Eye Morphology IMPC_EYE_002

Purpose

To detect abnormalities in eye morphology.

Experimental Design

- **Minimum number of animals :** 7M + 7F
- **Age at test:** Week 15
- **Sex:** We do not expect the results of this test to show sexual dimorphism

Procedure

1. Examine the anterior of both eyes (e.g. with slit lamp) and record any abnormalities
2. Test the iris/pupil light response
3. Image abnormal eyes as a minimum or all eyes if capacity permits
4. Dilate both eyes
5. Examine the anterior and posterior of both dilated eyes (e.g. with slit lamp and ophthalmoscope) and record any abnormalities
6. Image abnormal eyes as a minimum or all eyes if capacity permits

OCT:

1. Turn on the OCT and start the database
2. Anaesthetize mouse
3. Prepare mouse eyes with drops and place contact lens (focal length 10 mm) on the right eye
4. Enter mouse data in the “Create new patient file” area and switch to the “Acquisition” window
5. Move the OCT camera to the right position and activate measurement modus
6. Place mouse collaterally to the OCT camera on the right side of a platform that is fixed in front of the OCT lens
7. Search the contact lens in the live picture of the fundus image field and place the pupil of the mouse eye in the centre of the window
8. Move the OCT camera such that OCT lens and contact lens touch each other
9. Focus the fundus picture by slightly moving up/down or forward/backward
10. Save fundus images
11. Set the "Ref.Arm“ ruler such that the section of the retina is placed in the centre of the blue rectangle
12. Set the mode of measurement on "vertical, horizontal line“
13. Move the blue horizontal line in the fundus image field to the optic nerve level
14. Save images of retinal sections
15. Move the OCT camera to the left position

16. Repeat measurement procedure for the left eye

Scheimpflug Imaging:

1. Turn on the Pentacam and start the patient data management
2. Apply one drop 0.5% Atropine to each mouse eye for pupil dilation
3. Enter mouse data in the “Patient” group box and switch to the Scan menu
4. Activate the “1 Picture” modus in the “Image Options” area
5. Move Pentacam to the right position
6. Hold the mouse on a platform such that the vertical LED 475 nm light slit is orientated in the center of the right eye ball
7. Guarantee optimal focus by using the fine adjustment software tool in the adjustment window
8. Start imaging manually by pressing the “Start Scan” button
9. Scheimpflug images are saved automatically
10. Move Pentacam to the left position
11. Repeat measurement procedure for the left eye

Notes

- As a minimum, all abnormalities should be imaged.
  - Where capacity permits, all mice can be imaged

- Majority of parameters can be analysed using the standard approach for assessing categorical data. To increase power for analysis purposes, where an abnormality is detected in the left, right or both eyes, the data may be combined to generate one "abnormal" category.

Data QC

Image QC is typically performed during data collection to ensure high quality images are captured whilst eyes are dilated etc.

Parameters and Metadata

Left inner nuclear layer IMPC_EYE_069_001 | v1.2

simpleParameter

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

Unit Measured: um

Left corneal thickness IMPC_EYE_066_001 | v1.2

simpleParameter

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

Unit Measured: um

Lens Opacity IMPC_EYE_017_001 | v1.0

simpleParameter

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

Options: absent, present left eye, present right eye, no data left eye, present right eye, no data right eye, present left eye, no data left eye, present both eyes, no data for both eyes, no data right eye,

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Lacrimation IMPC_EYE_086_001 | v1.0

simpleParameter

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

Options: present both eyes, no data right eye, no data for both eyes, present left eye, no data left eye, no data right eye, present left eye, no data left eye, present right eye, present right eye, absent,

---

Min right eye lens density IMPC_EYE_057_001 | v1.1

simpleParameter

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

Unit Measured: %

Ophthalmoscope Lens Model IMPC_EYE_089_001 | v1.1

procedureMetadata

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

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Bulging eye IMPC_EYE_002_001 | v1.0

simpleParameter

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

Options: no data left eye, present both eyes, no data left eye, present right eye, present right eye, no data right eye, present left eye, no data right eye, present left eye, absent, no data for both eyes,

