

# *Jph3* Cas9-KO Strategy

**Designer:**

**JiaYu**

**Reviewer:**

**Xiaojing Li**

**Design Date:**

**2020-2-21**

# Project Overview

**Project Name**

*Jph3*

**Project type**

**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Jph3* gene. The schematic diagram is as follows:



- The *Jph3* gene has 4 transcripts. According to the structure of *Jph3* gene, exon2 of *Jph3-201* (ENSMUST00000026357.11) transcript is recommended as the knockout region. The region contains 778bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Jph3* gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, Homozygotes for a targeted null mutation exhibit impaired balance and motor coordination.
- The flox region is in the intron of the Gm20388 gene, which may affect the regulation of this gene.
- The *Jph3* gene is located on the Chr8. If the knockout mice are crossed with other mice strains to obtain double gene positive homozygous mouse offspring, please avoid the two genes on the same chromosome.
- This Strategy is designed based on genetic information in existing databases. Due to the complexity of biological processes, all risk of the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.



# Gene information (NCBI)

## Jph3 junctophilin 3 [Mus musculus (house mouse)]

Gene ID: 57340, updated on 31-Jan-2019

### Summary



|                           |                                                                                                                                                                           |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Official Symbol</b>    | Jph3 provided by <a href="#">MGI</a>                                                                                                                                      |
| <b>Official Full Name</b> | junctophilin 3 provided by <a href="#">MGI</a>                                                                                                                            |
| <b>Primary source</b>     | <a href="#">MGI:MGI:1891497</a>                                                                                                                                           |
| <b>See related</b>        | <a href="#">Ensembl:ENSMUSG00000025318</a>                                                                                                                                |
| <b>Gene type</b>          | protein coding                                                                                                                                                            |
| <b>RefSeq status</b>      | VALIDATED                                                                                                                                                                 |
| <b>Organism</b>           | <a href="#">Mus musculus</a>                                                                                                                                              |
| <b>Lineage</b>            | Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus |
| <b>Also known as</b>      | JP-3, Jp3                                                                                                                                                                 |
| <b>Expression</b>         | Biased expression in cortex adult (RPKM 46.6), cerebellum adult (RPKM 35.8) and 5 other tissues <a href="#">See more</a>                                                  |
| <b>Orthologs</b>          | <a href="#">human</a> <a href="#">all</a>                                                                                                                                 |

# Transcript information (Ensembl)

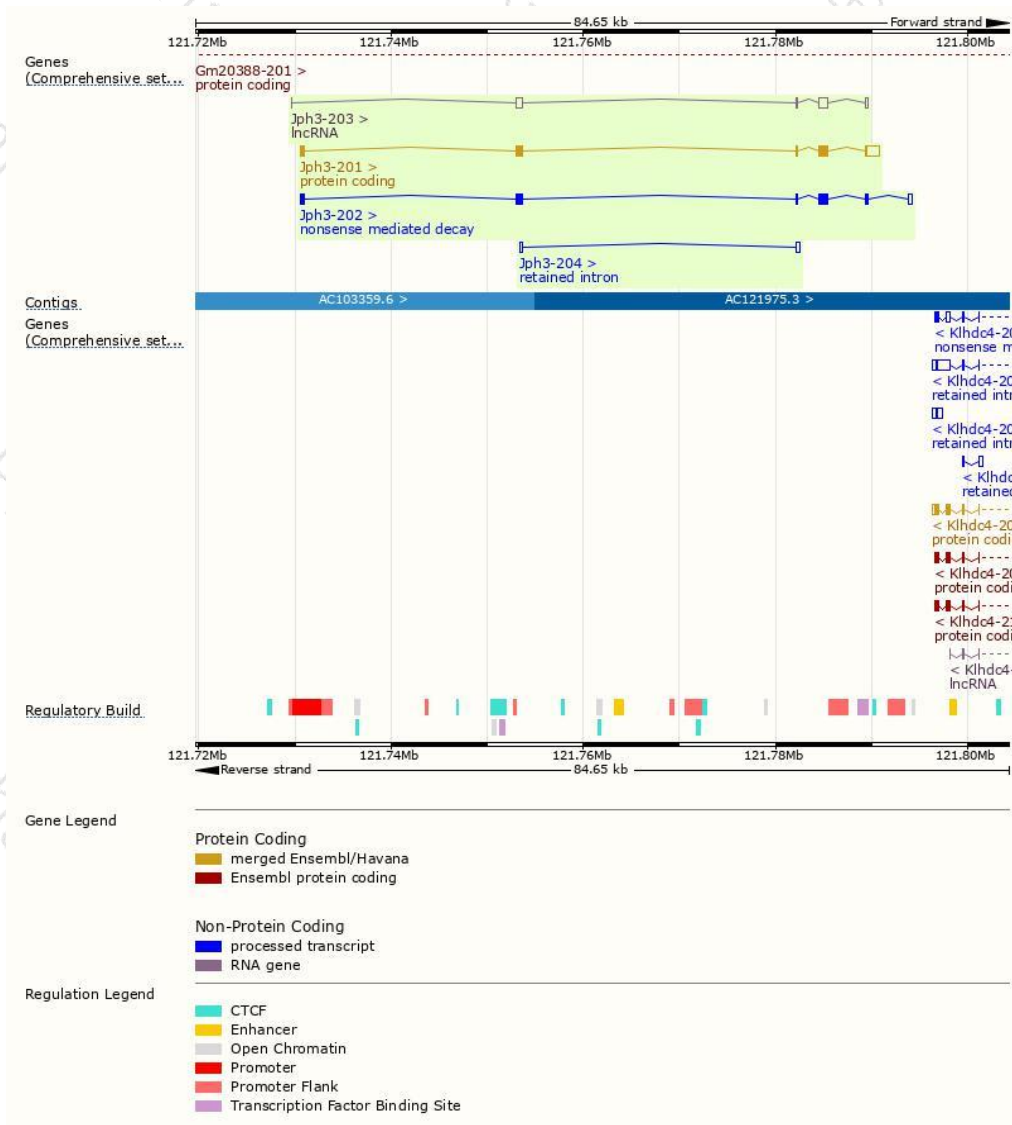
The gene has 4 transcripts,all transcripts are shown below:

