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 >=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,

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

---

Total dead embryos IMPC_EVM_007_001 | v1.0

simpleParameter

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

---

Total dead WT IMPC_EVM_008_001 | v1.0

simpleParameter

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

---

Total dead heterozygous IMPC_EVM_009_001 | v1.0

simpleParameter

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

---

Total dead homozygous IMPC_EVM_010_001 | v1.0

simpleParameter

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

---

Total gross defect at dissection (alive or dead) embryos IMPC_EVM_011_001 | v1.2

simpleParameter

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

---

Total gross defect at dissection (alive or dead) WT IMPC_EVM_012_001 | v1.2

simpleParameter

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

---

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

---

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

---

Number of reabsorptions IMPC_EVM_015_001 | v1.0

simpleParameter

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

---

% 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')

% 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')

% 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')

Average Litter Size IMPC_EVM_019_001 | v1.0

simpleParameter

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

---

Time of dark cycle start IMPC_EVM_020_001 | v1.0

procedureMetadata

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

---

Time of dark cycle end IMPC_EVM_021_001 | v1.0

procedureMetadata

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

---

Embryo medium IMPC_EVM_022_001 | v1.0

procedureMetadata

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

Options: Warm PBS, Ice,

Total embryos IMPC_EVM_023_001 | v1.0

simpleParameter

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

---

Total live embryos IMPC_EVM_024_001 | v1.0

simpleParameter

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

---

Total live heterozygous IMPC_EVM_025_001 | v1.0

simpleParameter

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

---

Total live WT IMPC_EVM_026_001 | v1.0

simpleParameter

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

---

Total live homozygous IMPC_EVM_027_001 | v1.0

simpleParameter

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

---