C 5 7 B L H6nJr-n pmH1f1 / J

Stock No: 033968 | Hnmph1 -

- Coisogenic, Endonuclease-Mediated Mutation

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Estimated to begin distribution on Aug 17, 2020

Overview

Also Known As: Hnmph1-

Hnmph1- mice carry a 16 bp TALEN-generated frameshift deletion and stop codon in the first coding exon of the mouse Hnmph1 (heterogeneous nuclear ribonucleoprotein H1) gene. This mutation is believed to create an Hnmph1 knock-out allele. Heterozygous Hnmph1- mutant mice show reduced sensitivity to the psychostimulant rewarding, reinforcing effect of methamphetamine, as well as methamphetamine-induced reduction in dopamine release in comparison to wildtype. These mice are useful in studies of addiction.

Donating Investigator

Camron D. Bryant, Boston University School of Medicine
Psychostimulant addiction is a heritable substance use disorder, however its genetic basis is almost entirely unknown. Psychostimulants activate the mesocorticolimbic (dopaminergic) reward circuitry in humans and stimulate locomotor activity in mice. DBA/2J mice carry alleles that decrease methamphetamine-induced locomotor activity. Applying a phenotypic difference between the DBA/2J and C57BL/6J inbred strains, a quantitative trait locus (QTL) was identified on mouse Chromosome 11. Two genes are located in this QTL: *Hnrnph1* (heterogeneous nuclear ribonucleoprotein H1), and *Rufy1* (RUN and FYVE domain containing 1).

These *Hnrnph1* mice carry a 16 bp transcription activator-like effector nuclease (TALEN)-generated frameshift deletion and stop codon in the first coding exon (exon 4) of the mouse *Hnrnph1* gene. This mutation (founder line 28) is believed to create a *Hnrnph1* knock-out allele associated with a reduction in locomotor stimulant response to methamphetamine. Though an antibody specific for detecting HNRNPH1 protein is not available, total levels of HNRNPH protein (combined HNRNPH1 + HNRNPH2) are the same in wildtype, heterozygous mutant, and ~E14 homozygous mutant embryos.
Heterozygous Hnrnph1 mutant mice show reduced sensitivity to the psychostimulant rewarding, reinforcing effect of methamphetamine, as well as methamphetamine-induced reduction in dopamine release in comparison to wildtype. A significant reduction in methamphetamine-induced locomotor activity compared to wildtype littermates is observed. Untreated mice display normal behavior. Homozygotes are embryonic lethal sometime after E10-14.

Genotyping Protocols
Genotyping resources and troubleshooting

Breeding Considerations
Heterozygotes are viable and fertile. Homozygotes are embryonic lethal sometime after E10-14.

Additional Breeding and Husbandry Support

Mating System
Heterozygote x Wild-type
Wild-type x Heterozygote

Citation
When using the Hnrnph1 mouse strain in a publication, please cite the originating article(s) and include JAX stock #033968 in your Materials and Methods section.

Animal Health Reports

FGB29 (Standard)
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Estimated to begin distribution on Aug 17, 2020

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Live Mouse

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Breeder Pair

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