Adult LacZ IMPC_ALZ_001

Purpose

To stain adult mutant and control tissues for bacterial beta-galactosidase (LacZ) activity in order to assess the adult organ, tissue, substructure and cell type of gene expression of IKMC alleles utilizing a LacZ reporter.

Description: Adult mouse tissues are scored for presence of LacZ staining which is distinct from either nonspecific staining observed in wildtype control mice, or is too faint to score as present. Intensity of staining is not required but can be reported. Anatomical terms to localize staining to the organ, structure, substructure, or cell type will use standard mouse anatomy ontology terms.

Experimental Design

Mutants:

- **Minimum number of animals**: 1M or 1F heterozygote
- Age will depend upon the logistics of each center, but all mice will be within ±7 days of the age stipulated in the center-specific protocols, and all mice will be > 50 days of age;
- The tissues in the agreed parameter list will be stained and annotated for each mutant

Controls:

- A minimum of one control mouse will be stained and annotated for every 10 mutants
- The tissues in the agreed parameter list will be stained and annotated for each control

Procedure

Center-specific methods will be provided and be on file and linked to the data for each mutant line.

For each mouse, for each tissue, the scoring system will be: + (specific staining), - (no staining), NS (non-specific staining), or NA (tissue not available)

*Where positive, specific, staining is found:*

A. A representative image will be taken and uploaded for each mutant line. The image will have a sizing reference bar and optional center-specific watermark embedded into the image.

B. The metadata collected for each mouse will be associated with the image.

C. Each image will have a substructure field for additional annotation provided by that center.
Notes

Tables of results for each tissue from each HET or HOM mouse scored for: presence /absence/non-specific/tissue not-available as defined above.

Representative images for positive staining tissues.

Additional annotation to provide anatomical substructure & cell specificity.

Database of non-specific staining and presentation of images representative of non-specific staining.

Data QC

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

A database of control non-specific staining will be maintained by the Data Coordination Center and updated periodically to indicate the frequency of non-specific staining found in wildtype mice by each center. Representative images of non-specific staining will be linked to the data for each mutant line.

Parameters and Metadata

**Adrenal gland** IMPC_ALZ_001_001 | v1.2

simpleParameter

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

Description: adrenal

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

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**Lower Urinary Tract** IMPC_ALZ_002_001 | v1.0

simpleParameter

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

Description: lower urinary tract
Brain IMPC_ALZ_003_001 | v1.0
simpleParameter


Description: brain

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

Eye IMPC_ALZ_004_001 | v1.0
simpleParameter


Description: eye

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

Heart IMPC_ALZ_005_001 | v1.0
simpleParameter


Description: heart

Options: imageOnly, expression, no expression, ambiguous, tissue not available,
Kidney  IMPC_ALZ_006_001 | v1.0

simpleParameter


Description: kidney

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

Liver  IMPC_ALZ_007_001 | v1.0

simpleParameter


Description: liver

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

Lymph Node  IMPC_ALZ_008_001 | v1.0

simpleParameter


Description: lymph_node

Options: imageOnly, expression, no expression, ambiguous, tissue not available,
**Mammary gland** IMPC_ALZ_009_001 | v1.0

*simpleParameter*

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

**Description:** mammary_gland

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

**Ovary** IMPC_ALZ_010_001 | v1.0

*simpleParameter*

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

**Description:** ovary

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

**Oviduct** IMPC_ALZ_011_001 | v1.0

*simpleParameter*

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

**Description:** oviduct

**Options:** imageOnly, expression, no expression, ambiguous, tissue not available,
**Skin** IMPC_ALZ_012_001 | v1.1

**simpleParameter**

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

**Description:** skin_with_mg

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

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**Stomach** IMPC_ALZ_013_001 | v1.2

**simpleParameter**

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

**Description:** stomach

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

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**Testis** IMPC_ALZ_014_001 | v1.1

