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,

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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

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

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Total embryos IMPC_EVO_004_001 | v1.1

simpleParameter

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

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Total embryos WT IMPC_EVO_005_001 | v1.0

simpleParameter

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

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Total embryos heterozygous IMPC_EVO_006_001 | v1.0

simpleParameter

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

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Total embryos homozygous IMPC_EVO_007_001 | v1.0

simpleParameter

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

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Total dead embryos IMPC_EVO_008_001 | v1.0

simpleParameter

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

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Total dead WT IMPC_EVO_009_001 | v1.0

simpleParameter

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

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Total dead heterozygous IMPC_EVO_010_001 | v1.0

simpleParameter

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

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Total dead homozygous IMPC_EVO_011_001 | v1.0

simpleParameter

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

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

simpleParameter

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

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

simpleParameter

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

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

simpleParameter

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

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Number of reabsorptions IMPC_EVO_016_001 | v1.1

simpleParameter

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

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Average Litter Size IMPC_EVO_017_001 | v1.0

simpleParameter

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

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% embryos WT IMPC_EVO_018_001 | v1.2

simpleParameter

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

Unit Measured: %

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

% embryos heterozygous IMPC_EVO_019_001 | v1.2

simpleParameter

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

Unit Measured: %

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

% 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')

Time of dark cycle start IMPC_EVO_021_001 | v1.0

procedureMetadata

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

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Time of dark cycle end IMPC_EVO_022_001 | v1.1

procedureMetadata

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

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Embryo medium IMPC_EVO_023_001 | v1.0

procedureMetadata

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

Options: Warm PBS, Ice,

Total live embryos IMPC_EVO_024_001 | v1.0

simpleParameter

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

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Total live heterozygous IMPC_EVO_025_001 | v1.0

simpleParameter

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

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Total live WT IMPC_EVO_026_001 | v1.0

simpleParameter

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

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Total live homozygous IMPC_EVO_027_001 | v1.0

simpleParameter

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

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