Plxnb3 Cas9-KO Strategy

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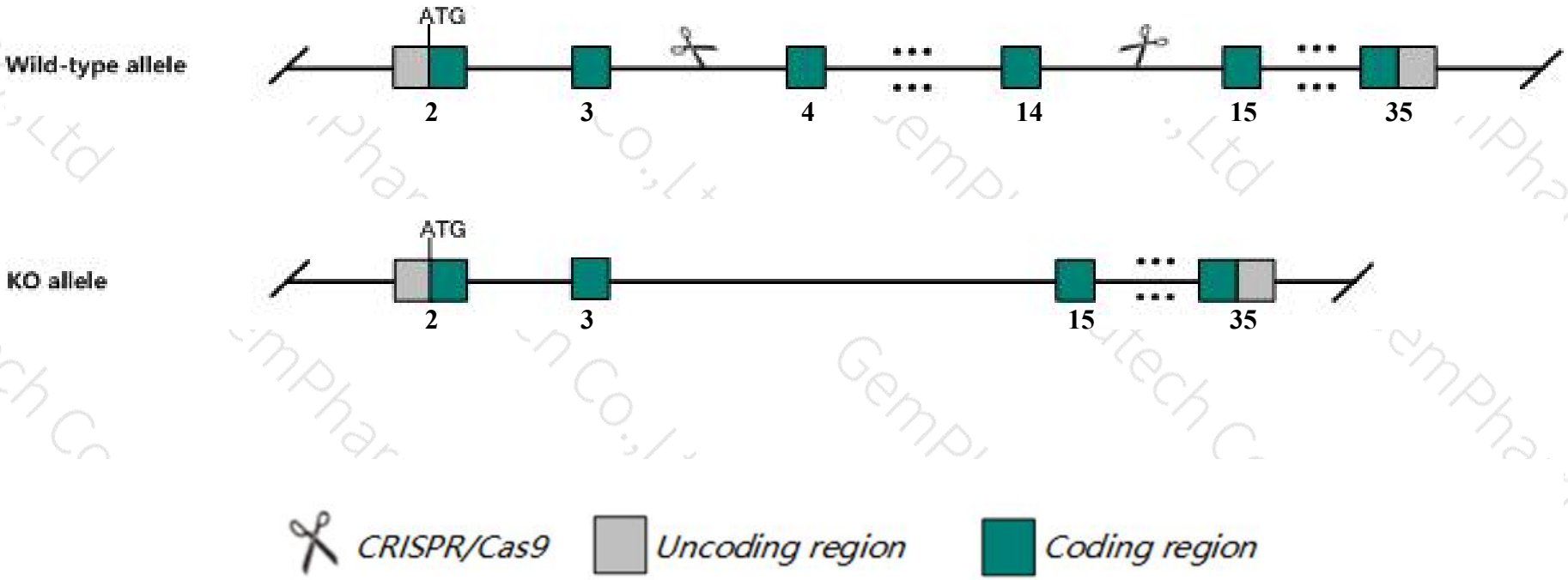
Project Overview

Project Name	***Plxnb3***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Plxnb3* gene. The schematic diagram is as follows:



Technical routes

➢ The *Plxnb3* gene has 5 transcripts. According to the structure of *Plxnb3* gene, exon4-exon14 of *Plxnb3-201* (ENSMUST00000002079.6) transcript is recommended as the knockout region.The region contains 1400bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Plxnb3* gene. The brief process is as follows: CRISPR/Cas9 systen

Notice

- According to the existing MGI data,Mice homozygous for a knock-out allele exhibit normal retinal stratification.