**simpleParameter**

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

**Description:** testis_epididymus

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

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**Thymus** IMPC_ALZ_015_001 | v1.0

**simpleParameter**
Description: thymus
Options: imageOnly, expression, no expression, ambiguous, tissue not available,

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**Trachea** IMPC_ALZ_016_001 | v1.0

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

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**Uterus** IMPC_ALZ_017_001 | v1.0

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

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**Large Intestine** IMPC_ALZ_018_001 | v1.0

Description: IMPC ALZ 018 001
Description: large_intestine

Options: imageOnly, expression, no expression, ambiguous, tissue not available,
**Description:** thyroid

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

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**Pituitary gland** IMPC_ALZ_022_001 | v1.1

*simpleParameter*

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

**Description:** pituitary

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

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**Skeletal Muscle** IMPC_ALZ_023_001 | v1.0

*simpleParameter*

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

**Description:** skeletal_muscle

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

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**Small Intestine** IMPC_ALZ_024_001 | v1.0

*simpleParameter*

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

**Description:** small_intestine
White Adipose Tissue  IMPC_ALZ_025_001  | v1.0

simpleParameter


Description: white_adipose_tissue

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

Lung  IMPC_ALZ_026_001  | v1.1

simpleParameter


Description: lungs

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

Aorta  IMPC_ALZ_027_001  | v1.0

simpleParameter


Description: aorta

Options: imageOnly, expression, no expression, ambiguous, tissue not available,
Pancreas IMPC_ALZ_028_001 | v1.0
simpleParameter


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

Prostate gland IMPC_ALZ_029_001 | v1.1

simpleParameter


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

Spleen IMPC_ALZ_030_001 | v1.0

simpleParameter


Description: spleen
Options: imageOnly, expression, no expression, ambiguous, tissue not available,
**Brainstem**  IMPC_ALZ_031_001  | v1.0

*simpleParameter*

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

**Description:** brainstem

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

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**Cartilage tissue** IMPC_ALZ_032_001  | v1.1

*simpleParameter*

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

**Description:** cartilage

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

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**Cerebral Cortex** IMPC_ALZ_033_001  | v1.0

*simpleParameter*

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

**Description:** cerebral_cortex

**Options:** imageOnly, expression, no expression, ambiguous, tissue not available,
Cerebellum  IMPC_ALZ_034_001 | v1.0
simpleParameter


Description: cerebellum

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

Hippocampus  IMPC_ALZ_035_001 | v1.0
simpleParameter


Description: hippocampus

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

Hypothalamus  IMPC_ALZ_036_001 | v1.0
simpleParameter


Description: hypothalamus

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

Olfactory Lobe  IMPC_ALZ_037_001 | v1.1
simpleParameter
Olfactory Lobe

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

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**Peripheral Nervous System** IMPC_ALZ_038_001 | v1.0

simpleParameter

Description: peripheral_nervous_system

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

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**Peyers Patch** IMPC_ALZ_039_001 | v1.0

simpleParameter

Description: peyers_patch

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

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**Striatum** IMPC_ALZ_040_001 | v1.1

simpleParameter

Description: striatum

Options: imageOnly, expression, no expression, ambiguous, tissue not available.
Description: straiatum

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

Vascular System  IMPC_ALZ_041_001 | v1.0
simpleParameter


Description: vascular_system

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

Urinary bladder  IMPC_ALZ_042_001 | v1.1
simpleParameter


Description: urinary bladder

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

Bone  IMPC_ALZ_043_001 | v1.0
simpleParameter

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

Cecum IMPC_ALZ_044_001 | v1.0

simpleParameter


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

Colon IMPC_ALZ_045_001 | v1.0

simpleParameter


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

Duodenum IMPC_ALZ_046_001 | v1.0

simpleParameter


Description: duodenum
**Ileum** IMPC_ALZ_047_001 | v1.0

**Description:** ileum

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

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**Jejunum** IMPC_ALZ_048_001 | v1.0

