

Jph3 Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Jph3

Project type

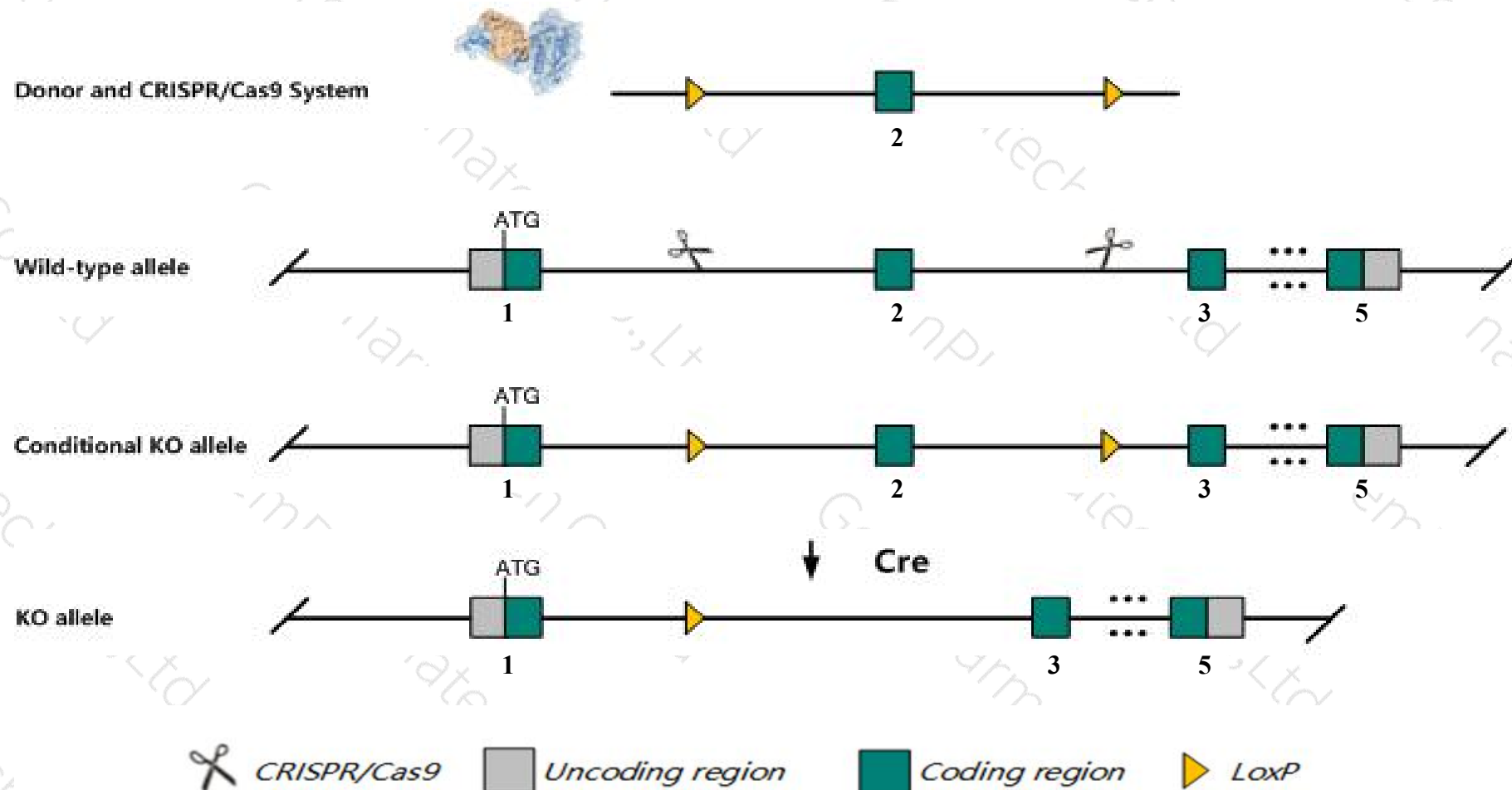
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional 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 and Donor were microinjected into the fertilized eggs of C57BL/6JGpt mice. Fertilized eggs were transplanted to obtain positive F0 mice which were confirmed by PCR and sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.
- The flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

- 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Jph3 junctophilin 3 [Mus musculus (house mouse)]

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

Summary



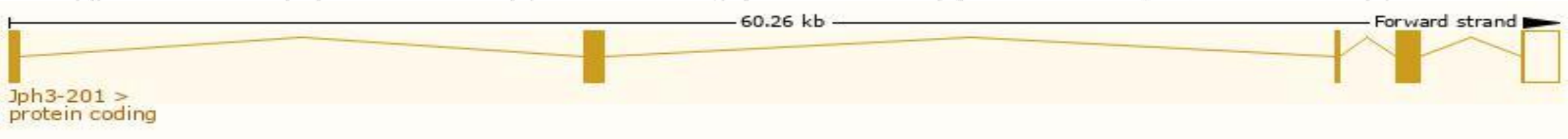
Official Symbol	Jph3 provided by MGI
Official Full Name	junctophilin 3 provided by MGI
Primary source	MGI:MGI:1891497
See related	Ensembl:ENSMUSG00000025318
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;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

