### Gross Morphology Embryo E12.5 IMPC_GE M_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 >=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,
**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,
**Limb Plate Morphology** IMPC_GEM_028_001 | v1.0

**Description:** limb_plate_morphology

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

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**Tail Morphology** IMPC_GEM_029_001 | v1.0

**Description:** tail_morphology

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

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**Liver Size** IMPC_GEM_032_001 | v1.0

**Description:** liver_size

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

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**Neural Tube Closure** IMPC_GEM_036_001 | v1.0
simpleParameter


Description: neural_tube_closure

Options: normal, abnormal, unobservable,

Eye Morphology  IMPC_GEM_041_001 | v1.0

simpleParameter


Description: eye_morphology

Options: normal, abnormal, unobservable,

Head shape  IMPC_GEM_047_001 | v1.0

simpleParameter


Description: head_shape

Options: normal, abnormal, unobservable,

Comment on image  IMPC_GEM_048_001 | v1.0

simpleParameter
Images IMPC_GEM_049_001 | v1.0

Description: images

Increments: Minimum 1

Experiment ID IMPC_GEM_050_001 | v1.0

Description: experimenter_id

Equipment ID IMPC_GEM_051_001 | v1.0

Description: equipment_id
Equipment Manufacturer IMPC_GEM_052_001 | v1.0

Description: equipment_manufacturer

Equipment Model IMPC_GEM_053_001 | v1.0

Description: equipment_model

Fixative IMPC_GEM_054_001 | v1.0

Description: fixative

Time of Dissection IMPC_GEM_055_001 | v1.0

Description:
Description: time_of_dissection

Somite Stage IMPC_GEM_056_001 | v1.1

procedureMetadata

Description: somite_stage

Time of dark cycle start IMPC_GEM_057_001 | v1.0

procedureMetadata

Description: time_of_dark_cycle_start

Time of dark cycle end IMPC_GEM_058_001 | v1.0

procedureMetadata

Description: time_of_dark_cycle_end
**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
Description: blebs
Options: yes, unobservable, no,

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**Pale Liver**  IMPC_GEM_033_002 | v2.0

Description: pale_liver
Options: yes, unobservable, no,

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**Microphthalmia**  IMPC_GEM_043_002 | v2.3

Description: microphthalmia
Options: yes, unobservable, no,

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**Anophthalmia**  IMPC_GEM_044_002 | v2.2

Description: microphthalmia
Options: yes, unobservable, no,
Description: anophthalmia

Options: yes, unobservable, no,

Severely Dysmorphic IMPC_GEM_060_001 | v1.2

simpleParameter


Options: no, yes, unobservable,

Abdominal wall IMPC_GEM_061_001 | v1.1

simpleParameter


Options: normal, abnormal, unobservable,

Craniofacial morphology IMPC_GEM_062_001 | v1.1

simpleParameter


Options: normal, abnormal, unobservable,
Facial cleft IMPC_GEM_063_001 | v1.1

Options: no, yes, unobservable,

Facial hypoplasia IMPC_GEM_064_001 | v1.1

Options: no, yes, unobservable,

Heart looping IMPC_GEM_065_001 | v1.1

Options: normal, abnormal, unobservable,

Heart morphology IMPC_GEM_066_001 | v1.2
**Left-right axis patterning**  IMPC_GEM_067_001 | v1.1

Options: normal, abnormal, unobservable,

**Forebrain morphology**  IMPC_GEM_068_001 | v1.1

Options: normal, abnormal, unobservable,

**Hindbrain morphology**  IMPC_GEM_069_001 | v1.1

Options: normal, abnormal, unobservable,

**Midbrain morphology**  IMPC_GEM_070_001 | v1.1
**Microcephaly** IMPC_GEM_071_001 | v1.2

**Rostal-caudal patterning** IMPC_GEM_072_001 | v1.1

**Vascular morphology** IMPC_GEM_073_001 | v1.1
CRL IMPC_GEM_074_001 | v1.1

simpleParameter


Unit Measured: mm

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Delayed embryonic development IMPC_GEM_075_001 | v1.3

simpleParameter


Options: no, yes, unobservable,

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Edema IMPC_GEM_076_001 | v1.0

simpleParameter


Options: no, yes, unobservable,

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Hemorrhage IMPC_GEM_077_001 | v1.0

simpleParameter

Options: no, yes, unobservable,

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**Polydactyly** IMPC_GEM_078_001 | v1.1
simpleParameter


Options: yes, no, unobservable,

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**Exencephaly** IMPC_GEM_079_001 | v2.0
simpleParameter


Description: exencephaly

Options: yes, unobservable, no,