



# IMPC phenotyping SOPs in JMC



## Eye Morphology IMPC\_EYE\_001

### Purpose

To detect abnormalities in eye morphology.

### Experimental Design

- **Minimum number of animals** : 7M + 7F
- **Age at test**: Ideal age = 15 weeks  $\pm$ 3 days. Minimal age = 14 weeks
- **Sex**: We would 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

### 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

	Version	Type	Increment	Option	Derived	Unit	Data Type
Eye IMPC_EYE_001_001	1.0	simpleParameter		present			TEXT
				absent left eye			
				absent right eye			

	Version	Type	Increment	Option	Derived	Unit	Data Type
				absent both eyes			
Bulging eye IMPC_EYE_002_001	1.0	simpleParameter		Absent			TEXT
				present left eye			
				present right eye			
				present both eyes			
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, present right eye			
				no data right eye, present left eye			
Eye Hemorrhage or Blood Presence IMPC_EYE_003_001	1.0	simpleParameter		Absent			TEXT
				present left eye			
				present right eye			
				present both eyes			
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, present right eye			
				no data right eye, present left eye			
Eyelid morphology IMPC_EYE_004_001	1.0	simpleParameter		Normal			TEXT
				left eye abnormal			
				right eye abnormal			
				both eyes abnormal			
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, right eye abnormal			
				no data right eye, left eye abnormal			

	Version	Type	Increment	Option	Derived	Unit	Data Type
Eyelid closure IMPC_EYE_005_001	1.0	simpleParameter		Normal			TEXT
				left eye closed			
				right eye closed			
				both eyes closed			
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, right eye abnormal			
				no data right eye, left eye abnormal			
Narrow eye opening IMPC_EYE_006_001	1.0	simpleParameter		Normal			TEXT
				left eye abnormal			
				right eye abnormal			
				both eyes abnormal			
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, right eye abnormal			
				no data right eye, left eye abnormal			
Cornea IMPC_EYE_007_001	1.0	simpleParameter		Normal			TEXT
				left eye abnormal			
				right eye abnormal			
				both eyes abnormal			
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, right eye abnormal			
				no data right eye, left eye abnormal			
Corneal opacity	1.0	simpleParameter		Absent			TEXT

	Version	Type	Increment	Option	Derived	Unit	Data Type
IMPC_EYE_008_001				present left eye			
				present right eye			
				present both eyes			
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, present right eye			
				no data right eye, present left eye			
Corneal vascularization IMPC_EYE_009_001	1.0	simpleParameter		Absent			TEXT
				present left eye			
				present right eye			
				present both eyes			
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, present right eye			
				no data right eye, present left eye			
Iris/Pupil IMPC_EYE_010_001	1.0	simpleParameter		Normal			TEXT
				left eye abnormal			
				right eye abnormal			
				both eyes abnormal			
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, right eye abnormal			
				no data right eye, left eye abnormal			
Pupil Position IMPC_EYE_011_001	1.0	simpleParameter		Normal			TEXT
				left eye abnormal			

	Version	Type	Increment	Option	Derived	Unit	Data Type
				right eye abnormal			
				both eyes abnormal			
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, right eye abnormal			
				no data right eye, left eye abnormal			
Pupil Shape IMPC_EYE_012_001	1.0	simpleParameter		Normal			TEXT
				left eye abnormal			
				right eye abnormal			
				both eyes abnormal			
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, right eye abnormal			
				no data right eye, left eye abnormal			
Pupil Dilation IMPC_EYE_013_001	1.0	simpleParameter		Normal			TEXT
				left eye dilated			
				right eye dilated			
				both eyes dilated			
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, right eye abnormal			
				no data right eye, left eye abnormal			
Pupil Light Response IMPC_EYE_014_001	1.0	simpleParameter		Normal			TEXT
				left eye abnormal			
				right eye abnormal			

	Version	Type	Increment	Option	Derived	Unit	Data Type
				both eyes abnormal			
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, right eye abnormal			
				no data right eye, left eye abnormal			
Iris Pigmentation IMPC_EYE_015_001	1.0	simpleParameter		Normal			TEXT
				left eye abnormal			
				right eye abnormal			
				both eyes abnormal			
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, right eye abnormal			
				no data right eye, left eye abnormal			
Lens IMPC_EYE_016_001	1.0	simpleParameter		Normal			TEXT
				left eye abnormal			
				right eye abnormal			
				both eyes abnormal			
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, right eye abnormal			
				no data right eye, left eye abnormal			
Lens Opacity IMPC_EYE_017_001	1.0	simpleParameter		Absent			TEXT
				present left eye			
				present right eye			
				present both eyes			

	Version	Type	Increment	Option	Derived	Unit	Data Type
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, present right eye			
				no data right eye, present left eye			
Fusion between cornea and lens IMPC_EYE_018_001	1.0	simpleParameter		Absent			TEXT
				present left eye			
				present right eye			
				present both eyes			
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, present right eye			
				no data right eye, present left eye			
Synechia IMPC_EYE_019_001	1.0	simpleParameter		Absent			TEXT
				present left eye			
				present right eye			
				present both eyes			
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, present right eye			
				no data right eye, present left eye			
Retina IMPC_EYE_020_001	1.0	simpleParameter		Normal			TEXT
				left eye abnormal			
				right eye abnormal			
				both eyes abnormal			

