

Pcdh17 Cas9-KO Strategy

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Project Overview

Project Name

Pcdh17

Project type

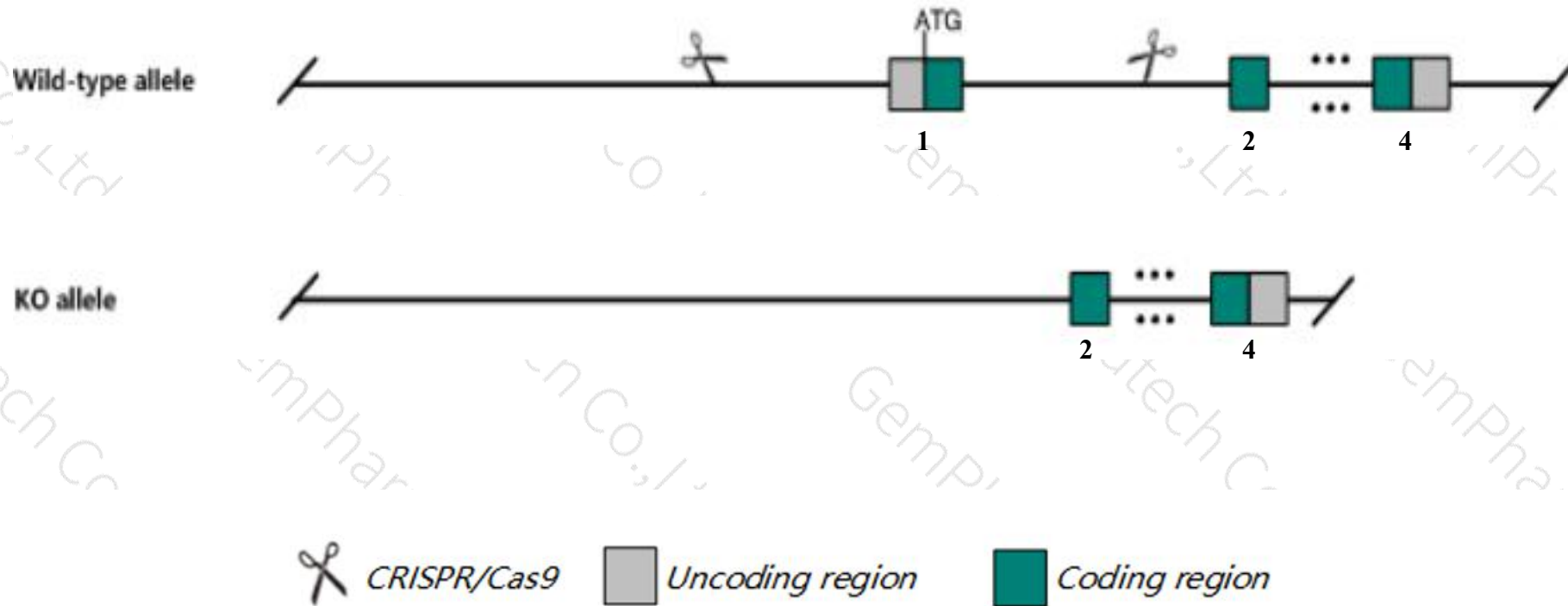
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pcdh17* gene. The schematic diagram is as follows:



- The *Pcdh17* gene has 2 transcripts. According to the structure of *Pcdh17* gene, exon1 of *Pcdh17-201* (ENSMUST00000071370.6) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Pcdh17* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for a knock-out allele exhibit impaired synaptic transmission, increased synaptic vesicle number and decreased depression-related behavior.
- The *Pcdh17* gene is located on the Chr14. 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)

Pcdh17 protocadherin 17 [Mus musculus (house mouse)]

Gene ID: 219228, updated on 31-Jan-2019

Summary



Official Symbol Pcdh17 provided by [MGI](#)

Official Full Name protocadherin 17 provided by [MGI](#)

Primary source [MGI:MGI:2684924](#)

