

# Viability E18.5 Secondary Screen IMPC\_EVP\_001

## Purpose

To assess the viability, sub-viability, and lethality of homozygous embryos at E18.5

## 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 E18.5
- 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

Recording data for X-linked lines

As the procedure does not allow recording of hemizygous males specifically, hemizygous males should be recorded as homozygotes.

## 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 E18.5 Gross Morphology protocol for MP calls of specific phenotypes at this time point.

Total Embryos: All, WT, Het, Hom

- Alive, dead, and defect (all genotyped)

Total Dead: All, WT, Het, Hom

- Dead call difficult can't always see heart beating (E18.5)

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\_EVP\_001\_001 | v1.0

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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### Decision IMPC\_EVP\_002\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** false

**Options:** Attempt to Image, Go to E15.5, Appears normal, imaging, Go to E14.5, Go to E9.5,

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**Comment on Decision (in English)** IMPC\_EVP\_003\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** false

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**Total embryos** IMPC\_EVP\_004\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** false

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**Total embryos heterozygous** IMPC\_EVP\_005\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** false

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**Total embryos homozygous** IMPC\_EVP\_006\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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## Total dead embryos IMPC\_EVP\_007\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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## Total dead WT IMPC\_EVP\_008\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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## Total dead heterozygous IMPC\_EVP\_009\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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## Total dead homozygous IMPC\_EVP\_010\_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\_EVP\_011\_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\_EV

P\_012\_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\_EVP\_013\_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\_EVP\_014\_001 | v1.2

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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## Number of reabsorptions IMPC\_EVP\_015\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

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## Average Litter Size IMPC\_EVP\_016\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

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## % embryos WT IMPC\_EVP\_017\_001 | v1.6

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Unit Measured: %

Derivation: div('IMPC\_EVP\_023\_001', 'IMPC\_EVP\_004\_001')

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## % embryos heterozygous IMPC\_EVP\_018\_001 | v1.5

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Unit Measured: %

Derivation: div('IMPC\_EVP\_005\_001', 'IMPC\_EVP\_004\_001')

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## % embryos homozygous IMPC\_EVP\_019\_001 | v1.5

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Unit Measured: %

Derivation: div('IMPC\_EVP\_006\_001', 'IMPC\_EVP\_004\_001')

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## Time of dark cycle start IMPC\_EVP\_020\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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## Time of dark cycle end IMPC\_EVP\_021\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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## Embryo medium IMPC\_EVP\_022\_001 | v1.0

procedureMetadata

Req. Analysis: false

Req. Upload: true

Is Annotated: false

Options: Warm PBS, Ice, no medium,

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## Total embryos WT IMPC\_EVP\_023\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

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

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

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**Total live WT** IMPC\_EVP\_026\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** false

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

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** false