	Version	Type	Increment	Option	Derived	Unit	Data Type
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, right eye abnormal			
				no data right eye, left eye abnormal			
Retinal Pigmentation IMPC_EYE_021_001	1.0	simpleParameter		Normal			TEXT
				left eye abnormal			
				right eye abnormal			
				both eyes abnormal			
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, right eye abnormal			
				no data right eye, left eye abnormal			
Retinal Structure IMPC_EYE_022_001	1.0	simpleParameter		Normal			TEXT
				left eye abnormal			
				right eye abnormal			
				both eyes abnormal			
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, right eye abnormal			
				no data right eye, left eye abnormal			
Optic Disc IMPC_EYE_023_001	1.0	simpleParameter		Normal			TEXT
				left eye abnormal			
				right eye abnormal			
				both eyes abnormal			



	Version	Type	Increment	Option	Derived	Unit	Data Type
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, right eye abnormal			
				no data right eye, left eye abnormal			
Retinal Blood Vessels IMPC_EYE_024_001	1.0	simpleParameter		Normal			TEXT
				left eye abnormal			
				right eye abnormal			
				both eyes abnormal			
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, right eye abnormal			
				no data right eye, left eye abnormal			
Retinal Blood Vessels Structure IMPC_EYE_025_001	1.0	simpleParameter		Normal			TEXT
				left eye abnormal			
				right eye abnormal			
				both eyes abnormal			
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, right eye abnormal			
				no data right eye, left eye abnormal			
Retinal Blood Vessels Pattern IMPC_EYE_026_001	1.0	simpleParameter		Normal			TEXT
				left eye abnormal			
				right eye abnormal			
				both eyes abnormal			
				no data left eye			

	Version	Type	Increment	Option	Derived	Unit	Data Type
				no data right eye			
				no data for both eyes			
				no data left eye, right eye abnormal			
				no data right eye, left eye abnormal			
Persistence of hyaloid vascular system IMPC_EYE_027_001	1.0	simpleParameter		Absent			TEXT
				present left eye			
				present right eye			
				present both eyes			
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, present right eye			
				no data right eye, present left eye			
Slit Lamp observation IMPC_EYE_028_001	1.1	simpleParameter					TEXT
Ophthalmoscope Observation IMPC_EYE_029_001	1.1	simpleParameter					TEXT
Images Ophthalmoscopy IMPC_EYE_050_001	1.1	seriesMediaParameter					IMAGE
Images Slit Lamp IMPC_EYE_051_001	1.1	seriesMediaParameter					IMAGE
Corneal Sclerization IMPC_EYE_080_001	1.1	simpleParameter		Absent			TEXT
				present left eye			
				present right eye			
				present both eyes			
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, present right eye			

	Version	Type	Increment	Option	Derived	Unit	Data Type
				no data right eye, present left eye			
Corneal deposits IMPC_EYE_081_001	1.1	simpleParameter		Absent			TEXT
				present left eye			
				present right eye			
				present both eyes			
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, present right eye			
				no data right eye, present left eye			
Vitreous IMPC_EYE_083_001	1.1	simpleParameter		Normal			TEXT
				left eye abnormal			
				right eye abnormal			
				both eyes abnormal			
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, right eye abnormal			
				no data right eye, left eye abnormal			
Corneal mineralization IMPC_EYE_084_001	1.0	simpleParameter		Absent			TEXT
				present left eye			
				present right eye			
				present both eyes			
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, present right eye			
				no data right eye,			

	Version	Type	Increment	Option	Derived	Unit	Data Type
				present left eye			
Corneal ulcer IMPC_EYE_085_001	1.0	simpleParameter		Absent			TEXT
				present left eye			
				present right eye			
				present both eyes			
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, present right eye			
				no data right eye, present left eye			
Lacrimation IMPC_EYE_086_001	1.0	simpleParameter		Absent			TEXT
				present left eye			
				present right eye			
				present both eyes			
				no data left eye			
				no data right eye			
				no data for both eyes			
				no data left eye, present right eye			
				no data right eye, present left eye			

## Metadata

	Version	Type	Increment	Option	Derived	Unit	Data Type
Slit Lamp Equipment ID IMPC_EYE_030_001	1.2	procedureMetadata		SL-01			TEXT
Slit Lamp Equipment Manufacturer IMPC_EYE_031_001	1.2	procedureMetadata		Kowa			TEXT
Slit Lamp Equipment Model IMPC_EYE_032_001	1.2	procedureMetadata		SL-15			TEXT

	Version	Type	Increment	Option	Derived	Unit	Data Type
Ophthalmoscope Equipment ID IMPC_EYE_033_001	1.2	procedureMetadata		OPS-01			TEXT
Ophthalmoscope Equipment Manufacturer IMPC_EYE_034_001	1.2	procedureMetadata		Kowa			TEXT
Ophthalmoscope Equipment Model IMPC_EYE_035_001	1.2	procedureMetadata		Genesis			TEXT
Experimenter ID IMPC_EYE_036_001	1.1	procedureMetadata					TEXT
Dilation Method IMPC_EYE_043_001	1.0	procedureMetadata		Tropicamide+Phenylephrine			TEXT