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Slit Lamp Equipment Manufacturer IMPC_EYE_031_001 | v1.2

procedureMetadata

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

Options: Haag-Streit, Topcon, MuLe, Zeiss, CSO, Phoenix Research Labs, Kowa,

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Corneal mineralization IMPC_EYE_084_001 | v1.0

simpleParameter

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

Options: no data left eye, present right eye, present both eyes,
no data right eye, present left eye, present right eye, present left eye, no data right eye,
no data left eye, no data for both eyes, absent,

Retinal Blood Vessels Structure IMPC_EYE_025_001 | v1.0

simpleParameter

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

Options: no data left eye, both eyes abnormal, right eye abnormal,
no data left eye, right eye abnormal, normal, left eye abnormal, no data right eye,
no data for both eyes, no data right eye, left eye abnormal,

Vitreous IMPC_EYE_083_001 | v1.1

simpleParameter

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

Options: no data right eye, no data for both eyes, left eye abnormal, both eyes abnormal,

no data right eye, left eye abnormal, normal, no data left eye, right eye abnormal,

no data left eye, right eye abnormal,

Dilation Method IMPC_EYE_043_001 | v1.0

procedureMetadata

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

Options: Tropicamide+Phenylephrin, None, Phenylephrine hydrochloride, Tropicamide, Cyclopentolate hydrochloride+Phenylephrine hydrochloride, Cyclopentolate hydrochloride, Atropine sulphate, Atropine,

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Pupil Dilation IMPC_EYE_013_001 | v1.0

simpleParameter

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

Options: no data right eye, left eye dilated, no data left eye, normal, no data for both eyes, both eyes dilated, no data right eye, right eye dilated, no data left eye, right eye dilated, left eye dilated,

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Left anterior chamber depth IMPC_EYE_067_001 | v1.2

simpleParameter

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

Unit Measured: um

Iris transilumination IMPC_EYE_082_001 | v1.1

simpleParameter

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

Options: no data left eye, right eye abnormal, left eye abnormal, right eye abnormal, normal, no data right eye, no data right eye, left eye abnormal, both eyes abnormal, no data left eye, no data for both eyes,

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Sheimpflug Lens description IMPC_EYE_052_001 | v1.1

simpleParameter

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

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Date Ophthalmoscope equipment last calibrated IMPC_EYE_047_001 | v1.1

procedureMetadata

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

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Left vitreous humour thickness IMPC_EYE_088_001 | v1.0

simpleParameter

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

Unit Measured: um

Right eye diameter IMPC_EYE_090_001 | v1.0

simpleParameter

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

Unit Measured: mm

Corneal vascularization IMPC_EYE_009_001 | v1.0

simpleParameter

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

Options: no data for both eyes, no data right eye, absent, no data right eye, present left eye, present both eyes, no data left eye, present right eye, no data left eye, present right eye, present left eye,

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VIP of left eye IMPC_EYE_079_001 | v1.1

seriesMediaParameter

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

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Optic Disc IMPC_EYE_023_001 | v1.0

simpleParameter

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

Options: both eyes abnormal, left eye abnormal, right eye abnormal, normal,
no data right eye, no data left eye, right eye abnormal, no data for both eyes, no data left eye,
no data right eye, left eye abnormal,

Pupil Shape IMPC_EYE_012_001 | v1.0

simpleParameter

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

Options: no data right eye, left eye abnormal, normal, no data left eye, right eye abnormal,
no data for both eyes, left eye abnormal, no data right eye, both eyes abnormal,
no data left eye, right eye abnormal,