Transcript information (Ensembl)

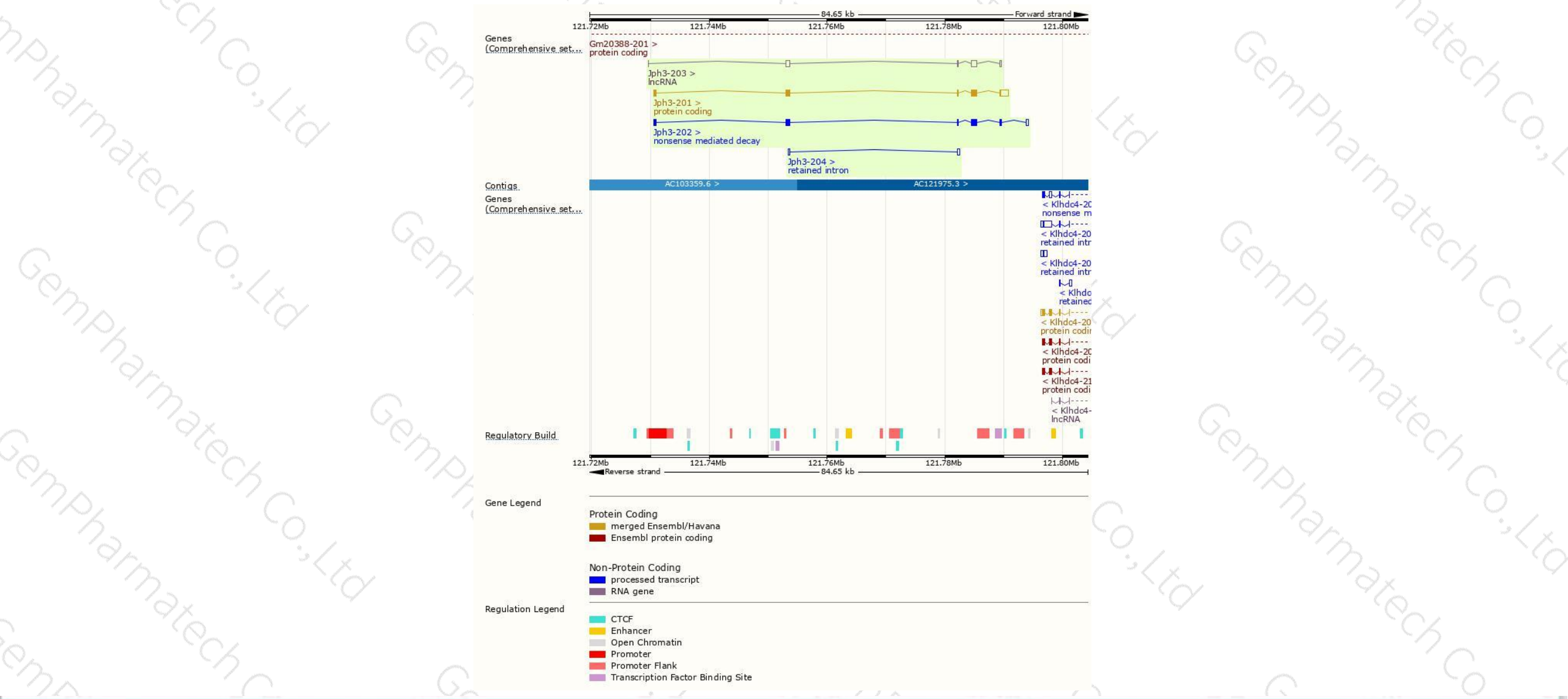
The gene has 4 transcripts,all transcripts are shown below:

