Viability E14.5-E15.5 Secondary Screen IM
PC_EVO_001

Purpose

To assess the viability, sub-viability, and lethality of homozygous embryos at E14.5 or E15.5

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 E14.5 or E15.5
- 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)**

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**

**Total gross defect at dissection (alive or dead) embryos**

IMPC_EVO_012_001 | v1.2

*simpleParameter*

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

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**% embryos homozygous** IMPC_EVO_020_001 | v1.2

*simpleParameter*

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

**Unit Measured:** %

**Derivation:** div('IMPC_EVO_007_001', 'IMPC_EVO_004_001')
Total embryos WT  IMPC_EVO_005_001 | v1.0
simpleParameter


Total gross defect at dissection (alive or dead) homozygous  IMPC_EVO_015_001 | v1.2
simpleParameter


Total dead heterozygous  IMPC_EVO_010_001 | v1.0
simpleParameter


Number of reabsorptions  IMPC_EVO_016_001 | v1.1
simpleParameter


Total dead homozygous  IMPC_EVO_011_001 | v1.0
simpleParameter
Total gross defect at dissection (alive or dead) WT IMPC_EVO_013_001 | v1.3

Total live heterozygous IMPC_EVO_025_001 | v1.0

Total live homozygous IMPC_EVO_027_001 | v1.0

Embryo medium IMPC_EVO_023_001 | v1.0

Options: Ice, Warm PBS,
**Total dead embryos** IMPC_EVO_008_001 | v1.0

*simpleParameter*

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**Comment on Decision (in English)** IMPC_EVO_003_001 | v1.0

*simpleParameter*

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**Total embryos homozygous** IMPC_EVO_007_001 | v1.0

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**Decision** IMPC_EVO_002_001 | v1.0

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**Options:** Attempt to Image, Go to E18.5, Nothing to Image, Go to E9.5,
Total embryos heterozygous  IMPC_EVO_006_001 | v1.0

% embryos heterozygous  IMPC_EVO_019_001 | v1.2

Total dead WT  IMPC_EVO_009_001 | v1.0

Time of dark cycle start  IMPC_EVO_021_001 | v1.0

Total embryos  IMPC_EVO_004_001 | v1.1
**Average Litter Size**  
IMPC_EVO_017_001 | v1.0

**Total gross defect at dissection (alive or dead)**  
heterozygous  
IMPC_EVO_014_001 | v1.4

**Total live WT**  
IMPC_EVO_026_001 | v1.0

**Time of dark cycle end**  
IMPC_EVO_022_001 | v1.1
Outcome IMPC_EVO_001_001 | v1.0

Request Analysis: false  Request Upload: true  Is Annotated: true

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

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% embryos WT IMPC_EVO_018_001 | v1.2

Request Analysis: false  Request Upload: false  Is Annotated: false

Unit Measured: %

Derivation: div('IMPC_EVO_005_001', 'IMPC_EVO_004_001', 'IMPC_EVO_005_001')

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Total live embryos IMPC_EVO_024_001 | v1.0

Request Analysis: false  Request Upload: false  Is Annotated: false