

# Gross Morphology Embryo E9.5 IMPC\_GEL\_003

## Purpose

To assess visible morphological defects in E9.5 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**: E9.5 and Younger
- 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

Tam somite method for counting somites should be adopted:

Tam scoring system uses a forelimb range of 8 to 15 somite pairs resulting in E9.5 embryos ranging between 25 to 26 somite pairs.

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\_GEL\_006\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** pericardium\_morphology

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

---

### Embryo turning IMPC\_GEL\_011\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** embryo\_turning

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

---

## Allantois Morphology IMPC\_GEL\_014\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: allantois\_morphology

Options: normal, abnormal, unobservable,

---

## Vitelline vasculature morphology IMPC\_GEL\_015\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: vitelline\_vasculature\_morphology

Options: normal, abnormal, unobservable,

---

## Visceral yolk sac morphology IMPC\_GEL\_018\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: visceral\_yolk\_sac\_morphology

Options: normal, abnormal, unobservable,

---

## Chorioallantoic fusion IMPC\_GEL\_019\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: chorioallantoic\_fusion

Options: normal, abnormal, unobservable,

---

## Branchial arch morphology IMPC\_GEL\_024\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: branchial\_arch\_morphology

Options: normal, abnormal, unobservable,

---

## Neural tube closure IMPC\_GEL\_027\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: neural\_tube\_closure

Options: normal, abnormal, unobservable,

---

## Forebrain IMPC\_GEL\_028\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** forebrain

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

---

## Midbrain IMPC\_GEL\_029\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** midbrain

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

---

## Hindbrain IMPC\_GEL\_030\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** hindbrain

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

---

## Embryo Size IMPC\_GEL\_032\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** embryo\_size

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

---

## Tail bud morphology IMPC\_GEL\_033\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** tail\_bud\_morphology

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

---

## Limb Bud Morphology IMPC\_GEL\_038\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** limb\_bud\_morphology

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

---

## Otic vesicle morphology IMPC\_GEL\_042\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Description: otic\_vesicle\_morphology

Options: normal, abnormal, unobservable,

---

## Comment on image IMPC\_GEL\_043\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Description: comment\_on\_image

---

## Images IMPC\_GEL\_044\_001 | v1.0

seriesMediaParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Description: images

Increments: Minimum 1

---

## Experimenter ID IMPC\_GEL\_045\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Description: experimenter\_id

---

## Equipment ID IMPC\_GEL\_046\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Description: equipment\_id

---

## Equipment Manufacturer IMPC\_GEL\_047\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Description: equipment\_manufacturer

---

## Equipment Model IMPC\_GEL\_048\_001 | v1.0

procedureMetadata



Req. Analysis: false

Req. Upload: true

Is Annotated: false

Description: equipment\_model

---

## **Fixative** IMPC\_GEL\_049\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Description: fixative

---

## **Time of Dissection** IMPC\_GEL\_050\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Description: time\_of\_dissection

---

## **Somite Stage** IMPC\_GEL\_051\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Description: somite\_stage

---

## Time of dark cycle start IMPC\_GEL\_052\_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\_GEL\_053\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Description: time\_of\_dark\_cycle\_end

---

## Date equipment last calibrated IMPC\_GEL\_054\_001 | v1.1

procedureMetadata

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Description: date\_equipment\_last\_calibrated

---

## **Pale yolk sac** IMPC\_GEL\_017\_002 | v2.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** pale\_yolk\_sac

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

---

## **Pallor** IMPC\_GEL\_036\_002 | v2.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** pallor

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

---

## **Blebs** IMPC\_GEL\_037\_002 | v2.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Description:** blebs

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

---

## Severely Dysmorphic IMPC\_GEL\_055\_001 | v1.2

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Options: no, yes, unobservable,

---

## Edema IMPC\_GEL\_056\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Options: no, yes, unobservable,

---

## Heart looping IMPC\_GEL\_057\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Options: normal, abnormal, unobservable,

---

## Heart morphology IMPC\_GEL\_058\_001 | v1.2

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Options: normal, abnormal, unobservable,

---

## Hemorrhage IMPC\_GEL\_059\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Options: no, yes, unobservable,

---

## Neural tube morphology IMPC\_GEL\_060\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Options: normal, abnormal, unobservable,

---

## Optic vesicle morphology IMPC\_GEL\_061\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: true

Options: normal, abnormal, unobservable,

---

## **CRL** IMPC\_GEL\_062\_001 | v1.1

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

**Unit Measured:** mm

---

## **Delayed embryonic development** IMPC\_GEL\_063\_001 | v1.2

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

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

---

## **Somite Morphology** IMPC\_GEL\_064\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

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

---

## **Left-right axis patterning** IMPC\_GEL\_065\_001 | v1.2

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

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

---

## **Vascular morphology** IMPC\_GEL\_066\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** true

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

---