Synechia IMPC_EYE_019_001 | v1.0

simpleParameter

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

Options: no data left eye, present right eye, present both eyes, present left eye, no data right eye, no data right eye, present left eye, no data left eye, no data for both eyes, absent, present right eye,

---

Iris Pigmentation IMPC_EYE_015_001 | v1.0

simpleParameter

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

Options: no data left eye, right eye abnormal, no data right eye, no data for both eyes, both eyes abnormal, normal, no data left eye, left eye abnormal, no data right eye, left eye abnormal, right eye abnormal,

---

Images Slit Lamp IMPC_EYE_051_001 | v1.1

seriesMediaParameter

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

---

Mean left eye lens density IMPC_EYE_056_001 | v1.1

simpleParameter

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

Unit Measured: %

Eye Hemorrhage or Blood Presence IMPC_EYE_003_001 | v1.0

simpleParameter

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

Options: no data right eye, no data left eye, present right eye, present right eye, present left eye, no data left eye, absent, no data for both eyes, no data right eye, present left eye, present both eyes,

---

Fusion between cornea and lens IMPC_EYE_018_001 | v1.0

simpleParameter

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

Options: no data left eye, present right eye, present both eyes, present right eye, no data for both eyes, present left eye, absent, no data right eye, present left eye, no data right eye, no data left eye,

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Optical Coherence Tomography Equipment Manufacturer

IMPC_EYE_038_001 | v1.2

procedureMetadata

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

Options: Bioptigen, Heidelberg Engineering,

Left posterior chamber depth IMPC_EYE_071_001 | v1.2

simpleParameter

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

Unit Measured: um

Max right eye lens density IMPC_EYE_058_001 | v1.1

simpleParameter

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

Unit Measured: %

B-scan of left cornea and lens IMPC_EYE_077_001 | v1.1

seriesMediaParameter

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

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Mean right eye lens density IMPC_EYE_059_001 | v1.1

simpleParameter

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

Unit Measured: %

Right anterior chamber depth IMPC_EYE_061_001 | v1.2

simpleParameter

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

Unit Measured: um

Ophthalmoscope Observation IMPC_EYE_029_001 | v1.1

simpleParameter

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

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Slit Lamp Equipment Model IMPC_EYE_032_001 | v1.2

procedureMetadata

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

Options: SL 990, SL-7E, BQ 900 LED/IM-900, SL30, Micron III slit lamp extension, S350, SL130, 30 SL-M, SL 139, SL-15,

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Retinal Blood Vessels Pattern IMPC_EYE_026_001 | v1.0

simpleParameter

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

Options: no data right eye, normal, no data for both eyes, right eye abnormal, left eye abnormal, no data left eye, no data left eye, right eye abnormal, both eyes abnormal, no data right eye, left eye abnormal,

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Images Ophthalmoscopy IMPC_EYE_050_001 | v1.1

seriesMediaParameter

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

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Lens IMPC_EYE_016_001 | v1.0

simpleParameter

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

Options: no data right eye, left eye abnormal, left eye abnormal, no data right eye, normal, both eyes abnormal, no data for both eyes, right eye abnormal, no data left eye, no data left eye, right eye abnormal,

---

Min left eye lens density IMPC_EYE_054_001 | v1.2

simpleParameter

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

Unit Measured: %

B-scan of right cornea and lens IMPC_EYE_076_001 | v1.1

seriesMediaParameter

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

---

Eyelid morphology IMPC_EYE_004_001 | v1.0

simpleParameter

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

Options: left eye abnormal, no data left eye, no data for both eyes, no data right eye, left eye abnormal, both eyes abnormal, right eye abnormal, no data right eye, no data left eye, right eye abnormal, normal,

Scheimpflug description IMPC_EYE_053_001 | v1.0

simpleParameter

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

Iris/Pupil IMPC_EYE_010_001 | v1.0

simpleParameter

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

Options: no data left eye, no data right eye, left eye abnormal,
no data left eye, right eye abnormal, both eyes abnormal, left eye abnormal,
no data for both eyes, normal, right eye abnormal, no data right eye,

