

Pcdh7 Cas9-CKO Strategy

Designer:

Huan Fan

Reviewer:

Shilei Zhu

Design Date:

2020-2-28

Project Overview

Project Name

Pcdh7

Project type

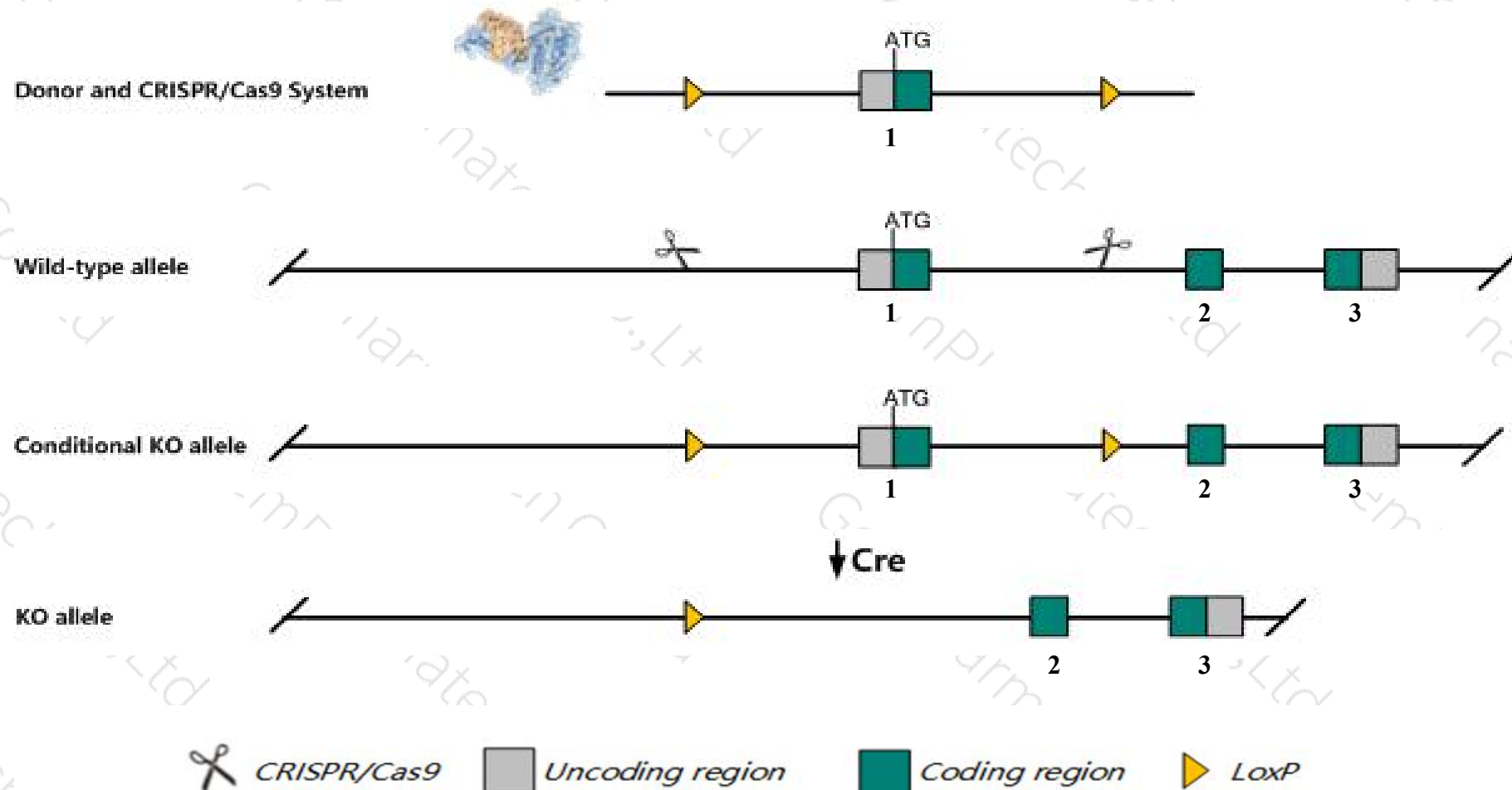
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pcdh7* gene. The schematic diagram is as follows:



Technical routes

- The *Pcdh7* gene has 7 transcripts. According to the structure of *Pcdh7* gene, exon1 of *Pcdh7*-203 (ENSMUST00000191837.5) 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 *Pcdh7* 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.

