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

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


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

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,
**Total dead embryos**  IMPC_EVM_007_001 | v1.0

simpleParameter


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**Total dead WT**  IMPC_EVM_008_001 | v1.0

simpleParameter


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**Total dead heterozygous**  IMPC_EVM_009_001 | v1.0

simpleParameter


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**Total dead homozygous**  IMPC_EVM_010_001 | v1.0

simpleParameter


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


Total gross defect at dissection (alive or dead) WT IMPC_EV M_012_001 | v1.2


Total gross defect at dissection (alive or dead) heterozygous IMPC_EVM_013_001 | v1.2


Total gross defect at dissection (alive or dead) homozygous IMPC_EVM_014_001 | v1.3

Number of reabsorptions  IMPC_EVM_015_001  | v1.0

simpleParameter


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% embryos WT  IMPC_EVM_016_001  | v1.3

simpleParameter

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

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

**Average Litter Size** IMPC_EVM_019_001 | v1.0

**Time of dark cycle start** IMPC_EVM_020_001 | v1.0

**Time of dark cycle end** IMPC_EVM_021_001 | v1.0
### 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
Total live WT IMPC_EVM_026_001 | v1.0

simpleParameter


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Total live homozygous IMPC_EVM_027_001 | v1.0

simpleParameter


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