Viability E14.5-E15.5 Secondary Screen IMP C_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**

**Outcome**  
**IMPC_EVO_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,

**Decision**  
**IMPC_EVO_002_001 | v1.0**

*simpleParameter*

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

**Options:** Attempt to Image, Nothing to Image, Go to E9.5, Go to E18.5,
Comment on Decision (in English) IMPC_EVO_003_001 | v1.0

simpleParameter


Total embryos IMPC_EVO_004_001 | v1.1

simpleParameter


Total embryos WT IMPC_EVO_005_001 | v1.0

simpleParameter


Total embryos heterozygous IMPC_EVO_006_001 | v1.0

simpleParameter

Total embryos homozygous IMPC_EVO_007_001 | v1.0

Total dead embryos IMPC_EVO_008_001 | v1.0

Total dead WT IMPC_EVO_009_001 | v1.0

Total dead heterozygous IMPC_EVO_010_001 | v1.0

Total dead homozygous IMPC_EVO_011_001 | v1.0
Total gross defect at dissection (alive or dead) embryos IMPC_EVO_012_001 | v1.2

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

Total gross defect at dissection (alive or dead) heterozygous IMPC_EVO_014_001 | v1.4
Total gross defect at dissection (alive or dead)
homozygous IMPC_EVO_015_001 | v1.2

Number of reabsorptions IMPC_EVO_016_001 | v1.1

Average Litter Size IMPC_EVO_017_001 | v1.0

% embryos WT IMPC_EVO_018_001 | v1.2

UnitMeasured: %
Derivation: div('IMPC_EVO_005_001', 'IMPC_EVO_004_001')
% embryos heterozygous  IMPC_EVO_019_001  | v1.2

simpleParameter


Unit Measured: %

Derivation: div('IMPC_EVO_006_001', 'IMPC_EVO_004_001')

% embryos homozygous  IMPC_EVO_020_001  | v1.2

simpleParameter


Unit Measured: %

Derivation: div('IMPC_EVO_007_001', 'IMPC_EVO_004_001')

Time of dark cycle start  IMPC_EVO_021_001  | v1.0

procedureMetadata


Time of dark cycle end  IMPC_EVO_022_001  | v1.1
**Embryo medium**  IMPC_EVO_023_001 | v1.0

**Options:** Warm PBS, Ice,

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**Total live embryos**  IMPC_EVO_024_001 | v1.0

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**Total live heterozygous**  IMPC_EVO_025_001 | v1.0

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**Total live WT**  IMPC_EVO_026_001 | v1.0
Total live homozygous IMPC_EVO_027_001 | v1.0