

# Gross Morphology Embryo E14.5-E15.5 IMP C\_GEO\_001

## Purpose

To assess visible morphological defects in E14.5-E15.5 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**: E14.5-E15.5
- 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, 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

### **Alive** IMPC\_GEO\_001\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Description: alive

Options: yes, no,

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### **Scored** IMPC\_GEO\_002\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Description: scored

Options: yes, no,

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### **Cardiovascular System** IMPC\_GEO\_003\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

**Description:** cardiovascular\_system

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

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## **Cardiovascular Development** IMPC\_GEO\_004\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** cardiovascular\_development

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

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## **Heart Development** IMPC\_GEO\_005\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** heart\_development

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

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## **Outflow tract development** IMPC\_GEO\_006\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** outflow\_tract\_development

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

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## **Absent heartbeat** IMPC\_GEO\_007\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** absent\_heartbeat

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

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## **Heart Morphology** IMPC\_GEO\_008\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** heart\_morphology

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

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## **Hemorrhage** IMPC\_GEO\_009\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** hemorrhage

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

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## **Skin Hemorrhage** IMPC\_GEO\_010\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** skin\_hemorrhage

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

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## **Blood Vessel Morphology** IMPC\_GEO\_011\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** blood\_vessel\_morphology

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

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## **Developmental Vascular Remodelling** IMPC\_GEO\_012\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** developmental\_vascular\_remodelling

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

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## **Craniofacial** IMPC\_GEO\_013\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** craniofacial

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

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## **Craniofacial Development** IMPC\_GEO\_014\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** craniofacial\_development

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

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## **Head shape** IMPC\_GEO\_015\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** head\_shape

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

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## **Head size** IMPC\_GEO\_016\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** head\_size

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

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## **Facial Cleft** IMPC\_GEO\_017\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** facial\_cleft

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

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## Cleft Palate IMPC\_GEO\_018\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: cleft\_palate

Options: normal, abnormal, unobservable,

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## Embryo Size IMPC\_GEO\_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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## Body wall morphology IMPC\_GEO\_020\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: body\_wall\_morphology

Options: normal, abnormal, unobservable,

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## Hearing/Vestibular/Ear IMPC\_GEO\_021\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** hearing\_vestibular\_ear

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

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## Ear Morphology IMPC\_GEO\_022\_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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## Ear Development IMPC\_GEO\_023\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** ear\_development

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

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## Homeostasis/metabolism IMPC\_GEO\_024\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: homeostasis\_metabolism

Options: normal, abnormal, unobservable,

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## Hydrops fetalis (fetal adema) IMPC\_GEO\_025\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: hydrops\_fetalis\_fetal\_adema

Options: normal, abnormal, unobservable,

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## Gastroschisis (herniated abdominal wall) IMPC\_GEO\_026\_001 | v1

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simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: gastroschisis\_herniated\_abdominal\_wall

Options: normal, abnormal, unobservable,

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## **Integument** IMPC\_GEO\_027\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** integument

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

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## **Vibrissa Morphology** IMPC\_GEO\_028\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** vibrissa\_morphology

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

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## **Skin Appearance** IMPC\_GEO\_029\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** skin\_appearance

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

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## **Skin Coloration** IMPC\_GEO\_030\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** skin\_coloration

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

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## **Limb Bud Morphology** IMPC\_GEO\_031\_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\_GEO\_032\_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\_GEO\_033\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: tail\_morphology

Options: normal, abnormal, unobservable,

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## Polydactyly IMPC\_GEO\_034\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: polydactyly

Options: normal, abnormal, unobservable,

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## Liver/Biliary IMPC\_GEO\_035\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: liver\_biliary

Options: normal, abnormal, unobservable,

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## Liver Morphology IMPC\_GEO\_036\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** liver\_morphology

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

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## Liver Size IMPC\_GEO\_037\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** liver\_size

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

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## Pale Liver IMPC\_GEO\_038\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** pale\_liver

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

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## **Nervous System** IMPC\_GEO\_039\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** nervous\_system

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

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## **Brain Development** IMPC\_GEO\_040\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** brain\_development

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

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## **Exencephaly** IMPC\_GEO\_041\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** exencephaly

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

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## **Holoprosencephaly** IMPC\_GEO\_042\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** holoprosencephaly

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

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## **spina bifida** IMPC\_GEO\_043\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** spina\_bifida

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

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## **Vision/Eye** IMPC\_GEO\_044\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** vision\_eye



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

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## **Eye Morphology** IMPC\_GEO\_045\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** eye\_morphology

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

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## **Eye Size** IMPC\_GEO\_046\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** eye\_size

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

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## **Microphthalmia** IMPC\_GEO\_047\_001 | v1.3

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** microphthalmia

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

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## **Anophthalmia** IMPC\_GEO\_048\_001 | v1.2

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** anophthalmia

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

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## **Comment on image** IMPC\_GEO\_049\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** false

**Description:** comment\_on\_image

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## **Images** IMPC\_GEO\_050\_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\_GEO\_051\_001 | v1.0

procedureMetadata

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** false

**Description:** experimenter\_id

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## **Equipment ID** IMPC\_GEO\_052\_001 | v1.0

procedureMetadata

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** false

**Description:** equipment\_id

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## **Equipment Manufacturer** IMPC\_GEO\_053\_001 | v1.0

procedureMetadata

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** false

**Description:** equipment\_manufacturer

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## Equipment Model IMPC\_GEO\_054\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Description: equipment\_model

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## Fixative IMPC\_GEO\_055\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Description: fixative

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## Time of Dissection IMPC\_GEO\_056\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Description: time\_of\_dissection

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## Somite Stage IMPC\_GEO\_057\_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\_GEO\_058\_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\_GEO\_059\_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\_GEO\_060\_001 | v1.1

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

**Description:** date\_equipment\_last\_calibrated

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