See related [Ensembl:ENSMUSG00000035566](#)

Gene type protein coding

RefSeq status REVIEWED

Organism [Mus musculus](#)

Lineage Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus

Also known as C030033F14Rik, Gm78

Summary This gene belongs to the protocadherin gene family, a subfamily of the cadherin superfamily. The encoded protein contains six extracellular cadherin domains, a transmembrane domain, and a cytoplasmic tail differing from those of the classical cadherins. The encoded protein may play a role in the establishment and function of specific cell-cell connections in the brain. [provided by RefSeq, Sep 2009]

Expression Broad expression in CNS E18 (RPKM 7.2), whole brain E14.5 (RPKM 5.3) and 18 other tissues [See more](#)

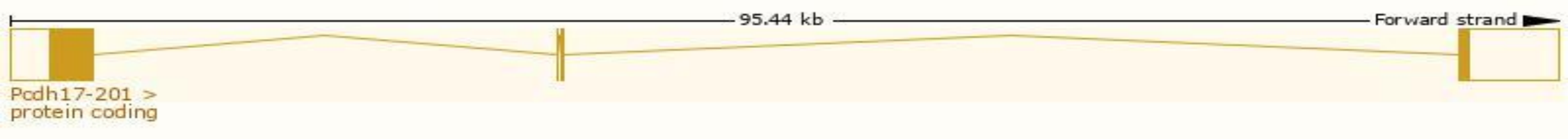
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

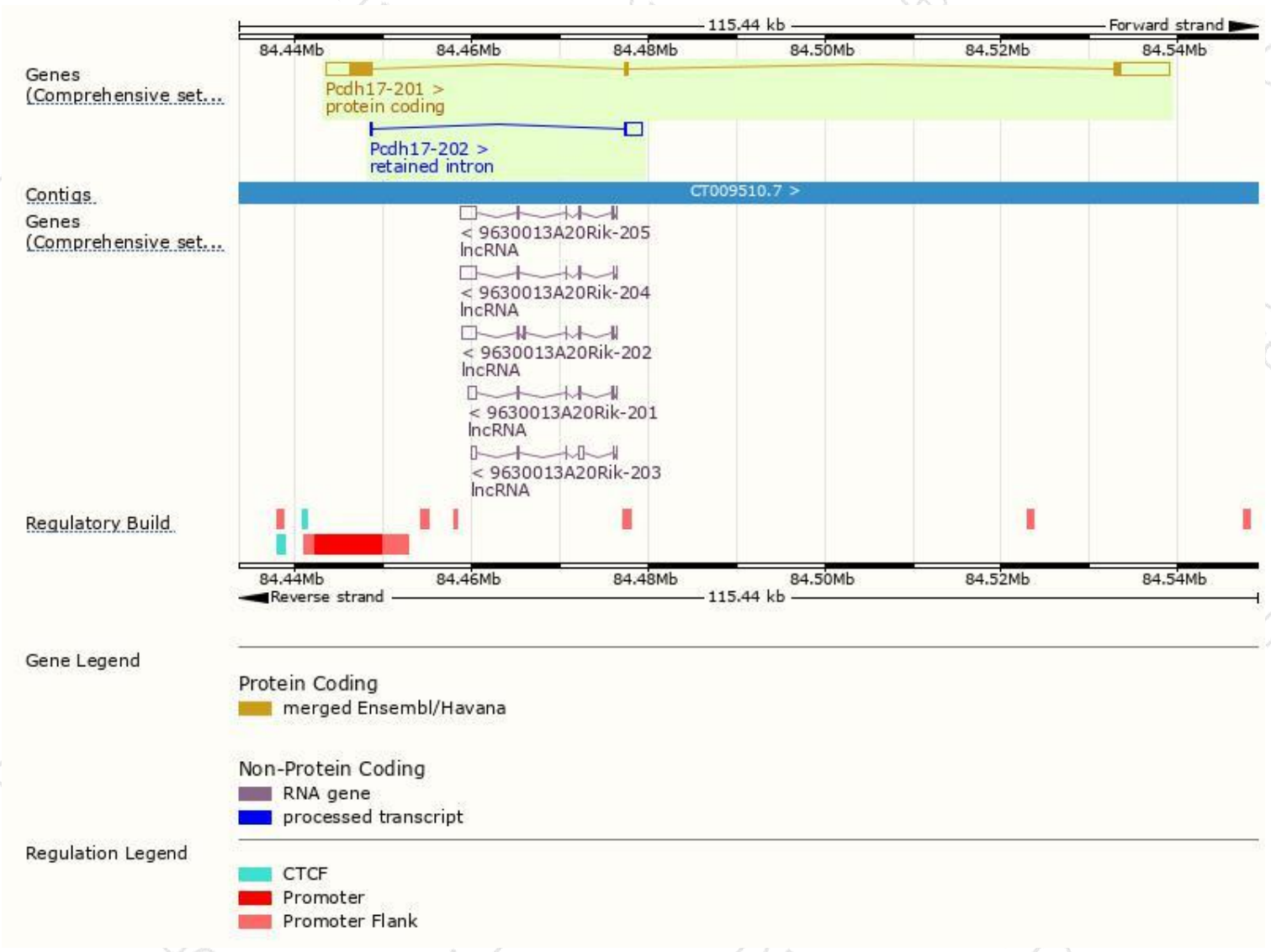
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pcdh17-201	ENSMUST00000071370.6	11451	1157aa	Protein coding	CCDS27304	E9PXF0	TSL:1 GENCODE basic APPRIS P1
Pcdh17-202	ENSMUST00000226362.1	1919	No protein	Retained intron	-	-	

