

# Gross Morphology Embryo E12.5 IMPC\_GEM\_003

## Purpose

To assess visible morphological defects in E12.5 embryos from lethal strains

## Experimental Design

- Set up timed matings with heterozygous mice
- Day 0 is defined as the midpoint of the prior dark cycle following the identification of a copulation plug.
- **Minimum number of animals** : 1 mutant of any sex
- **Age at test**: E12.5
- Capture gross images (**optional**)
- Collect tissue and genotype embryos.

## Procedure

1. **Set up timed mating with heterozygous animals. Dissect at a consistent time and collect  $\geq 2$  homozygote embryos. Coordination with viability screen is at the centres discretion.**
2. **Score embryos as live or dead if possible.**
3. **Assess embryos according to Gross Morphology parameters.**
4. **Generate gross images of embryos (optional) with scored defects and control embryos.**
5. **Collect tissue for genotyping**
6. **Process embryos for Histopathology, LacZ or other imaging (OPTIONAL - depending on center pipeline)**
7. **Scores will be shown per embryo and split by zygosity.**

If capturing images please attempt to capture left, right, front, and back views of the embryo but if this is not possible left, right is sufficient. Feel free to take higher magnification views to show morphologies of interest.

## Notes

All genotypes should be collected using validated assays.

Y chromosome assay required for X-linked lethal strains.

Embryos may be processed for Histopathology or 3D Imaging

## Parameters and Metadata

### Pericardium Morphology IMPC\_GEM\_007\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: pericardium\_morphology

Options: normal, abnormal, unobservable,

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### Visceral yolk sac morphology IMPC\_GEM\_017\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: visceral\_yolk\_sac\_morphology

Options: normal, abnormal, unobservable,

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### Embryo Size IMPC\_GEM\_019\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

**Description:** embryo\_size

**Options:** normal, abnormal, unobservable,

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## **Ear Morphology** IMPC\_GEM\_021\_001 | v1.1

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** abnormal\_ear\_morphology

**Options:** normal, abnormal, unobservable,

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## **Skin Appearance** IMPC\_GEM\_024\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** skin\_appearance

**Options:** normal, abnormal, unobservable,

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## **Limb Bud Morphology** IMPC\_GEM\_027\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** limb\_bud\_morphology

**Options:** normal, abnormal, unobservable,

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## **Limb Plate Morphology** IMPC\_GEM\_028\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** limb\_plate\_morphology

**Options:** normal, abnormal, unobservable,

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## **Tail Morphology** IMPC\_GEM\_029\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** tail\_morphology

**Options:** normal, abnormal, unobservable,

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## **Liver Size** IMPC\_GEM\_032\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** liver\_size

**Options:** normal, abnormal, unobservable,

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## **Neural Tube Closure** IMPC\_GEM\_036\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** neural\_tube\_closure

**Options:** normal, abnormal, unobservable,

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## **Eye Morphology** IMPC\_GEM\_041\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** eye\_morphology

**Options:** normal, abnormal, unobservable,

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## **Head shape** IMPC\_GEM\_047\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** head\_shape

**Options:** normal, abnormal, unobservable,

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## **Comment on image** IMPC\_GEM\_048\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** false

**Description:** comment\_on\_image

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## **Images** IMPC\_GEM\_049\_001 | v1.0

seriesMediaParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** false

**Description:** images

**Increments:** Minimum 1

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## **Experimenter ID** IMPC\_GEM\_050\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Description: experimenter\_id

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## Equipment ID IMPC\_GEM\_051\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Description: equipment\_id

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## Equipment Manufacturer IMPC\_GEM\_052\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Description: equipment\_manufacturer

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## Equipment Model IMPC\_GEM\_053\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Description: equipment\_model

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## **Fixative** IMPC\_GEM\_054\_001 | v1.0

procedureMetadata

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** false

**Description:** fixative

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## **Time of Dissection** IMPC\_GEM\_055\_001 | v1.0

procedureMetadata

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** false

**Description:** time\_of\_dissection

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## **Somite Stage** IMPC\_GEM\_056\_001 | v1.1

procedureMetadata

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** false

**Description:** somite\_stage

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## Time of dark cycle start IMPC\_GEM\_057\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Description: time\_of\_dark\_cycle\_start

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## Time of dark cycle end IMPC\_GEM\_058\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Description: time\_of\_dark\_cycle\_end

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## Date equipment last calibrated IMPC\_GEM\_059\_001 | v1.1

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Description: date\_equipment\_last\_calibrated

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## Pale yolk sac IMPC\_GEM\_016\_002 | v2.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

**Description:** pale\_yolk\_sac

**Options:** yes, unobservable, no,

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## **Pallor** IMPC\_GEM\_025\_002 | v2.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** pallor

**Options:** yes, unobservable, no,

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## **Blebs** IMPC\_GEM\_026\_002 | v2.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** blebs

**Options:** yes, unobservable, no,

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## **Pale Liver** IMPC\_GEM\_033\_002 | v2.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** pale\_liver

**Options:** yes, unobservable, no,

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## **Microphthalmia** IMPC\_GEM\_043\_002 | v2.3

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** microphthalmia

**Options:** yes, unobservable, no,

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## **Anophthalmia** IMPC\_GEM\_044\_002 | v2.2

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** anophthalmia

**Options:** yes, unobservable, no,

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## **Severely Dysmorphic** IMPC\_GEM\_060\_001 | v1.2

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Options:** no, yes, unobservable,

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## **Abdominal wall** IMPC\_GEM\_061\_001 | v1.1

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Options:** normal, abnormal, unobservable,

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## **Craniofacial morphology** IMPC\_GEM\_062\_001 | v1.1

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Options:** normal, abnormal, unobservable,

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## **Facial cleft** IMPC\_GEM\_063\_001 | v1.1

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Options:** no, yes, unobservable,

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## Facial hypoplasia IMPC\_GEM\_064\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Options: no, yes, unobservable,

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## Heart looping IMPC\_GEM\_065\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Options: normal, abnormal, unobservable,

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## Heart morphology IMPC\_GEM\_066\_001 | v1.2

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Options: normal, abnormal, unobservable,

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## Left-right axis patterning IMPC\_GEM\_067\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Options: normal, abnormal, unobservable,

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## Forebrain morphology IMPC\_GEM\_068\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Options: normal, abnormal, unobservable,

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## Hindbrain morphology IMPC\_GEM\_069\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Options: normal, abnormal, unobservable,

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## Midbrain morphology IMPC\_GEM\_070\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

**Options:** normal, abnormal, unobservable,

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## **Microcephaly** IMPC\_GEM\_071\_001 | v1.2

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Options:** no, yes, unobservable,

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## **Rostal-caudal patterning** IMPC\_GEM\_072\_001 | v1.1

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Options:** normal, abnormal, unobservable,

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## **Vascular morphology** IMPC\_GEM\_073\_001 | v1.1

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Options:** normal, abnormal, unobservable,

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## **CRL** IMPC\_GEM\_074\_001 | v1.1

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Unit Measured:** mm

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## **Delayed embryonic development** IMPC\_GEM\_075\_001 | v1.3

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Options:** no, yes, unobservable,

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## **Edema** IMPC\_GEM\_076\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Options:** no, yes, unobservable,

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## **Hemorrhage** IMPC\_GEM\_077\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Options:** no, yes, unobservable,

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## **Polydactyly** IMPC\_GEM\_078\_001 | v1.1

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Options:** yes, no, unobservable,

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## **Exencephaly** IMPC\_GEM\_079\_001 | v2.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** exencephaly

**Options:** yes, unobservable, no,

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