| Name     | Transcript ID                         | bp   | Protein               | Biotype                 | CCDS                      | UniProt                | Flags                         |
|----------|---------------------------------------|------|-----------------------|-------------------------|---------------------------|------------------------|-------------------------------|
| Jph3-201 | <a href="#">ENSMUST00000026357.11</a> | 3637 | <a href="#">744aa</a> | Protein coding          | <a href="#">CCDS22728</a> | <a href="#">Q9ET77</a> | TSL:1 GENCODE basic APPRIS P1 |
| Jph3-202 | <a href="#">ENSMUST00000167439.1</a>  | 2852 | <a href="#">744aa</a> | Nonsense mediated decay | <a href="#">CCDS22728</a> | <a href="#">Q9ET77</a> | TSL:1                         |
| Jph3-204 | <a href="#">ENSMUST00000172209.1</a>  | 679  | No protein            | Retained intron         | -                         | -                      | TSL:2                         |
| Jph3-203 | <a href="#">ENSMUST00000169735.1</a>  | 2092 | No protein            | lncRNA                  | -                         | -                      | TSL:5                         |

The strategy is based on the design of *Jph3-201* transcript,The transcription is shown below

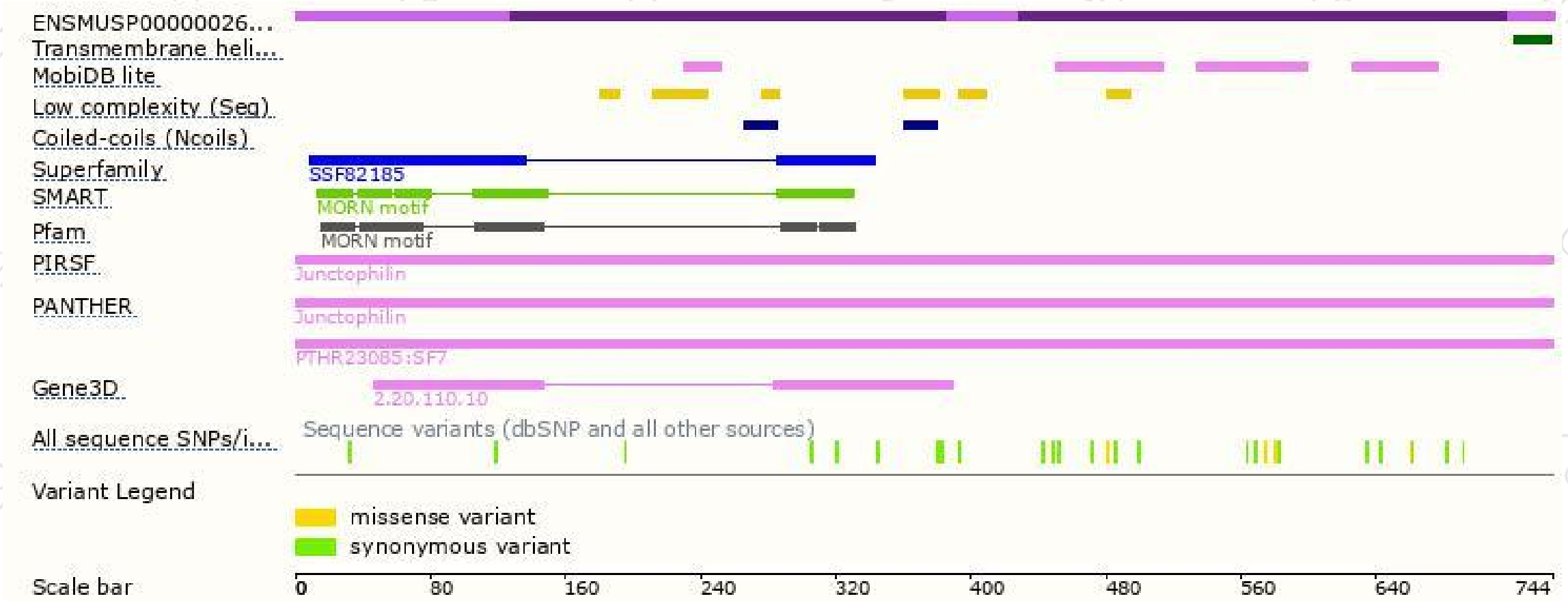


# Genomic location distribution

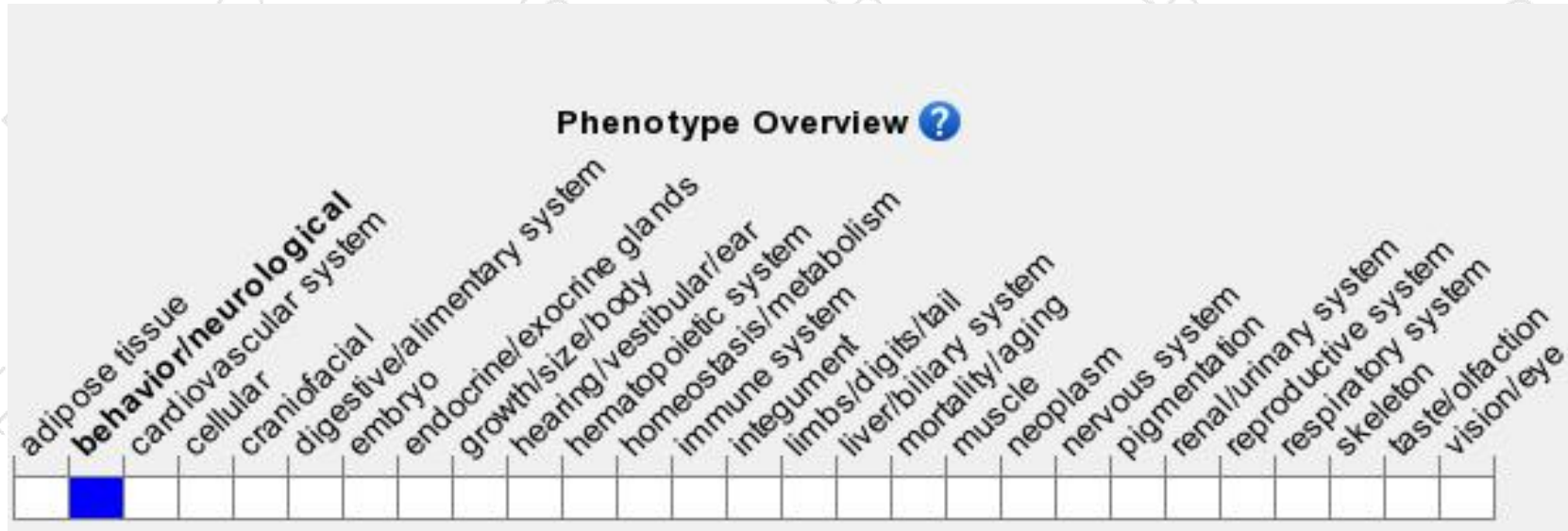




# Protein domain



# Mouse phenotype description(MGI )



*Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).*

According to the existing MGI data, Homozygotes for a targeted null mutation exhibit impaired balance and motor coordination.

If you have any questions, you are welcome to inquire.

Tel: 400-9660890