General Anesthetic IMPC_EYE_045_001 | v1.1

procedureMetadata

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

Options: Isoflurane, Euthatal, Ketamine+Medetomidine, Zoletil, No anesthesia,
Ketamine+Xylazine, Avertin,

Right posterior chamber depth IMPC_EYE_065_001 | v1.2

simpleParameter

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

Unit Measured: um

Left eye diameter IMPC_EYE_091_001 | v1.0

simpleParameter

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

Unit Measured: mm

Left outer nuclear layer IMPC_EYE_070_001 | v1.2

simpleParameter

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

Unit Measured: um

Optical Coherence Tomography Equipment Model IMPC_EYE_039_001 | v1.2

procedureMetadata

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

Options: Envisu R2200, EnvisuTM R-Series SDOIS, Spectralis,

Left total retinal thickness IMPC_EYE_068_001 | v1.2

simpleParameter

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

Unit Measured: um

Ophthalmoscope Equipment ID IMPC_EYE_033_001 | v1.2

procedureMetadata

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

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Pupil Light Response IMPC_EYE_014_001 | v1.0

simpleParameter

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

Options: no data right eye, left eye abnormal, no data right eye, normal, left eye abnormal, no data for both eyes, right eye abnormal, no data left eye, right eye abnormal, no data left eye, both eyes abnormal,

VIP of right fundus IMPC_EYE_074_001 | v1.1

seriesMediaParameter

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

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Slit Lamp Equipment ID IMPC_EYE_030_001 | v1.2

procedureMetadata

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

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Optical Coherence Tomography Equipment ID IMPC_EYE_037_001 | v1.1

procedureMetadata

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

---

Retina (combined) IMPC_EYE_092_001 | v1.0

simpleParameter

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

---

Eyelid closure IMPC_EYE_005_001 | v1.0

simpleParameter

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

Options: no data right eye, no data for both eyes, both eyes closed, normal, right eye closed, no data left eye, no data right eye, left eye closed, no data left eye, right eye closed, left eye closed,

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Corneal opacity IMPC_EYE_008_001 | v1.0

simpleParameter

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

Options: present right eye, no data right eye, present left eye, present left eye, absent, no data right eye, no data for both eyes, no data left eye, present right eye, no data left eye, present both eyes,

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Slit Lamp observation IMPC_EYE_028_001 | v1.1

simpleParameter

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

---

Right total retinal thickness IMPC_EYE_062_001 | v1.2

simpleParameter

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

Unit Measured: um

Right inner nuclear layer IMPC_EYE_063_001 | v1.2

simpleParameter

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

Unit Measured: um

Corneal Sclerization IMPC_EYE_080_001 | v1.1

simpleParameter

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

Options: no data left eye, no data right eye, no data right eye, present left eye, no data for both eyes, present right eye, absent, present both eyes, present left eye, no data left eye, present right eye,

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Date OCT equipment last calibrated IMPC_EYE_049_001 | v1.1

procedureMetadata

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

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Right corneal thickness IMPC_EYE_060_001 | v1.2

simpleParameter

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

Unit Measured: um

Date Slit Lamp equipment last calibrated IMPC_EYE_046_001 | v1.1

procedureMetadata

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

---

Pupil Position IMPC_EYE_011_001 | v1.0

simpleParameter

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

Options: no data for both eyes, no data left eye, normal, right eye abnormal, no data right eye, no data left eye, right eye abnormal, no data right eye, left eye abnormal, both eyes abnormal, left eye abnormal,