**Description:** jejunum

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

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**Gonadal fat pad** IMPC_ALZ_049_001 | v1.1

**Description:** adipose_gonad

**Options:** imageOnly, expression, no expression, ambiguous, tissue not available,
Bone Marrow IMPC_ALZ_050_001 | v1.0

simpleParameter


Description: bone_marrow

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

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Vas Deferens IMPC_ALZ_051_001 | v1.0

simpleParameter


Description: vas_deferens

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

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Brown adipose tissue IMPC_ALZ_052_001 | v1.1

simpleParameter


Description: adipose_brown

Options: imageOnly, expression, no expression, ambiguous, tissue not available,
**Mesenteric adipose tissue** IMPC_ALZ_053_001 | v1.1

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

- **Description:** adipose_mesenteric
- **Options:** imageOnly, expression, no expression, ambiguous, tissue not available,

**Blood** IMPC_ALZ_054_001 | v1.1

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

- **Description:** blood_smear
- **Options:** imageOnly, expression, no expression, ambiguous, tissue not available,

**Diaphragm** IMPC_ALZ_055_001 | v1.0

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

- **Description:** diaphragm
- **Options:** imageOnly, expression, no expression, ambiguous, tissue not available,
**Gall Bladder**  IMPC_ALZ_056_001  |  v1.0

*simpleParameter*

**Description:** gall_bladder

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

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

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**Harderian Gland**  IMPC_ALZ_057_001  |  v1.1

*simpleParameter*

**Description:** hardarian_gland

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

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

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**Hindlimb**  IMPC_ALZ_058_001  |  v1.1

*simpleParameter*

**Description:** hind_limb

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

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

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**Quadriceps**  IMPC_ALZ_059_001  |  v1.1

*simpleParameter*

**Description:**

**Options:** imageOnly, expression, no expression, ambiguous, tissue not available,
Description: muscle_quad
Options: imageOnly, expression, no expression, ambiguous, tissue not available,

Parathyroid gland  IMPC_ALZ_060_001  | v1.1
simpleParameter

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

Parotid gland  IMPC_ALZ_061_001  | v1.0
simpleParameter

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

Penis  IMPC_ALZ_062_001  | v1.0
simpleParameter
Description: penis

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

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**Stomach pyloric region** IMPC_ALZ_063_001 | v1.1

*simpleParameter*


Description: pylorus

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

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**Chest bone** IMPC_ALZ_064_001 | v1.1

*simpleParameter*


Description: ribcage

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

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**Sciatic nerve** IMPC_ALZ_065_001 | v1.1

*simpleParameter*

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

Cranium  IMPC_ALZ_066_001 | v1.1
simpleParameter


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

Sublingual Gland  IMPC_ALZ_067_001 | v1.0
simpleParameter


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

Submandibular Gland  IMPC_ALZ_068_001 | v1.0
simpleParameter


Description: submandibular_gland
**Tongue**  IMPC_ALZ_069_001  |  v1.0

*simpleParameter*

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

**Description:** tongue

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

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**Trigeminal V nerve**  IMPC_ALZ_070_001  |  v1.1

*simpleParameter*

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

**Description:** trigeminal_nerve

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

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**Vagina**  IMPC_ALZ_071_001  |  v1.0

*simpleParameter*

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

**Description:** vagina

**Options:** imageOnly, expression, no expression, ambiguous, tissue not available,
**Vesicular Gland**  IMPC_ALZ_072_001  | v1.0

simpleParameter


Description: vesicular_gland

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

**Mesenteric Lymph Node**  IMPC_ALZ_073_001  | v1.0

simpleParameter


Description: mesenteric_lymph_node

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

**Oral epithelium**  IMPC_ALZ_074_001  | v1.1

simpleParameter


Description: oral_epithelia

Options: imageOnly, expression, no expression, ambiguous, tissue not available,
**LacZ Images Section** IMPC_ALZ_075_001 | v1.1