- The *Plxnb3* gene is located on the ChrX. 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）

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Plxnb3 plexin B3 [Mus musculus (house mouse)]

Gene ID: 140571, updated on 19-Mar-2019

Summary

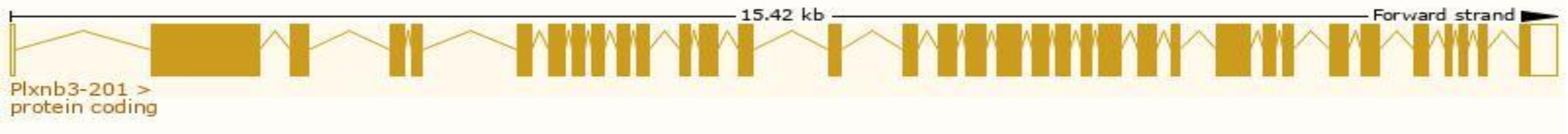
Official Symbol	Plxnb3 provided by MGI
Official Full Name	plexin B3 provided by MGI
Primary source	MGI:MGI:2154240
See related	Ensembl:ENSMUSG00000031385
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI451018, Plxn6
Expression	Biased expression in cerebellum adult (RPKM 6.4), cortex adult (RPKM 3.8) and 10 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

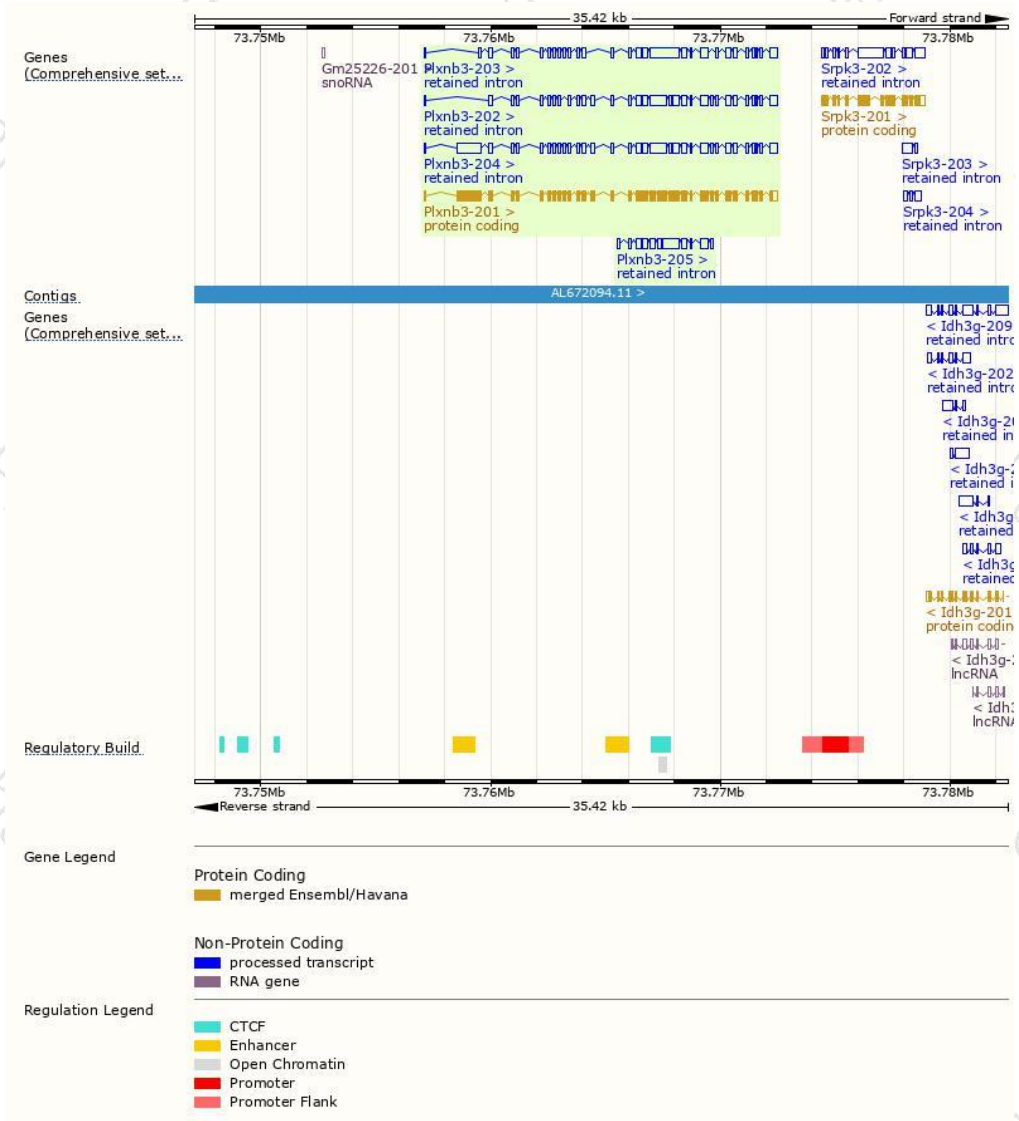
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Plxnb3-201	ENSMUST00000002079.6	6030	1902aa	Protein coding	CCDS41013	Q9QY40	TSL:5 GENCODE basic APPRIS P1
Plxnb3-204	ENSMUST00000149478.7	6217	No protein	Retained intron	-	-	TSL:1
Plxnb3-203	ENSMUST00000147127.7	5212	No protein	Retained intron	-	-	TSL:2
Plxnb3-202	ENSMUST00000146812.7	5030	No protein	Retained intron	-	-	TSL:1
Plxnb3-205	ENSMUST00000155096.1	2296	No protein	Retained intron	-	-	TSL:1