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

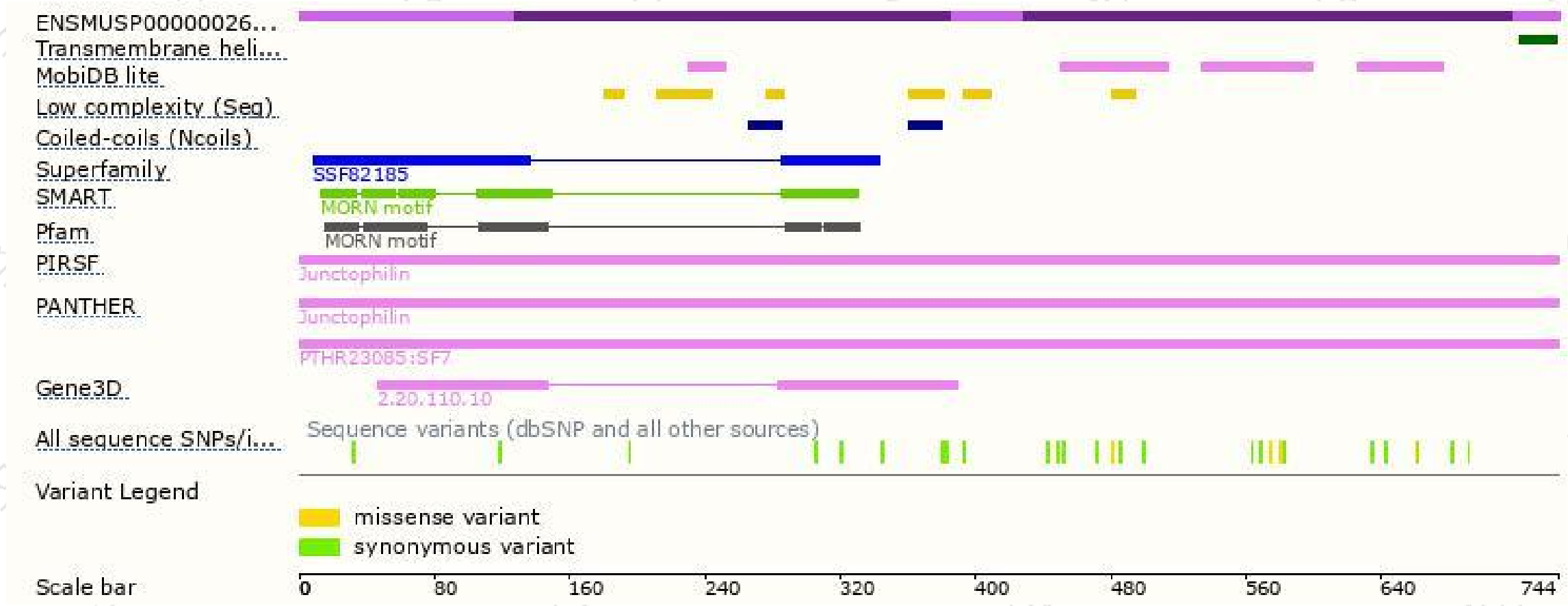
The strategy is based on the design of *Jph3-201* transcript,The transcription is shown below



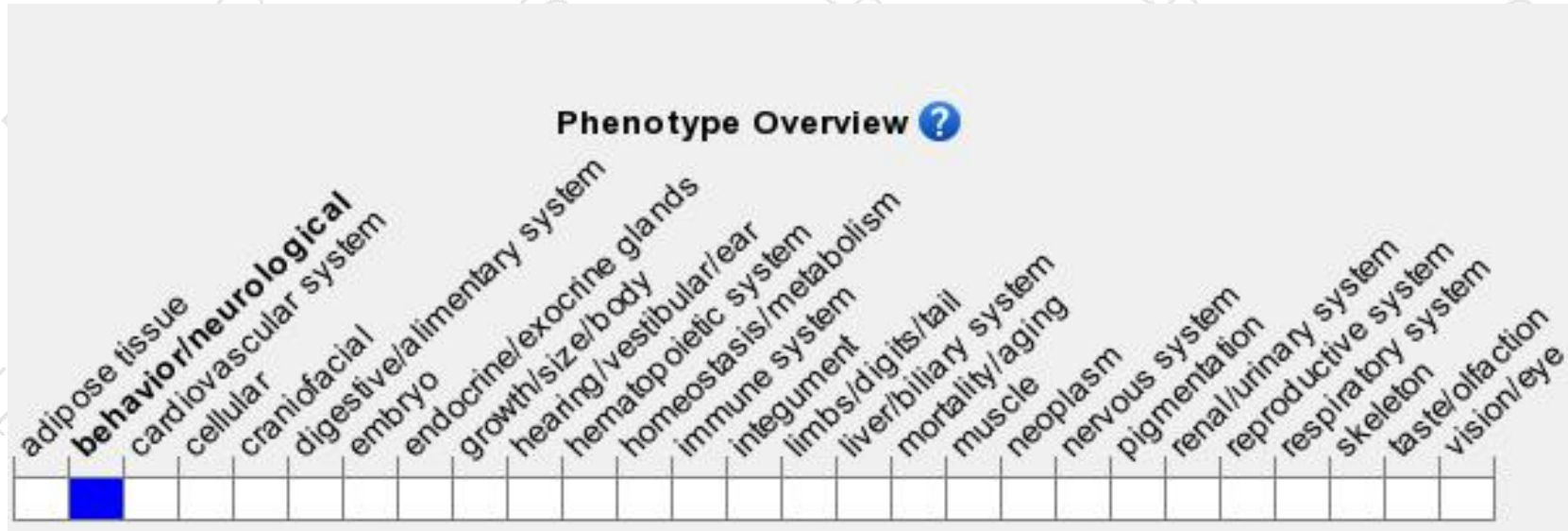
Genomic location distribution



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/>).

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

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