Viability E18.5 Secondary Screen IMPC_EV P_001

Purpose
To assess the viability, sub-viability, and lethality of homozygous embryos at E18.5

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 E18.5
- 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
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 E18.5 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
  • Dead call difficult can’t always see heart beating (E18.5)
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_EVP_001_001 | v1.0

simpleParameter


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

**Decision** IMPC_EVP_002_001 | v1.0

simpleParameter


**Options:** Attempt to Image, Go to E15.5, Appears normal, imaging, Go to E14.5, Go to E9.5,
Comment on Decision (in English) IMPC_EVP_003_001 | v1.0


Total embryos IMPC_EVP_004_001 | v1.0


Total embryos heterozygous IMPC_EVP_005_001 | v1.0


Total embryos homozygous IMPC_EVP_006_001 | v1.0


Total dead embryos IMPC_EVP_007_001 | v1.0

Total dead WT  IMPC_EVP_008_001 | v1.0

Total dead heterozygous  IMPC_EVP_009_001 | v1.0

Total dead homozygous  IMPC_EVP_010_001 | v1.0

Total gross defect at dissection (alive or dead) embryos  IMPC_EVP_011_001 | v1.2
Total gross defect at dissection (alive or dead) WT IMPC_EVP_012_001 | v1.2

SimpleParameter


Total gross defect at dissection (alive or dead) heterozygous IMPC_EVP_013_001 | v1.2

SimpleParameter


Total gross defect at dissection (alive or dead) homozygous IMPC_EVP_014_001 | v1.2

SimpleParameter


Number of reabsorptions IMPC_EVP_015_001 | v1.0

SimpleParameter

**Average Litter Size**  
IMPC_EVP_016_001  | v1.0

simpleParameter

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

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**% embryos WT**  
IMPC_EVP_017_001  | v1.6

simpleParameter

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

Unit Measured: %

Derivation: \( \text{div('IMPC_EVP_023_001', 'IMPC_EVP_004_001')} \)

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**% embryos heterozygous**  
IMPC_EVP_018_001  | v1.5

simpleParameter

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

Unit Measured: %

Derivation: \( \text{div('IMPC_EVP_005_001', 'IMPC_EVP_004_001')} \)

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**% embryos homozygous**  
IMPC_EVP_019_001  | v1.5

simpleParameter

 Req. Analysis: false  
 Req. Upload: false  
 Is Annotated: false
Unit Measured: %

Derivation: \( \text{div('IMPC_EVP_006_001', 'IMPC_EVP_004_001')} \)

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**Time of dark cycle start** IMPC_EVP_020_001 | v1.0

procedureMetadata

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

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**Time of dark cycle end** IMPC_EVP_021_001 | v1.0

procedureMetadata

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

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**Embryo medium** IMPC_EVP_022_001 | v1.0

procedureMetadata

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

Options: Warm PBS, Ice, no medium,

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**Total embryos WT** IMPC_EVP_023_001 | v1.0

simpleParameter

Req. Analysis: false  
Req. Upload: true  
Is Annotated: false
Total live embryos IMPC_EVP_024_001 | v1.0
simpleParameter


Total live heterozygous IMPC_EVP_025_001 | v1.0
simpleParameter


Total live WT IMPC_EVP_026_001 | v1.0
simpleParameter


Total live homozygous IMPC_EVP_027_001 | v1.0
simpleParameter