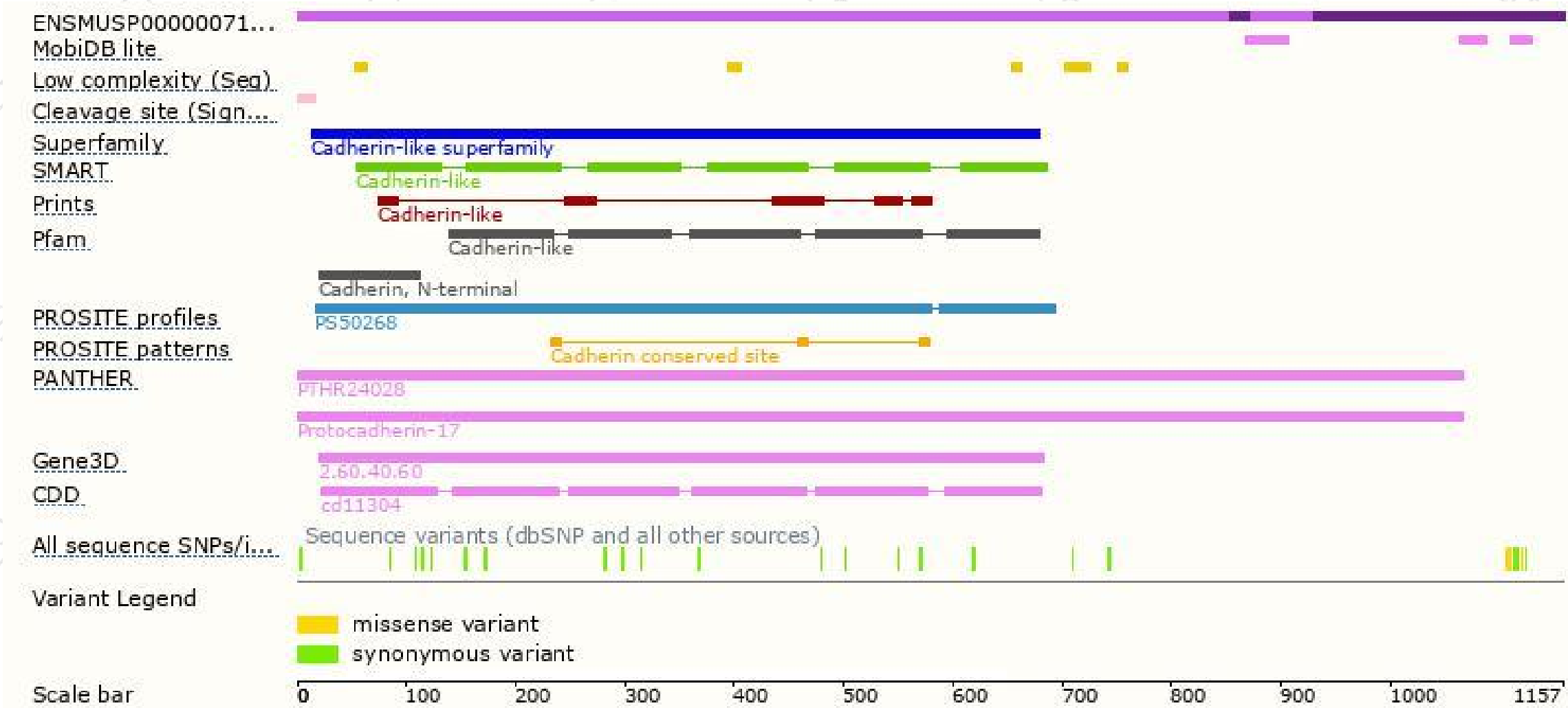
The strategy is based on the design of *Pcdh17-201* transcript,The transcription is shown below



