

## Phenotyping: Reproduction Panel

Charles River Laboratories Discovery Services provides a variety of therapeutic phenotyping panels to assist with characterizing your unique models.

Our Reproduction Panel includes:

### Basic Characterization

- *PhenoFirst<sup>SM</sup> Panel*

PhenoFirst<sup>SM</sup> includes *in vivo* evaluation, basic pathology, and basic clinical pathology. This panel targets organs of the reproductive tract. The minimum recommended sample size is three homozygous or knockout mice and three wild type controls that are matched for age, sex, health status, and genetic background.

### Additional Characterizations

- *Identification of Primary Issue(s) Study*

A breeding colony is set up at Charles River to begin defining the fertility issue(s). Mating schemes include crossing animals of different zygosity together as well as with wild type, proven breeder mice. Female breeders are examined for the presence of a copulatory plug and palpated for pregnancy. Pregnant females are monitored until their litters are weaned. The primary goal of this study is to determine if the fertility issue(s) are linked to a specific sex and/or zygosity. In addition, data collected may help determine if the issue relates to the ability to sustain pregnancy (vs. inability to conceive) or the ability to successfully rear a litter to weaning age. The minimum recommended sample size is three breeding pairs of each mating scheme (totaling 18 breeding pairs) of appropriate age, sex, genetic background, and zygosity.

- *Male Infertility Assessment - Part 1*

Mutant males are mated to wild type female breeders that have been synchronized with exogenous hormones. Observations are performed to check for copulatory plugs. Plug positive females are checked for the presence of fertilized embryos. All non-plug positive females are held for one week.

At that time, they are checked for the presence of implantation sites. The process is repeated for each male until he has been mated with three females. The goal of this study is to determine if the male is able to successfully fertilize a wild type female. The minimum recommended sample size is four mutant male mice of the appropriate genotype being characterized as well as four wild type male mice matched for age and genetic background.

- *Male Infertility Assessment - Part 2*

If males of a given line and zygosity are not able to fertilize a wild type female, as described above in Male Infertility Assessment – Part One, a complete sperm analysis is recommended. Sperm analysis enables one to further define and characterize male infertility. Parameters measured include total concentration, percent motility, percent rapid cells, and morphology. The report will include photographs of any abnormal sperm morphology observed. The minimum recommended sample size is three male mice of the appropriate genotype being characterized as well as three wild type male mice matched for age and genetic background.

- *Female Infertility Assessment - Part 1 (Pre-partum)*

Wild type males are mated to mutant females that have been synchronized with exogenous hormones. Observations are performed to check for copulatory plugs. Plug positive females are checked for the presence of fertilized embryos. All non-plug positive females are held for one week. At that time, they are checked for the presence of implantation sites. The goal of this phase of the reproductive work-up is to determine the female's ability to conceive. The minimum recommended sample size is five females of the appropriate genotype being characterized as well as five wild type females matched for age and genetic background.

# technical sheet

- *Female Infertility Assessment - Part 2 (Pre-partum)*

Wild type males are mated to mutant females that have been synchronized with exogenous hormones. Observations are performed to check for copulatory plugs. All mated females, both plug positive and plug negative, are held for three weeks post-mating date. Beginning at day 17 post-mating, all females are checked daily to see if they delivered a litter. Newborn pups are observed regularly to ensure that the mother is exhibiting normal maternal behavior for 72 hours post-partum. Females that do not deliver by day 22 post-mating, and are not visibly pregnant, are examined for implantation sites. The goal of this phase of the reproductive work-up is to determine the female's ability to sustain pregnancy as well as initially lactate and rear a litter through the first 72 hours post-partum. The minimum recommended sample size is five females of the appropriate genotype being characterized as well as five wild type females matched for age and genetic background.

- *Female Infertility Assessment - Part 3 (Post-partum)*

Female mutants are mated to wild type males as described above in Female Infertility Assessment – Part Two. In addition, the female are allowed to rear the litter until weaning. Litter size at birth and weaning will be compared. Females that do not deliver a litter by day 22 post-mating, and are not visibly pregnant, are examined for implantation sites. The goal of this phase of the reproductive work-up is to determine the female's ability to sustain pregnancy as well as initially lactate and rear a litter to weaning age. The minimum recommended sample size is five females of the appropriate genotype being characterized as well as five wild type females matched for age and genetic background.

- *Rodent Multi-Analyte Profiles*

Each animal is screened for 73 plasma biomarker levels including autoimmune antibodies. The minimum recommended sample size is five homozygous or knockout mice and five wild type controls that are matched for age, sex, health status, and genetic background.

## Customized Characterization

We recognize that research goals vary. Our team of laboratory animal professionals is available to customize a model characterization plan that meets individual needs and helps you achieve your goals more efficiently.

## Available Panels

In addition to the Reproduction Panel, Discovery Services provides targeted phenotyping to characterize obesity, metabolism, hypertension, diabetes, osteoporosis, embryonic lethality, respiratory function, Huntington's disease, and neurodegenerative disease in your unique model.

**For more information, please call 1.877.CRIVER.1 or e-mail [askcharlesriver@crl.com](mailto:askcharlesriver@crl.com).**