Scnn1b Cas9-KO Strategy

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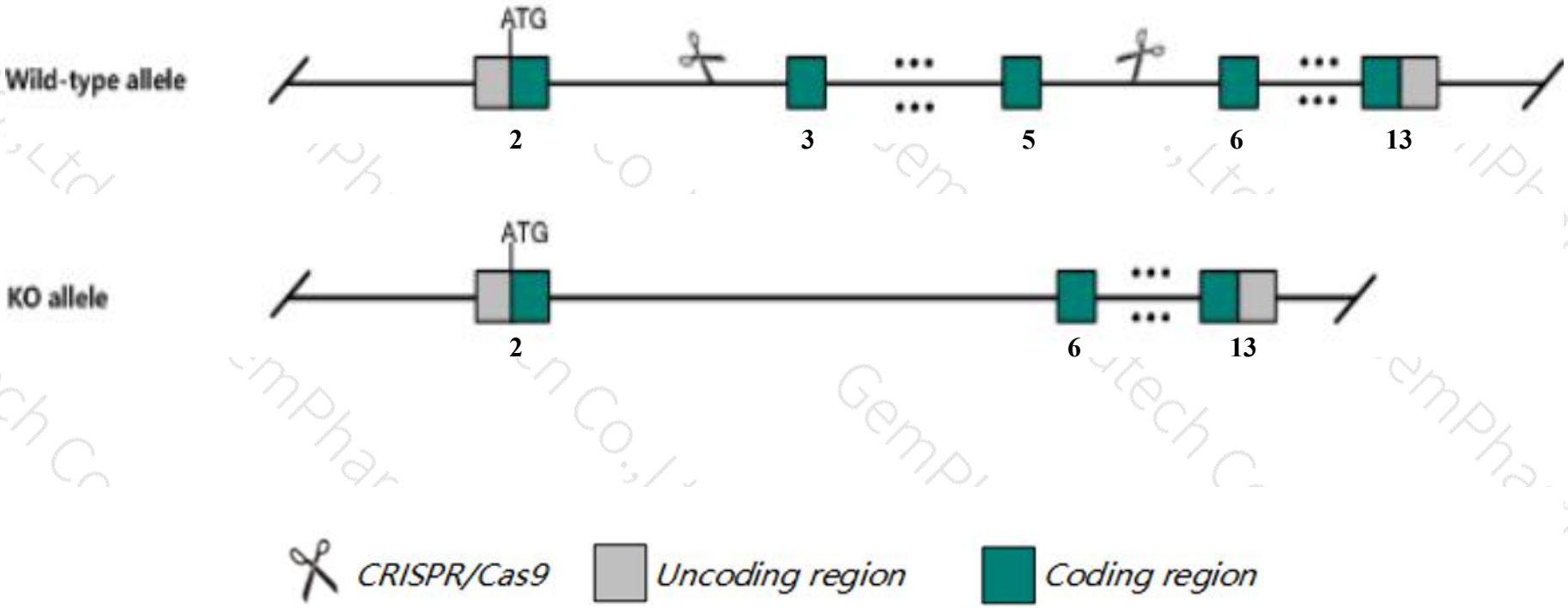
Project Overview

Project Name	***Scnn1b***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Scnn1b* gene. The schematic diagram is as follows:



Technical routes

➢ The *Scnn1b* gene has 3 transcripts. According to the structure of *Scnn1b* gene, exon3-exon5 of *Scnn1b-201* (ENSMUST00000033161.6) transcript is recommended as the knockout region.The region contains 563bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Scnn1b* gene. The brief process is as follows: CRISPR/Cas9 syster

Notice

- According to the existing MGI data,homozygous mutation of this gene results in death shortly after birth, decreased serum sodium levels but higher urine sodium levels and increased serum potassium and chloride levels but lower potassium urine levels. another homozygous mutation exhibits no abnormal phenotype.
- Part intron 16-17 of *Cog7-203* will be knocked out.
- The *Scnn1b* gene is located on the Chr7. 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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Scnn1b sodium channel, nonvoltage-gated 1 beta [*Mus musculus* (house mouse)]

Gene ID: 20277, updated on 13-Mar-2020

Summary

Official Symbol	Scnn1b provided by MGI
Official Full Name	sodium channel, nonvoltage-gated 1 beta provided by MGI
Primary source	MGI:MGI:104696
See related	Ensembl:ENSMUSG00000030873
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
Expression	Biased expression in lung adult (RPKM 59.5), kidney adult (RPKM 28.0) and 6 other tissues See more
Orthologs	human all