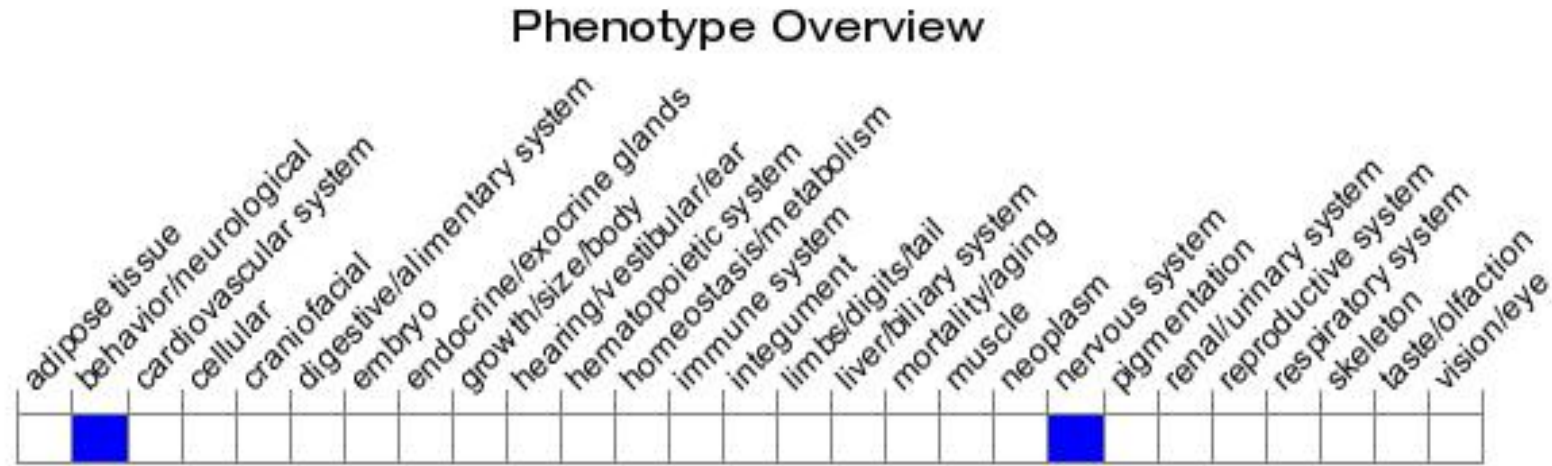
Genomic location distribution



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 impaired synaptic transmission, increased synaptic vesicle number and decreased depression-related behavior.

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

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