Notice

- The *Pcdh7* 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.
- *Gm42635,4932441J04Rik* will be affected.
- 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)

Pcdh7 protocadherin 7 [Mus musculus (house mouse)]

Gene ID: 54216, updated on 19-Mar-2019

Summary



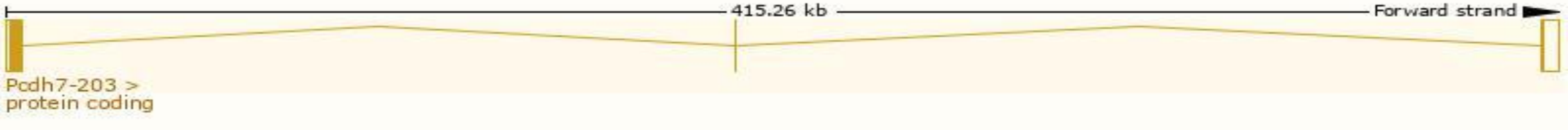
Official Symbol	Pcdh7 provided by MGI
Official Full Name	protocadherin 7 provided by MGI
Primary source	MGI:MGI:1860487
See related	Ensembl:ENSMUSG000000029108
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Expression	Broad expression in bladder adult (RPKM 7.7), cortex adult (RPKM 7.2) and 21 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

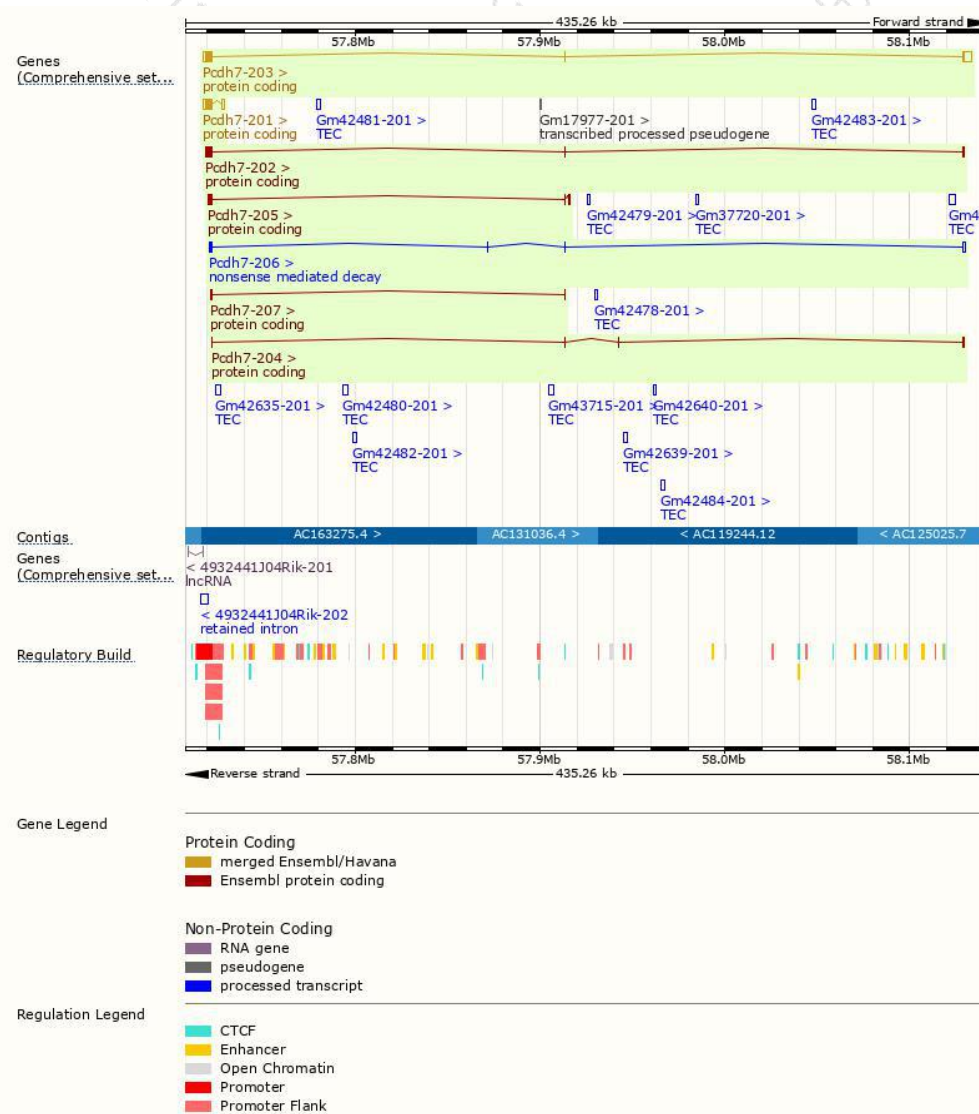
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pcdh7-203	ENSMUST00000191837.5	8785	1255aa	Protein coding	CCDS51505	A0A0A6YY83	TSL:1 GENCODE basic APPRIS ALT1
Pcdh7-201	ENSMUST00000068110.9	5611	1069aa	Protein coding	CCDS19296	A2RS43	TSL:1 GENCODE basic APPRIS P3
Pcdh7-202	ENSMUST00000094783.6	3752	1247aa	Protein coding	CCDS80286	E9Q2S0	TSL:1 GENCODE basic APPRIS ALT1
Pcdh7-205	ENSMUST00000192287.5	2602	802aa	Protein coding	-	A0A0A6YY48	CDS 5' incomplete TSL:1
Pcdh7-204	ENSMUST00000192048.1	863	125aa	Protein coding	-	A0A0A6YWD5	CDS 5' incomplete TSL:3
Pcdh7-207	ENSMUST00000199310.1	659	171aa	Protein coding	-	A0A0G2JG16	TSL:2 GENCODE basic
Pcdh7-206	ENSMUST00000195156.2	2199	379aa	Nonsense mediated decay	-	A0A0A6YW34	CDS 5' incomplete TSL:5