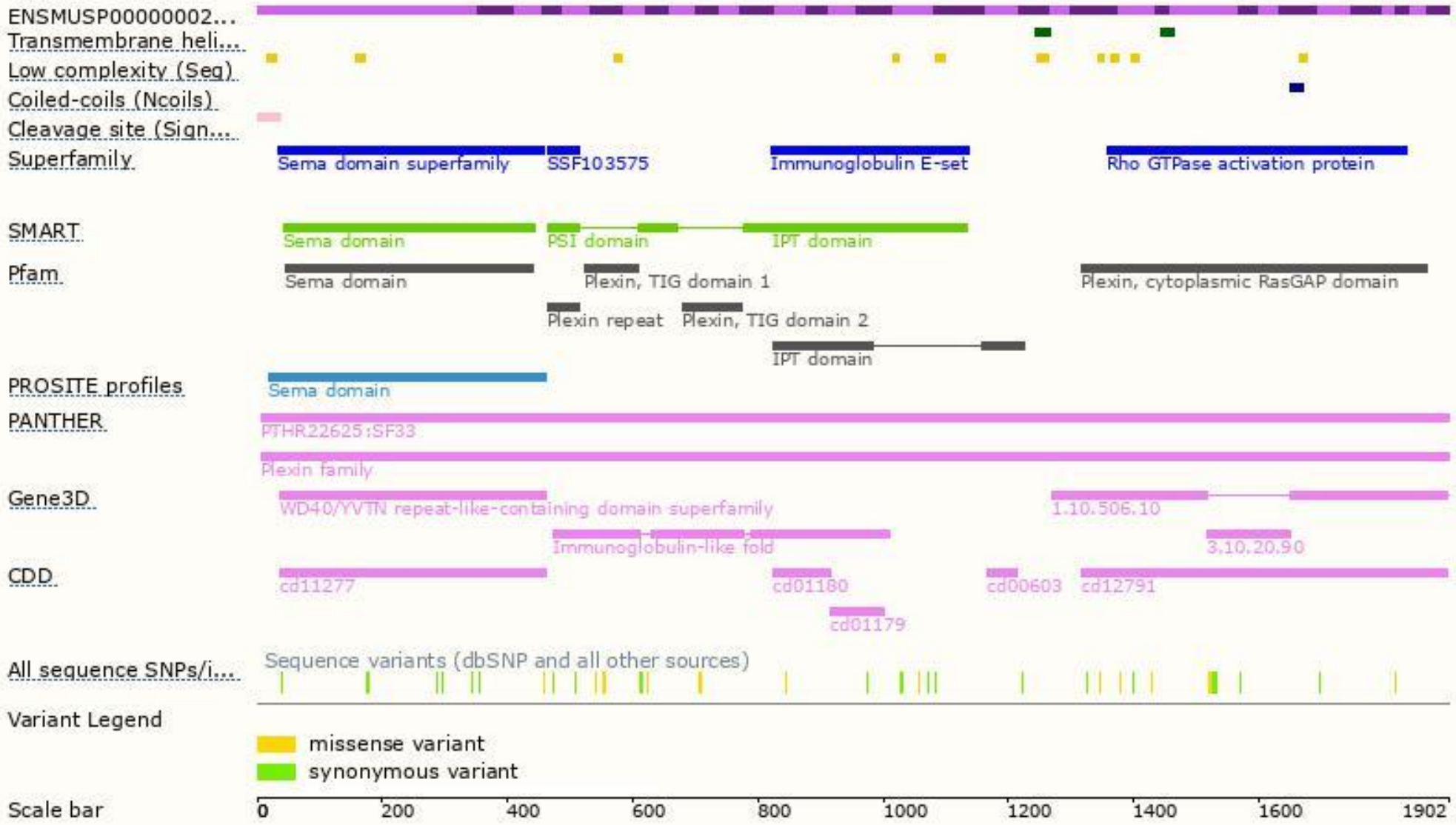
The strategy is based on the design of *Plxnb3-201* transcript,The transcription is shown below