*seriesMediaParameter*


Description: lacz_images_section

Increments: Minimum 1

**LacZ Images Wholemount** IMPC_AlZ_076_001 | v1.1

*seriesMediaParameter*


Description: lacz_images_wholemount

Increments: Minimum 1

**Free Ontology** IMPC_ALZ_077_001 | v1.1

*simpleParameter*


Description: free_ontology

**Free Ontology Annotation reason** IMPC_ALZ_078_001 | v1.1

*simpleParameter*
**Free text comment** IMPC_ALZ_079_001 | v1.1

Microscope equipment id IMPC_ALZ_080_001 | v1.0

Microscope equipment manufacturer IMPC_ALZ_081_001 | v1.1
**Microscope equipment model**  IMPC_ALZ_082_001  |  v1.1

procedureMetadata


Description: microscope_equipment_model

**Date Microscope last calibrated**  IMPC_ALZ_083_001  |  v1.1

procedureMetadata


Description: date_microscope_last_calibrated

**Detector equipment manufacturer**  IMPC_ALZ_084_001  |  v1.0

procedureMetadata


Description: detector_equipment_manufacturer

**Detector equipment model**  IMPC_ALZ_085_001  |  v1.0

procedureMetadata

Description: detector_equipment_model

Objective equipment company IMPC_ALZ_086_001 | v1.0

ProcedureMetadata


Description: objective_equipment_company

Objective equipment model IMPC_ALZ_087_001 | v1.0

ProcedureMetadata


Description: objective_equipment_model

Objective magnification IMPC_ALZ_088_001 | v1.0

ProcedureMetadata


Description: objective_magnification

Illumination source manufacturer IMPC_ALZ_089_001 | v1.0
procedureMetadata

**Description:** illumination_source_manufacturer

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**Illumination source model** IMPC_ALZ_090_001 | v1.0

procedureMetadata

**Description:** illumination_source_model

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**Sample preparation stain name** IMPC_ALZ_091_001 | v1.1

procedureMetadata

**Description:** sample_preparation_stain_name

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**Sample preparation reference impc** IMPC_ALZ_092_001 | v1.1

procedureMetadata

**Description:** sample_preparation_reference_impc
**Bit Depth** IMPC_ALZ_093_001 | v1.0

Description: bit_depth

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**Colorspace** IMPC_ALZ_094_001 | v1.0

Description: colorspace

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**Experimental category** IMPC_ALZ_095_001 | v1.0

Description: experimental_category

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**Orientation** IMPC_ALZ_096_001 | v1.0

Description: Orientation
Description: orientation

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**Pixels per millimeter before processing** IMPC_ALZ_097_001 | v1.0

*procedureMetadata*


Description: pixels_per_millimeter_before_processing

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**Pixels per millimeter after processing** IMPC_ALZ_098_001 | v1.1

*procedureMetadata*


Description: pixels_per_millimeter_after_processing

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**Showcase image** IMPC_ALZ_099_001 | v1.0

*procedureMetadata*


Description: showcase_image

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**Date of Sacrifice**  IMPC_ALZ_100_001 | v1.1

*procedureMetadata*

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

**Description:** date_of_sacrifice

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**Date of Perfusion**  IMPC_ALZ_101_001 | v1.2

*procedureMetadata*

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

**Description:** date_of_perfusion

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**Epididymis**  IMPC_ALZ_102_001 | v1.2

*simpleParameter*

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

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

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**Main olfactory bulb**  IMPC_ALZ_103_001 | v1.1

*simpleParameter*

- **Req. Analysis:** false  
- **Req. Upload:** false  
- **Is Annotated:** true
**Midbrain** IMPC_ALZ_104_001 | v1.0

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Options: expression, no expression, ambiguous, imageOnly, tissue not available,
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**Thalamus** IMPC_ALZ_105_001 | v1.0

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