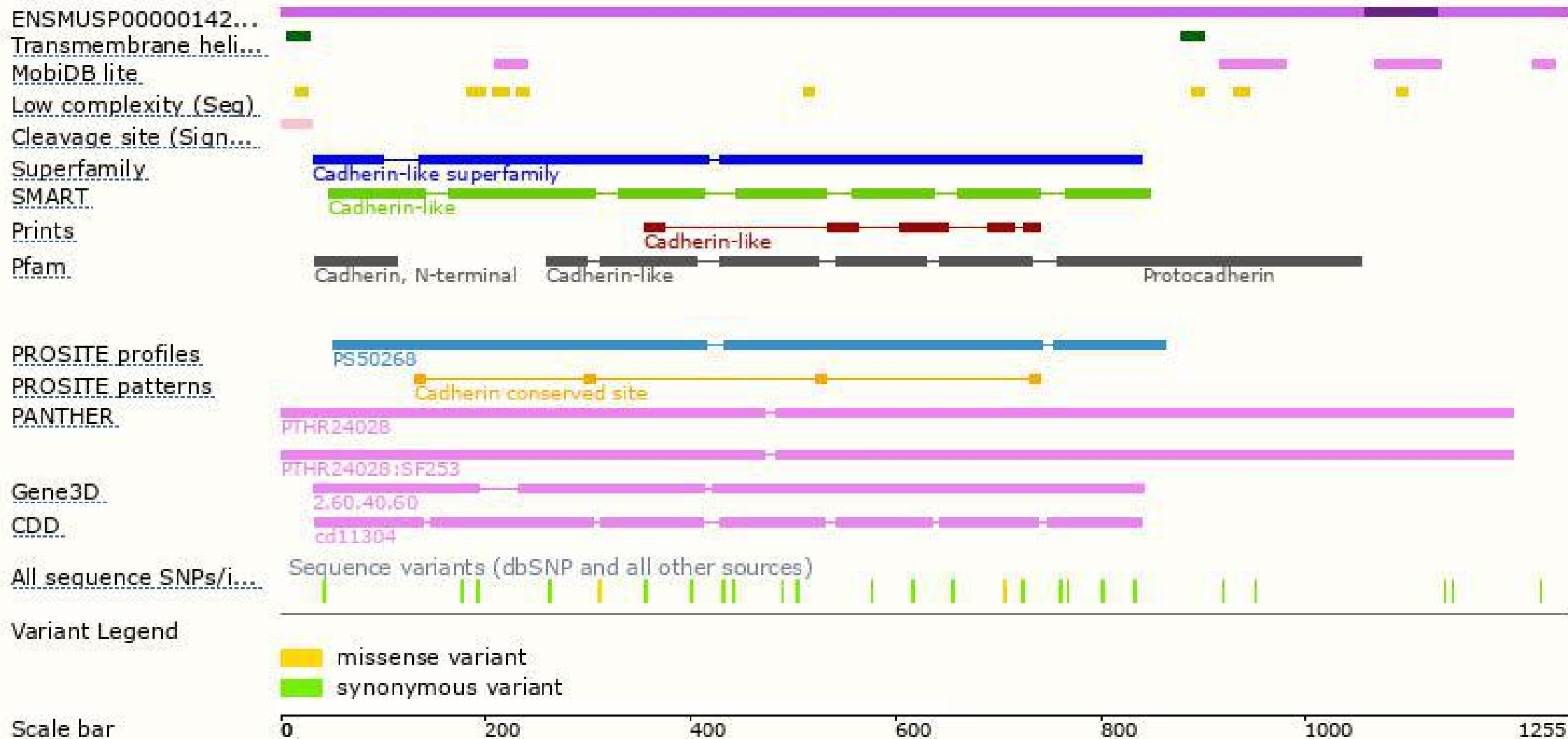
The strategy is based on the design of *Pcdh7-203* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

Tel: 400-9660890

