

# Viability E9.5 Secondary Screen IMPC\_EVL\_001

## Purpose

To assess the viability, sub-viability, and lethality of homozygous embryos at E9.5

## 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.
- Collect embryos at E9.5
- Collect tissue and genotype embryos.

## Procedure

1. **Set up timed mating with heterozygous animals. Aim to dissect and collect  $\geq 28$  alive embryos, otherwise lethal and subviable calls cannot be made. If more than three homozygous pups are produced before 28 pups are genotyped, a viable call can be made.**
2. **Collect tissue for genotyping and (OPTIONAL) score Gross Morphology and/or process for Histopathology and or Imaging.**
3. **Genotype all embryos and**
  - a. **Strains that produce NO existing homozygous embryos will be considered LETHAL (complete embryonic lethality [MP:TBC]).**
  - b. **Strains that produce NO live (absence of heartbeat) homozygous embryos will be considered LETHAL (complete embryonic lethality [MP:TBC]).**
  - c. **Strains that produce live homozygous embryos but with an obvious defect will be left to the discretion of the center with the decision and reason recorded in the parameters.**
  - d. **X-linked strains that produce NO live hemizygous male embryos from female carriers will be considered LETHAL (complete embryonic lethality [MP:TBC]).**
4. **Flag strains that produce less than normal numbers of homozygous/hemizygous male progeny**
  - a. **Strains that produce  $< 50\%$  expected homozygous progeny will be annotated as partial embryonic lethality [MP:TBC].**
  - b. **X-linked strains that produce  $< 50\%$  expected male hemizygous progeny from female carriers will be considered partial embryonic lethality [MP:TBC].**

## Notes

## Data QC

All genotypes should be collected using validated assays.

Y chromosome assay required for X-linked lethal strains.

## Data Analysis, annotation and display (+statistics)

Preliminary: No analysis required as it is a line level procedure. This could change with additional data about the procedure.

See E9.5 Gross Morphology protocol for MP calls of specific phenotypes at this time point.

Yolk sacs that have no visible embryos are counted as dead embryos.

Total Embryos: All, WT, Het, Hom  
•Alive, dead, and defect (all genotyped)

Total Dead: All, WT, Het, Hom

Total Defect (Alive or Dead): All, WT, Het, Hom  
•Abnormal and dead embryos

Litter size: all genotyped embryos  
•ignore partials and reabsorptions.

## Parameters and Metadata

### Outcome IMPC\_EVL\_001\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: true

Options: Homozygous - Viable, Homozygous - Lethal, Homozygous - Subviable,  
Insufficient numbers to make a call, Hemizygous - Lethal, Hemizygous - Viable,

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### Total embryos IMPC\_EVL\_002\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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## **% embryos WT** IMPC\_EVL\_003\_001 | v1.5

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** false

**Unit Measured:** %

**Derivation:** div('IMPC\_EVL\_007\_001', 'IMPC\_EVL\_002\_001')

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## **Time of dark cycle start** IMPC\_EVL\_004\_001 | v1.0

procedureMetadata

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** false

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## **Decision** IMPC\_EVL\_005\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** false

**Options:** Attempt to Image, Nothing to Image, Go to E8.5, Go to E12.5, Go to E18.5,

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## **Comment on Decision (in English)** IMPC\_EVL\_006\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

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## Total embryos WT IMPC\_EVL\_007\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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## Total embryos heterozygous IMPC\_EVL\_008\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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## Total embryos homozygous IMPC\_EVL\_009\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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## Total dead embryos IMPC\_EVL\_010\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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## Total dead WT IMPC\_EVL\_011\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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## Total dead heterozygous IMPC\_EVL\_012\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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## Total dead homozygous IMPC\_EVL\_013\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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## Total gross defect at dissection (alive or dead) embryos IM

PC\_EVL\_014\_001 | v1.2

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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## Total gross defect at dissection (alive or dead) WT IMPC\_EVL\_015\_001 | v1.2

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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## Total gross defect at dissection (alive or dead) heterozygous IMPC\_EVL\_016\_001 | v1.2

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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## Total gross defect at dissection (alive or dead) homozygous IMPC\_EVL\_017\_001 | v1.2

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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## Number of reabsorptions IMPC\_EVL\_018\_001 | v1.1

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

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## **% embryos heterozygous** IMPC\_EVL\_019\_001 | v1.3

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Unit Measured: %

Derivation: div('IMPC\_EVL\_008\_001', 'IMPC\_EVL\_002\_001')

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## **% embryos homozygous** IMPC\_EVL\_020\_001 | v1.3

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Unit Measured: %

Derivation: div('IMPC\_EVL\_009\_001', 'IMPC\_EVL\_002\_001')

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## **Average Litter Size** IMPC\_EVL\_021\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

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## **Time of dark cycle end** IMPC\_EVL\_022\_001 | v1.1

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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## Embryo medium IMPC\_EVL\_023\_001 | v1.1

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Options: Warm PBS, Ice,

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## Total live embryos IMPC\_EVL\_024\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

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## Total live heterozygous IMPC\_EVL\_025\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

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## Total live WT IMPC\_EVL\_026\_001 | v1.0



simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** false

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## **Total live homozygous** IMPC\_EVL\_027\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** false

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