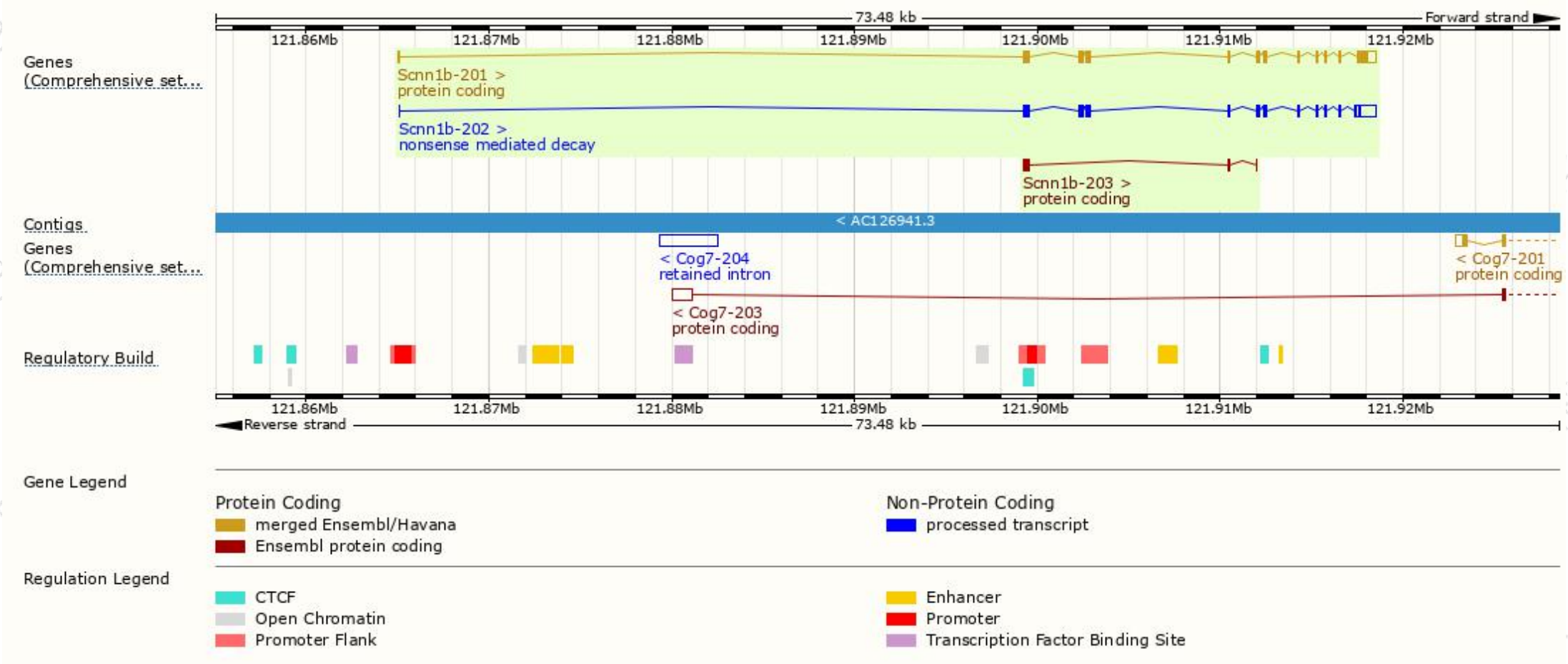
Transcript information（Ensembl）

The gene has 3 transcripts,all transcripts are shown below:

