

# Gross Morphology Embryo E14.5-E15.5 IMP C\_GEO\_002

## 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,

---

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

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Description: scored

Options: yes, no,

---

### **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,

---

## **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,

---

## **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,

---

## **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,

---

## **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,

---

## **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,

---

## **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,

---

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

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** craniofacial

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

---

## **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,

---

## **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,

---

## **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,

---

## **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,

---

## **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,

---

## 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,

---

## 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,

---

## 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,

---

## 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,

---

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

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: integument

Options: normal, abnormal, unobservable,

---



## 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,

---

## 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,

---

## 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,

---

## 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,

---

## 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,

---

## 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,

---

## 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,

---

## 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,

---

## 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,

---

## 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,

---

## 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,

---

## 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,

---

## 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,

---

## 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,

---

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

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Description: comment\_on\_image

---

## Images IMPC\_GEO\_050\_001 | v1.0

seriesMediaParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Description: images

Increments: Minimum 1

---

## Experimenter ID IMPC\_GEO\_051\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Description: experimenter\_id

---

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

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Description: equipment\_id

---

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

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Description: equipment\_manufacturer

---

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

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Description: equipment\_model

---

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

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Description: fixative

---

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

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

**Description:** time\_of\_dissection

---

## **Somite Stage** IMPC\_GEO\_057\_001 | v1.1

procedureMetadata

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** false

**Description:** somite\_stage

---

## **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

---

## **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

---



## 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

---

## Absent heartbeat IMPC\_GEO\_007\_002 | v2.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: absent\_heartbeat

Options: yes, unobservable, no,

---

## Hemorrhage IMPC\_GEO\_009\_002 | v2.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: hemorrhage

Options: yes, unobservable, no,

---

## Skin Hemorrhage IMPC\_GEO\_010\_002 | v2.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: skin\_hemorrhage

Options: yes, unobservable, no,

---

## Facial Cleft IMPC\_GEO\_017\_002 | v2.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: facial\_cleft

Options: yes, unobservable, no,

---

## Cleft Palate IMPC\_GEO\_018\_002 | v2.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: cleft\_palate

Options: yes, unobservable, no,

---

## Hydrops fetalis (fetal adema) IMPC\_GEO\_025\_002 | v2.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: hydrops\_fetalis\_fetal\_adema

Options: yes, unobservable, no,

---

## Gastroschisis (herniated abdominal wall) IMPC\_GEO\_026\_002 | v2.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: gastroschisis\_herniated\_abdominal\_wall

Options: yes, unobservable, no,

---

## Polydactyly IMPC\_GEO\_034\_002 | v2.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: polydactyly

Options: yes, unobservable, no,

---

## Pale Liver IMPC\_GEO\_038\_002 | v2.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: pale\_liver

Options: yes, unobservable, no,

---

## Exencephaly IMPC\_GEO\_041\_002 | v2.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: exencephaly

Options: yes, unobservable, no,

---

## Holoprosencephaly IMPC\_GEO\_042\_002 | v2.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: holoprosencephaly

Options: yes, unobservable, no,

---

## **spina bifida** IMPC\_GEO\_043\_002 | v2.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** spina\_bifida

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

---

## **Microphthalmia** IMPC\_GEO\_047\_002 | v2.3

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** microphthalmia

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

---

## **Anophthalmia** IMPC\_GEO\_048\_002 | v2.2

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** anophthalmia

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

---

## Severely Dysmorphic IMPC\_GEO\_061\_001 | v1.2

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

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

---