

Tpcn1 Cas9-KO Strategy

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Project Overview

Project Name

Tpcn1

Project type

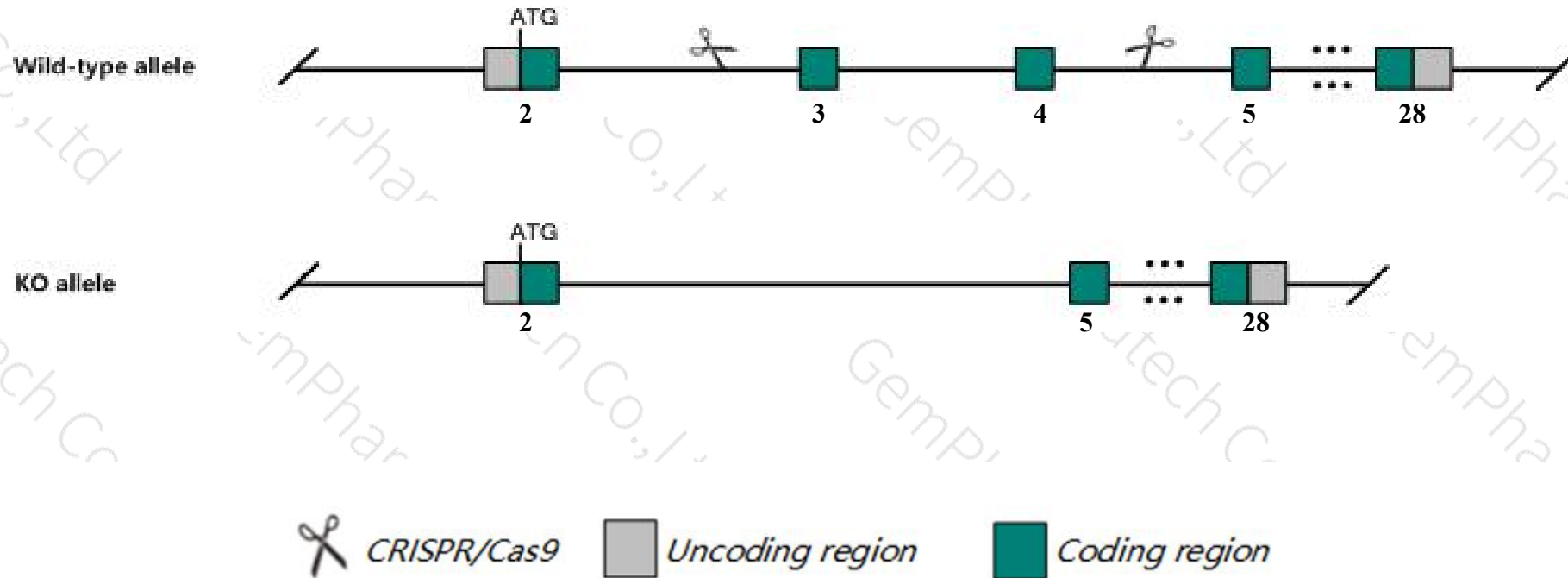
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tpcn1* gene. The schematic diagram is as follows:



- The *Tpcn1* gene has 4 transcripts. According to the structure of *Tpcn1* gene, exon3-exon4 of *Tpcn1-201* (ENSMUST00000046426.9) transcript is recommended as the knockout region. The region contains 305bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Tpcn1* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous inactivation of this gene results in no apparent phenotypic abnormalities.
- The *Tpcn1* gene is located on the Chr5. 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)

Tpcn1 two pore channel 1 [Mus musculus (house mouse)]

Gene ID: 252972, updated on 31-Jan-2019

Summary



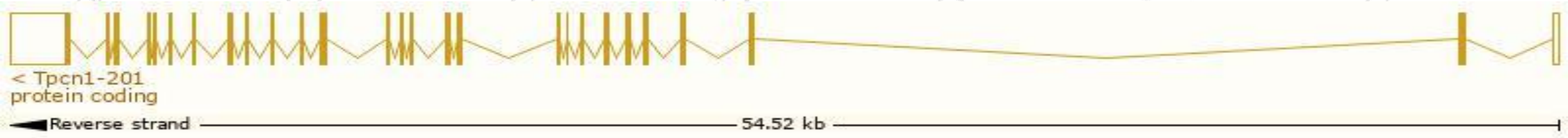
Official Symbol	Tpcn1 provided by MGI
Official Full Name	two pore channel 1 provided by MGI
Primary source	MGI:MGI:2182472
See related	Ensembl:ENSMUSG00000032741
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	5730403B01Rik, Tpc1, mKIAA1169
Expression	Ubiquitous expression in kidney adult (RPKM 55.6), colon adult (RPKM 48.2) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

