

## B6.129P2-*Pitx3*<sup>tm1Mli</sup>/Mmjax

MMRRC Stock No: 41479-JAX | *Pitx3*-GFP

 Congenic, Targeted Mutation

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Homozygous *Pitx3*<sup>GFP</sup> knockin/knockout mice exhibit a progressive loss of dopaminergic neurons in the midbrain as well as an absence of lens epithelial cells. These mice may be useful in studying in vivo imaging, fate mapping of dopaminergic neurons in the midbrain and lens development.

### Donating Investigator

Sohur Usharbudh, Mass General Hospital

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## GENETIC OVERVIEW

Genetic Background

Generation

*Pitx3*<sup>tm1Mli</sup>

**Alele Type**

Targeted (Reporter, Null/Knockout)

**Gene Symbol**

*Pitx3*

**Gene Name**

paired-like homeodomain transcription factor 3

VIEW GENETICS

## RESEARCH APPLICATIONS

Developmental Biology Research

Sensorineural Research

Neurobiology Research

Research Tools

VIEW ALL RESEARCH APPLICATIONS

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## Details

### Detailed Description

The *Pitx3* gene encodes a homeobox transcription factor that is involved in dopaminergic neuron development and lens formation during eye development. Mutations in *Pitx3* are associated with cataract.

The *Pitx3*-GFP knockin/knockout allele has an SA-eGFP-IRES-pac-pA cassette replacing part of intron 1, exons 2-3 and half of exon 4. *Pitx3*-directed GFP fluorescence is observed in the dopaminergic neurons in the substantia nigra and ventral tegmental area of the adult midbrain. Mice homozygous for the mutation exhibit a progressive loss of dopaminergic neurons in the midbrain as well as a deformed lens due to a depletion of lens epithelial cells and aberrant fiber cell differentiation. These mice may be useful in studying in vivo imaging, fate mapping of dopaminergic neurons in the midbrain and lens development.

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### Development

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### Expression Data

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### Control Suggestions

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### Selected References

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## Genetics

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### *Pitx3*<sup>tm1Mli</sup>

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## Disease/Phenotype

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### Disease Terms

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### Research Areas By Phenotype

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### Mammalian Phenotype Terms by Genotype

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### References

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## Technical Support

### CONTACT TECHNICAL SUPPORT

#### Genotyping Protocols

Standard PCR:[Pitx3-Alternate 5](#)

[Genotyping resources and troubleshooting](#)

#### Breeding Considerations

While maintaining a live colony, these mice are bred as homozygotes.

[Additional Breeding and Husbandry Support](#)

#### Mating System

Heterozygote x Heterozygote

#### Citation

When using the Pitx3-GFP mouse strain in a publication, please [cite the originating article\(s\)](#) and include MMRRRC stock #41479 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](#)*

## THE JACKSON LABORATORY'S GENOTYPE PROMISE

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