

# Viability E12.5 Secondary Screen IMPC\_EVM\_001

## Purpose

To assess the viability, sub-viability, and lethality of homozygous embryos at E12.5

## 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 E12.5
- 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 E12.5 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

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\_EVM\_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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**Decision** IMPC\_EVM\_002\_001 | v1.1

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** false

**Options:** Go to E9.5, Go to E14.5, Go to E15.5, Go to E18.5, Go to E14.5 and E18.5,  
No further data available,

**Comment on Decision (in English)** IMPC\_EVM\_003\_001 | v1.2

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** false

**Total embryos WT** IMPC\_EVM\_004\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** false

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

simpleParameter

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** false

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

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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**Total dead embryos** IMPC\_EVM\_007\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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**Total dead WT** IMPC\_EVM\_008\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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**Total dead heterozygous** IMPC\_EVM\_009\_001 | v1.0

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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**Total dead homozygous** IMPC\_EVM\_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\_EVM\_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

M\_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\_EVM\_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\_EVM\_014\_001 | v1.3

simpleParameter

Req. Analysis: false

Req. Upload: true

Is Annotated: false

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

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

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## % embryos WT IMPC\_EVM\_016\_001 | v1.3

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

Unit Measured: %

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

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## % embryos heterozygous IMPC\_EVM\_017\_001 | v1.3

simpleParameter

Req. Analysis: false

Req. Upload: false

Is Annotated: false

**Unit Measured:** %

**Derivation:** div('IMPC\_EVM\_005\_001', 'IMPC\_EVM\_023\_001')

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**% embryos homozygous** IMPC\_EVM\_018\_001 | v1.3

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** false

**Unit Measured:** %

**Derivation:** div('IMPC\_EVM\_006\_001', 'IMPC\_EVM\_023\_001')

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**Average Litter Size** IMPC\_EVM\_019\_001 | v1.0

simpleParameter

**Req. Analysis:** false

**Req. Upload:** false

**Is Annotated:** false

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**Time of dark cycle start** IMPC\_EVM\_020\_001 | v1.0

procedureMetadata

**Req. Analysis:** false

**Req. Upload:** true

**Is Annotated:** false

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

procedureMetadata

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

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

procedureMetadata

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

Options: Warm PBS, Ice,

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# Total embryos IMPC\_EVM\_023\_001 | v1.0

simpleParameter

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

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

simpleParameter

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

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**Total live heterozygous** IMPC\_EVM\_025\_001 | v1.0

simpleParameter

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

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

simpleParameter

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

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

simpleParameter

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

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