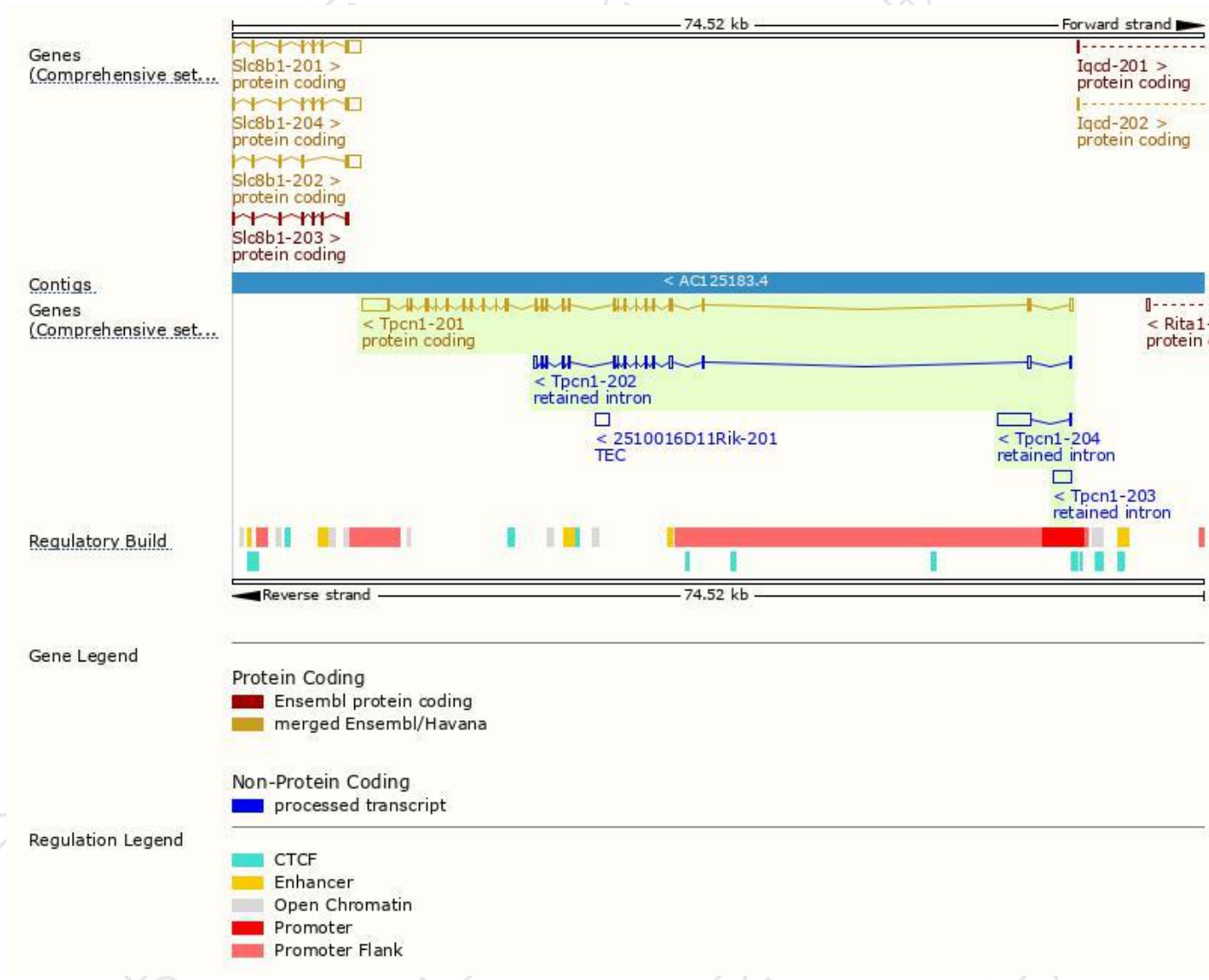
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tpcn1-201	ENSMUST00000046426.9	4712	817aa	Protein coding	CCDS39239	Q9EQJ0	TSL:1 GENCODE basic APPRIS P1
Tpcn1-204	ENSMUST00000202072.1	2622	No protein	Retained intron	-	-	TSL:1
Tpcn1-202	ENSMUST00000200708.1	1705	No protein	Retained intron	-	-	TSL:1
Tpcn1-203	ENSMUST00000201601.1	1443	No protein	Retained intron	-	-	TSL:NA