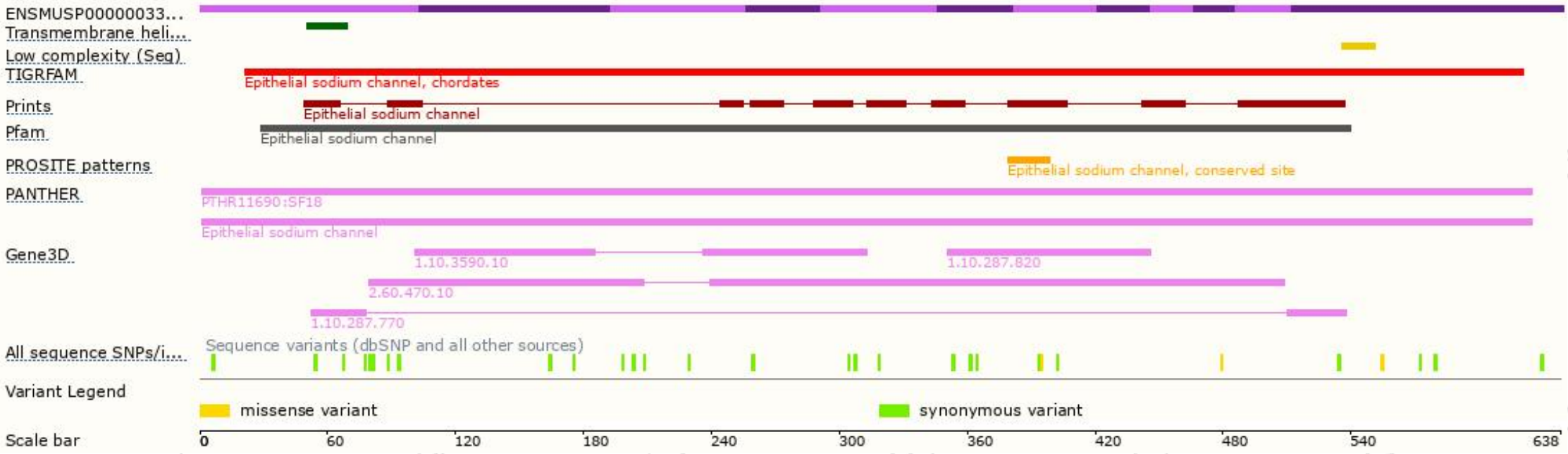
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Scnn1b-201	ENSMUST00000033161.6	2478	638aa	Protein coding	CCDS21804	A2RS45 Q9WU38	TSL:1 GENCODE basic APPRIS P1
Scnn1b-203	ENSMUST00000206079.1	437	142aa	Protein coding	-	A0A0U1RNR9	CDS 3' incomplete TSL:5
Scnn1b-202	ENSMUST00000205520.1	2591	502aa	Nonsense mediated decay	-	Q3TP51	TSL:1

The strategy is based on the design of *Scnn1b-201* transcript, the transcription is shown below

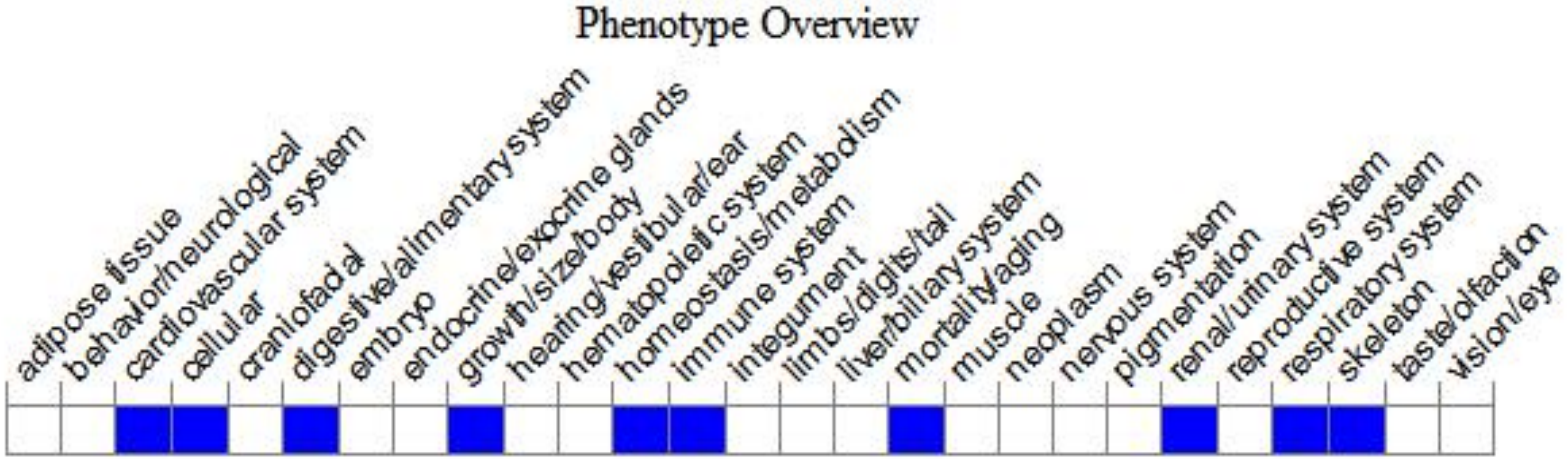
Genomic location distribution



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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