression,

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Detector equipment model IMPC_ELZ_073_001 | v1.1

procedureMetadata

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

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Midbrain IMPC_ELZ_044_001 | v1.1

simpleParameter

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

Options: tissue not available, imageOnly, expression, no expression, ambiguous,

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Mesonephros of male IMPC_ELZ_031_001 | v1.0

simpleParameter

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

Options: ambiguous, no expression, tissue not available, imageOnly, expression,

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Skeleton IMPC_ELZ_055_001 | v1.0

simpleParameter

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

Options: no expression, ambiguous, tissue not available, imageOnly, expression,

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Humerus pre-cartilage condensation IMPC_ELZ_007_001 | v1.0

simpleParameter

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

Options: expression, tissue not available, imageOnly, no expression, ambiguous,

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Urinary system IMPC_ELZ_029_001 | v1.0

simpleParameter

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

Options: no expression, ambiguous, tissue not available, expression, imageOnly,

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Heart ventricle IMPC_ELZ_040_001 | v1.1

simpleParameter

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

Options: tissue not available, imageOnly, no expression, expression, ambiguous,

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Head IMPC_ELZ_002_001 | v1.0

simpleParameter

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

Options: tissue not available, no expression, imageOnly, expression, ambiguous,

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Colorspace IMPC_ELZ_082_001 | v1.0

procedureMetadata

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

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Trachea IMPC_ELZ_034_001 | v1.0

simpleParameter

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

Options: expression, ambiguous, no expression, tissue not available, imageOnly,

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Tail IMPC_ELZ_060_001 | v1.1

simpleParameter

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

Options: ambiguous, no expression, expression, tissue not available, imageOnly,

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Detector equipment manufacturer IMPC_ELZ_072_001 | v1.0

procedureMetadata

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

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Outflow tract IMPC_ELZ_038_001 | v1.0

simpleParameter

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

Options: imageOnly, no expression, tissue not available, expression, ambiguous,

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Brain IMPC_ELZ_042_001 | v1.1

simpleParameter

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

Options: tissue not available, expression, ambiguous, imageOnly, no expression,

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Date Microscope last calibrated IMPC_ELZ_071_001 | v1.0

procedureMetadata

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

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Upper arm IMPC_ELZ_006_001 | v1.0

simpleParameter

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

Options: no expression, expression, imageOnly, ambiguous, tissue not available,

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Orientation IMPC_ELZ_084_001 | v1.0

procedureMetadata

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

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Placenta IMPC_ELZ_093_001 | v1.0

simpleParameter

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

Options: ambiguous, no expression, tissue not available, imageOnly, expression,

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Upper leg IMPC_ELZ_012_001 | v1.0

simpleParameter

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

Options: imageOnly, tissue not available, ambiguous, no expression, expression,

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Atrium IMPC_ELZ_037_001 | v1.0

simpleParameter

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

Options: expression, tissue not available, imageOnly, ambiguous, no expression,

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Meckel's cartilage IMPC_ELZ_021_001 | v1.0

simpleParameter

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

Options: imageOnly, expression, no expression, tissue not available, ambiguous,

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Pericardium IMPC_ELZ_039_001 | v1.0

simpleParameter

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

Options: expression, tissue not available, imageOnly, no expression, ambiguous,

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Tail somite group IMPC_ELZ_061_001 | v1.2

simpleParameter

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

Options: ambiguous, tissue not available, no expression, imageOnly, expression,

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Sample preparation stain name IMPC_ELZ_079_001 | v1.0

procedureMetadata

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

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Date of image capture IMPC_ELZ_091_001 | v1.2

procedureMetadata

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

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Femur pre-cartilage condensation IMPC_ELZ_013_001 | v1.0

simpleParameter

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

Options: expression, ambiguous, no expression, tissue not available, imageOnly,

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Nasal septum IMPC_ELZ_053_001 | v1.0

simpleParameter

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

Options: tissue not available, imageOnly, no expression, expression, ambiguous,

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Sample preparation reference impc IMPC_ELZ_080_001 | v1.1

procedureMetadata

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

Vibrissa IMPC_ELZ_018_001 | v1.1

simpleParameter

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

Options: expression, no expression, imageOnly, ambiguous, tissue not available,

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Radius-ulna pre cartilage condensation IMPC_ELZ_005_001 | v1.0

simpleParameter

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

Options: ambiguous, tissue not available, expression, no expression, imageOnly,

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Eye IMPC_ELZ_051_001 | v1.0

simpleParameter

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

Options: tissue not available, imageOnly, ambiguous, expression, no expression,

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Umbilical artery embryonic part IMPC_ELZ_035_001 | v1.0

simpleParameter

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

Options: ambiguous, no expression, imageOnly, tissue not available, expression,

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Date of annotation IMPC_ELZ_090_001 | v1.2

procedureMetadata

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

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Pixels per millimeter before processing IMPC_ELZ_085_001 | v1.0

procedureMetadata

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

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Fronto-nasal process IMPC_ELZ_054_001 | v1.0

simpleParameter

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

Options: ambiguous, no expression, expression, tissue not available, imageOnly,

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Head mesenchyme IMPC_ELZ_014_001 | v1.0

