\*Title: Fertility

\*Centre: IMPC

\*Date\_modified: 6-03-2012

\*Last\_modified\_by: Redden, Matthew

\*Version: 1

\*Procedure Id:

## \*1. Purpose:

To assess the fertility of homozygous knockout mice.

## \*2. Experimental Design

• Minimum number of animals: 2 homozygous Males + 2 homozygous Females.

• Minimal age at test = 12 weeks; minimal age at procedure = 8 weeks.

* Those that produce no offspring will be flagged for secondary screen, a test for male / female infertility where homozygotes are mated to WT.

## \* 3. Equipment

{Includes: *Resources -Equipment* and *Resources - Materials* and *Resources - Other*}

## \*4. Procedure

1. Monitor litter sizes and sex ratios of at least 2 homozygous male X homozygous female intercrosses (hemizygous male or WT X homozygous female for X-linked genes).

a. Collect all breeding data including number of litters, total number of pups, total number of matings, and sex ratios.

2. Flag strains that produce less than normal numbers or no progeny or pregnant dams after minimum 4 weeks AND breeders reach a minimum of 12 weeks of age. Breeding may therefore start at the earliest 8 weeks of age.

a. Strains that produce NO progeny will be registered as infertile. These will undergo secondary screening.

3. Secondary Male Infertility Screen:

a. Set up 2 breeding units: male Hom x female WT or Het

i. Observe matings for 4 weeks;

ii. Matings that result in visibly pregnant females (confirmed by dissection) or pups will be scored MALE FERTILE.

iii. Matings that do not result in pregnancy will be scored MALE INFERTILITY (MP: 0001925).

iv. Not required for X-linked genes.

4. Secondary Female Infertility Screen

a. Set up 2 breeding units: female Hom x male WT or Het

b. Observe matings for 4 weeks;

i. Matings that result in visibly pregnant females (confirmed by dissection) or pups will be scored FEMALE FERTILE.

ii. Matings that do not result in pregnancy will be scored FEMALE INFERTILITY (MP: 0001926), and will be flagged for further analysis

## \*5. Notes

### At least 2 homozygous males and 2 homozygous females will be intercrossed for the primary screen. This can be part of the cohort breeding strategy, or a separate screen.

### ALL breeding data will be captured and communicated, but only those that produce no offspring will be flagged for secondary screening.

### For infertile matings, male and female homozygotes will be individually mated to WT of heterozygous animals to test male/female infertility.

All annotations are based on yes/no scores.

## \*6 . Measured Parameters - list

|  |  |  |  |
| --- | --- | --- | --- |
| Measured parameter | Value | Range | Annotation |
| Pups born (primary) | Yes/no |  | Infertility (MP: 0001924) |
| Total matings (primary) | Number | 2+ |  |
| Total litters (primary) | Number |  |  |
| Total pups (primary) | Number |  |  |
| Pups born (Male screen) | Yes/no |  | Male Infertility (MP: 0001925) |
| Total matings (Male screen) | Number | 2+ |  |
| Total litters (Male screen) | Number |  |  |
| Total pups/embryos (Male Screen) | Number |  |  |
| Pups born (Female Screen) | Yes/No |  | Female Infertility (MP: 0001926) |
| Total matings (Female Screen) | Number | 2+ |  |
| Total litters (Female Screen) | Number |  |  |
| Total pups/embryos (Female Screen) | Number |  |  |

## \*7. MetaData Parameters – list

|  |  |  |  |
| --- | --- | --- | --- |
| **Metadata** | **Levels required** | **Required for data upload** | **Required for data analysis** |
| Age of set up | 8-15 weeks | YES | NO |
| Time breeding | > 28 days (from 8 weeks) | YES | YES |
| Test strain genotype | Het or WT | YES | NO |
| Test strain background | Mouse strain | YES | NO |
| Date of matings | Day/Year | YES | NO |