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Working

UC Davis - Mouse Model Creation

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Mouse Metabolic Phenotyping Centers

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ABSTRACT

Summary:

This is a generic protocol for making genetically-altered mouse models for research. Investigators who do not have a mutant mouse to send for testing at the MMPC @ UC Davis can ask for the mutant mouse to be derived by the MMPC @ UC Davis, through the UC Davis Mouse Biology Program. Genetically altered mice can be made on most genetic backgrounds, such as C57BL/6, FVB/N, B6D2F1 and other hybrids, and others. Transgenic (random genomic integration of expression-competent transgenes) and gene targeted (specific insertion and/or replacement of an endogenous genetic locus) mutant mice can generated. “Knockout” mice can be made so as to delete endogenous gene expression ubiquitously and conditionally in either a specific cell or tissue type (spatial conditional) and/or at a specific age (temporal conditional). Numerous technologies are available for the derivation of mutant mice, including molecular construct design, gene targeted in embryonic stem (ES) cells, pronuclear microinjection of transgenic constructs into zygotes, ES cell microinjection into blastocysts, genome editing in ES cells and zygotes (e.g., TALENs, CRISPR/Cas9). Mutant mice can be genotype confirmed (see MMPC item D2004) and custom bred to generate cohorts of male and/or female mice for phenotyping at the MMPC @ UC Davis.

EXTERNAL LINK

https://mmpc.org/shared/document.aspx?id=261&docType=Protocol

SAFETY WARNINGS

WARNING HAZARDOUS CONDITION WARNED AGAINST. This comment describes a hazardous condition to which the technician may be exposed in the performance of this protocol. It also contains directions on how to avoid or minimize the danger. Warnings are always and only used for personnel safety, and precedes the first step that will expose the technician to the hazard.

1 Depending on the type of mutant mouse requested, a number of protocols can be used. Investigators should consult with technical assistance staff at the MMPC @ UC Davis to develop their plan for deriving a mutant mouse.