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 >=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

<table>
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<tr>
<th>Req. Analysis</th>
<th>Req. Upload</th>
<th>Is Annotated</th>
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Description: pericardium_morphology

Options: normal, abnormal, unobservable,

Embryo turning IMPC_GEL_011_001 | v1.0

simpleParameter

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Description: embryo_turning

Options: normal, abnormal, unobservable,

Allantois Morphology IMPC_GEL_014_001 | v1.0
simpleParameter

**allantois_morphology**

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

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**vitelline_vasculature_morphology**

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

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**visceral_yolk_sac_morphology**

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

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**Chorioallantoic fusion**
Description: chorioallantoic_fusion
Options: normal, abnormal, unobservable,

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**Branchial arch morphology** IMPC_GEL_024_001 | v1.0

**Description:** branchial_arch_morphology
**Options:** normal, abnormal, unobservable,

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**Neural tube closure** IMPC_GEL_027_001 | v1.0

**Description:** neural_tube_closure
**Options:** normal, abnormal, unobservable,

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**Forebrain** IMPC_GEL_028_001 | v1.0

**Description:**

**Options:**

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Description: forebrain

Options: normal, abnormal, unobservable,

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**Midbrain** IMPC_GEL_029_001 | v1.0

*simpleParameter*


Description: midbrain

Options: normal, abnormal, unobservable,

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**Hindbrain** IMPC_GEL_030_001 | v1.0

*simpleParameter*


Description: hindbrain

Options: normal, abnormal, unobservable,

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**Embryo Size** IMPC_GEL_032_001 | v1.0

*simpleParameter*


Description: embryo_size
**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,

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**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,

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**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**


**Description:** comment_on_image

Images IMPC_GEL_044_001 | v1.0

**seriesMediaParameter**


**Description:** images

**Increments:** Minimum 1

Experimenter ID IMPC_GEL_045_001 | v1.0

**procedureMetadata**


**Description:** experimenter_id

Equipment ID IMPC_GEL_046_001 | v1.0
equipment_id

Equipment Manufacturer IMPC_GEL_047_001 | v1.0

equipment_manufacturer

Equipment Model IMPC_GEL_048_001 | v1.0

equipment_model

Fixative IMPC_GEL_049_001 | v1.0

fixative
**Time of Dissection** IMPC_GEL_050_001 | v1.0

*procedureMetadata*

*Req. Analysis:* false  
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*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  
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*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


Description: date_equipment_last_calibrated

Pale yolk sac IMPC_GEL_017_002 | v2.0

simpleParameter


Description: pale_yolk_sac

Options: yes, unobservable, no,

Pallor IMPC_GEL_036_002 | v2.0

simpleParameter


Description: pallor

Options: yes, unobservable, no,
Blebs  IMPC_GEL_037_002 | v2.0

**Description:** blebs

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

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Severely Dysmorphic  IMPC_GEL_055_001 | v1.2

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

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Edema  IMPC_GEL_056_001 | v1.1

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

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Heart looping  IMPC_GEL_057_001 | v1.1
Heart morphology  IMPC_GEL_058_001 | v1.2

Hemorrhage  IMPC_GEL_059_001 | v1.1

Neural tube morphology  IMPC_GEL_060_001 | v1.1
Optic vesicle morphology

**IMPC_GEL_061_001 | v1.1**

**simpleParameter**

**Req. Analysis:** false  
**Req. Upload:** false  
**Is Annotated:** true

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

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CRL

**IMPC_GEL_062_001 | v1.1**

**simpleParameter**

**Req. Analysis:** false  
**Req. Upload:** false  
**Is Annotated:** true

**Unit Measured:** mm

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Delayed embryonic development

**IMPC_GEL_063_001 | v1.2**

**simpleParameter**

**Req. Analysis:** false  
**Req. Upload:** false  
**Is Annotated:** true

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

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Somite Morphology

**IMPC_GEL_064_001 | v1.0**

**simpleParameter**

**Req. Analysis:** false  
**Req. Upload:** false  
**Is Annotated:** true
**Left-right axis patterning** IMPC_GEL_065_001 | v1.2

**Vascular morphology** IMPC_GEL_066_001 | v1.0

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