Mice homozygous for the LRRK2 R1441C knockin allele express the R1441C mutant form of leucine-rich repeat kinase 2 (Lrrk2) associated with Parkinson's disease. These LRRK2 R1441C KI mice may be useful in studying abnormal regulation of activity-dependent dopamine neurotransmission and D2 receptor-mediated function, which may represent pathogenic precursors preceding dopaminergic degeneration in Parkinson's disease.

Donating Investigator

Jie Shen, Harvard Med Sch/Brigham Women's Hosp

Typically mice are recovered in 10-14 weeks. Contact Customer Service to place an order or for more information.
Mice homozygous for the LRRK2 R1441C knockin allele (R1441C KI) are viable and fertile. The expression of the R1441C mutant form of leucine-rich repeat kinase 2 (Lrrk2) is associated with Parkinson's disease. Homozygous LRRK2 R1441C KI mice appear grossly normal and exhibit no spontaneous dopaminergic neurodegeneration or alterations in steady-state levels of striatal dopamine up to two years of age. Homozygous mice have significantly impaired dopaminergic transmission and impaired dopamine D2 receptor-mediated function. Specifically, homozygotes show reduced psychostimulant (amphetamine)-induced locomotor activity and reduced sensitivity to D2 receptor agonist (quinpirole)-induced locomotor inhibition. Also, nigral neurons from homozygous acute horizontal midbrain slices exhibit decreased sensitivity to inhibition of firing induced by dopamine, quinpirole, and amphetamine. Chromaffin cells cultured from homozygous mice also show compromised potassium-stimulated exocytotic catecholamine release.

In an attempt to offer alleles on well-characterized or multiple genetic backgrounds, alleles are frequently moved to a genetic background different from that on which an allele was first characterized. It should be noted that the phenotype could vary from that originally described. We will modify the strain description if necessary as published results become available.

Genetics

Lrrk2tm1.1Shn

Disease/Phenotype

Disease Terms
**Genotyping Protocols**

Standard PCR: *Lrrk2*

Genotyping resources and troubleshooting

**Breeding Considerations**

When maintaining a live colony, heterozygous mice may be bred to wildtype siblings or to C57BL/6J inbred mice (Stock No. 000664).

**Additional Breeding and Husbandry Support**

**Citation**
When using the B6.Cg-*Lrrk2*tm1.1Shn/J mouse strain in a publication, please cite the originating article(s) and include JAX stock #009346 in your Materials and Methods section.

**Animal Health Reports**

Facility Barrier Level Descriptions

*Production of mice from cryopreserved embryos or sperm occurs in a maximum barrier room, G200*

**Pricing & Availability**

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