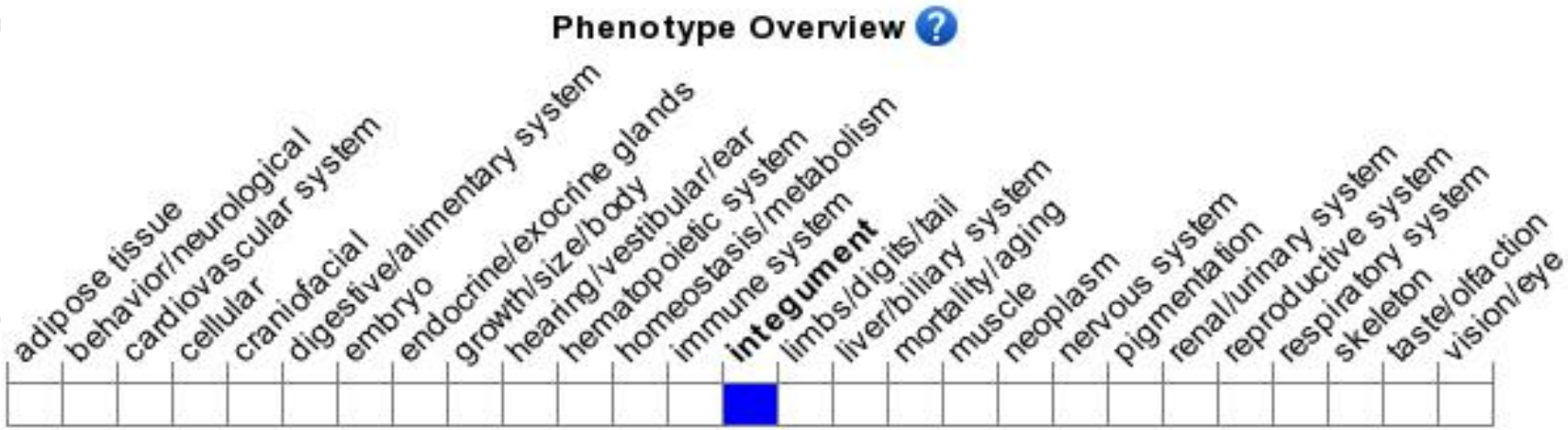
Genomic location distribution



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,Mice homozygous for a knock-out allele exhibit normal retinal stratification.

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

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