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Max left eye lens density IMPC_EYE_055_001 | v1.1

simpleParameter

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

Unit Measured: %

Eye IMPC_EYE_001_001 | v1.0

simpleParameter

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

Options: absent right eye, absent left eye, absent both eyes, present,

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Date Scheimpflug equipment last calibrated IMPC_EYE_048_001 | v1.1

procedureMetadata

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

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Ophthalmoscope Equipment Model IMPC_EYE_035_001 | v1.2

procedureMetadata

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

Options:
Xenon Nova 175W light source + HOPKINS optic 1218AA /Nikon D5100 + 85 mm f/1.8 lens, Genesis, SL4 4AA, Genesis-D, Genesis-DF, OMEGA 180 / Superfield NC, Sigma 150K, Omega 180 / 60D, Micron III, Omega 500 Unplugged,

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Scheimpflug Equipment Model IMPC_EYE_042_001 | v1.4

procedureMetadata

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

Options: Pentacam,

VIP of left fundus IMPC_EYE_075_001 | v1.1

seriesMediaParameter

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

---

Corneal deposits IMPC_EYE_081_001 | v1.1

simpleParameter

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

Options: present right eye, present left eye, no data left eye, present right eye, no data right eye, present left eye, no data right eye, no data left eye, absent, no data for both eyes, present both eyes,

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Topical Anesthetic IMPC_EYE_044_001 | v1.1

procedureMetadata

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

Options: Atropine sulphate, Mydriacyl, Hydrochloride, Atropine, Oxybuprocain, Phenylephrine hydrochloride, No anesthesia,

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Scheimpflug Equipment Manufacturer IMPC_EYE_041_001 | v1.4

procedureMetadata

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

Options: Oculus GmbH,

Scheimpflug Equipment ID IMPC_EYE_040_001 | v1.1

procedureMetadata

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

Ophthalmoscope Equipment Manufacturer IMPC_EYE_034_001 | v1.2

procedureMetadata

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

Options: Heine, Phoenix Research Labs, Kowa, Heine / Volk, Keeler LTD, Haag-Streit, Karl Storz / Nikon, Phoenix,

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B-scan of right retina IMPC_EYE_072_001 | v1.1

seriesMediaParameter

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

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B-scan of left retina IMPC_EYE_073_001 | v1.1

seriesMediaParameter

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

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Retinal Blood Vessels IMPC_EYE_024_001 | v1.0

simpleParameter

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

Options: no data left eye, right eye abnormal, both eyes abnormal, normal, no data left eye, right eye abnormal, no data for both eyes, left eye abnormal, no data right eye, left eye abnormal, no data right eye,

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VIP of right eye IMPC_EYE_078_001 | v1.1

seriesMediaParameter

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

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Corneal ulcer IMPC_EYE_085_001 | v1.0

simpleParameter

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

Options: present both eyes, no data right eye, present left eye, absent, present left eye, no data for both eyes, no data left eye, present right eye, no data left eye, no data right eye, present right eye,

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Experimenter ID IMPC_EYE_036_001 | v1.1

procedureMetadata

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

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Narrow eye opening IMPC_EYE_006_001 | v1.0

simpleParameter

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

Options: no data left eye, right eye abnormal, no data right eye, left eye abnormal, no data for both eyes, no data left eye, left eye abnormal, right eye abnormal, both eyes abnormal, normal, no data right eye,

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Persistence of hyaloid vascular system IMPC_EYE_027_001 | v1.0

simpleParameter

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

Options: present right eye, present both eyes, present left eye, no data left eye, present right eye, no data right eye, present left eye, no data left eye, no data right eye, no data for both eyes, absent,

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Right outer nuclear layer IMPC_EYE_064_001 | v1.2

simpleParameter

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

Unit Measured: um

Right vitreous humor thickness IMPC_EYE_087_001 | v1.0

simpleParameter

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

Unit Measured: um

Cornea IMPC_EYE_007_001 | v1.0

simpleParameter

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

Options: no data left eye, left eye abnormal, normal, both eyes abnormal, right eye abnormal, no data for both eyes, no data right eye, left eye abnormal, no data left eye, right eye abnormal, no data right eye,

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