simpleParameter

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

Options: ambiguous, expression, no expression, imageOnly, tissue not available,

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Umbilical vein embryonic part IMPC_ELZ_041_001 | v1.0

simpleParameter

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

Options: imageOnly, ambiguous, expression, tissue not available, no expression,

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Microscope equipment manufacturer IMPC_ELZ_069_001 | v1.0

procedureMetadata

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

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Metanephros IMPC_ELZ_030_001 | v1.0

simpleParameter

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

Options: imageOnly, expression, ambiguous, no expression, tissue not available,

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LacZ images wholemount IMPC_ELZ_064_001 | v1.3

seriesMediaParameter

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

Increments: Minimum 1

Dorsal root ganglion IMPC_ELZ_047_001 | v1.0

simpleParameter

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

Options: imageOnly, tissue not available, no expression, expression, ambiguous,

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External ear IMPC_ELZ_049_001 | v1.0

simpleParameter

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

Options: no expression, ambiguous, tissue not available, expression, imageOnly,

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Embryo IMPC_ELZ_001_001 | v1.0

simpleParameter

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

Options: ambiguous, expression, imageOnly, tissue not available, no expression,

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Notochord IMPC_ELZ_016_001 | v1.0

simpleParameter

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

Options: ambiguous, imageOnly, tissue not available, expression, no expression,

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Maxillary process IMPC_ELZ_022_001 | v1.1

simpleParameter

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

Options: ambiguous, no expression, expression, imageOnly, tissue not available,

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Objective equipment model IMPC_ELZ_075_001 | v1.0

procedureMetadata

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

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Tongue IMPC_ELZ_025_001 | v1.0

simpleParameter

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

Options: tissue not available, imageOnly, no expression, expression, ambiguous,

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Objective magnification IMPC_ELZ_076_001 | v1.0

procedureMetadata

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

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Intestine IMPC_ELZ_062_001 | v1.0

simpleParameter

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

Options: imageOnly, tissue not available, ambiguous, no expression, expression,

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Axial skeleton IMPC_ELZ_056_001 | v1.0

simpleParameter

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

Options: imageOnly, tissue not available, ambiguous, no expression, expression,

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Microscope equipment model IMPC_ELZ_070_001 | v1.0

procedureMetadata

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

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Handplate IMPC_ELZ_008_001 | v1.1

simpleParameter

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

Options: imageOnly, tissue not available, expression, no expression, ambiguous,

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Hindlimb IMPC_ELZ_009_001 | v1.0

simpleParameter

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

Options: ambiguous, expression, tissue not available, imageOnly, no expression,

Lower leg IMPC_ELZ_011_001 | v1.0

simpleParameter

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

Options: tissue not available, expression, ambiguous, no expression, imageOnly,

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Liver IMPC_ELZ_028_001 | v1.1

simpleParameter

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

Options: expression, ambiguous, imageOnly, no expression, tissue not available,

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Forelimb IMPC_ELZ_003_001 | v1.0

simpleParameter

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

Options: tissue not available, ambiguous, imageOnly, no expression, expression,

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Oral cavity IMPC_ELZ_019_001 | v1.1

simpleParameter

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

Options: ambiguous, imageOnly, no expression, tissue not available, expression,

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Date of sacrifice IMPC_ELZ_088_001 | v1.2

procedureMetadata

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

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Pancreas IMPC_ELZ_027_001 | v1.0

simpleParameter

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

Options: tissue not available, expression, ambiguous, imageOnly, no expression,

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Free ontology IMPC_ELZ_065_001 | v1.1

simpleParameter

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

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Microscope equipment id IMPC_ELZ_068_001 | v1.0

procedureMetadata

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

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Footplate IMPC_ELZ_010_001 | v1.1

simpleParameter

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

Options: imageOnly, ambiguous, expression, no expression, tissue not available,

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Central nervous system ganglion IMPC_ELZ_045_001 | v1.1

simpleParameter

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

Options: ambiguous, no expression, imageOnly, tissue not available, expression,

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Experimental category IMPC_ELZ_083_001 | v1.0

procedureMetadata

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

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Illumination source manufacturer IMPC_ELZ_077_001 | v1.0

procedureMetadata

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

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LacZ images section IMPC_ELZ_063_001 | v1.2

seriesMediaParameter

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

Increments: Minimum 1

Ear IMPC_ELZ_048_001 | v1.1

simpleParameter

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

Options: ambiguous, imageOnly, expression, no expression, tissue not available,

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Heart IMPC_ELZ_036_001 | v1.1

simpleParameter

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

Options: ambiguous, tissue not available, expression, no expression, imageOnly,

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Mandibular process IMPC_ELZ_020_001 | v1.1

simpleParameter

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

Options: expression, imageOnly, no expression, ambiguous, tissue not available,

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Mesonephros of female IMPC_ELZ_032_001 | v1.0

simpleParameter

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

Options: ambiguous, tissue not available, no expression, imageOnly, expression,

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Objective equipment company IMPC_ELZ_074_001 | v1.0

procedureMetadata

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

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