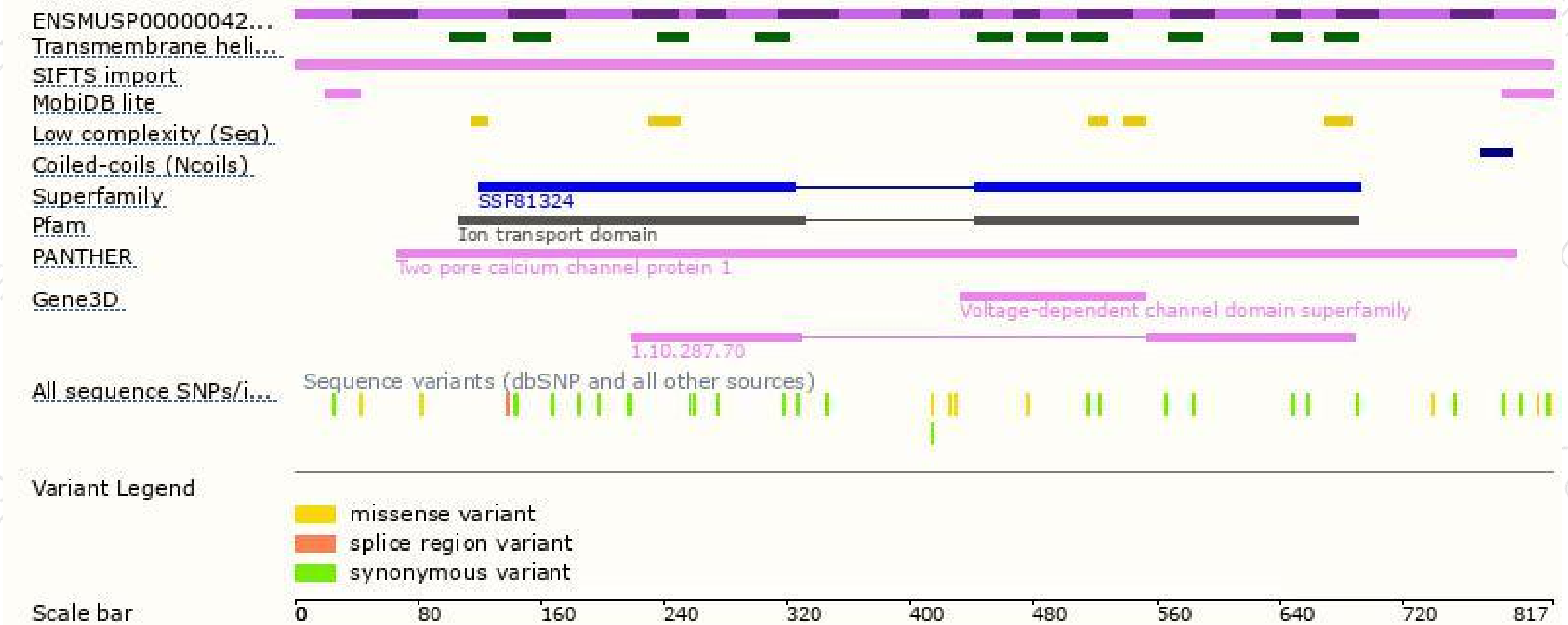
The strategy is based on the design of *Tpcn1-201* transcript,The transcription is shown below



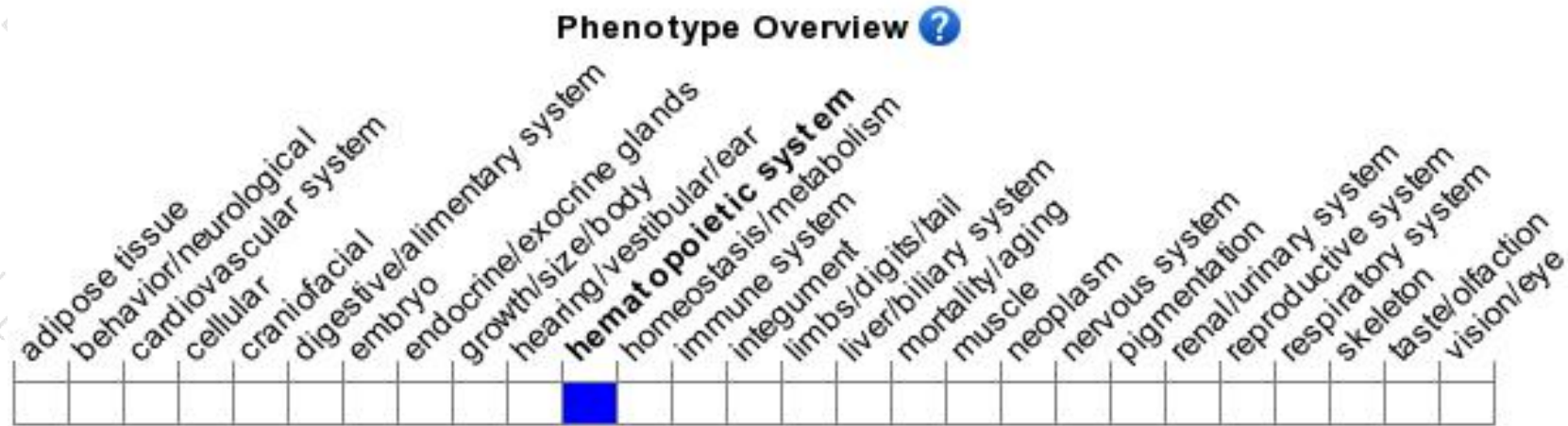
Genomic location distribution



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, Homozygous inactivation of this gene results in no apparent phenotypic abnormalities.

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

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