Cacng7 Cas9-KO Strategy

Designer:Xueting Zhang
Reviewer:Yanhua Shen
Date:2020-02-28

Project Overview

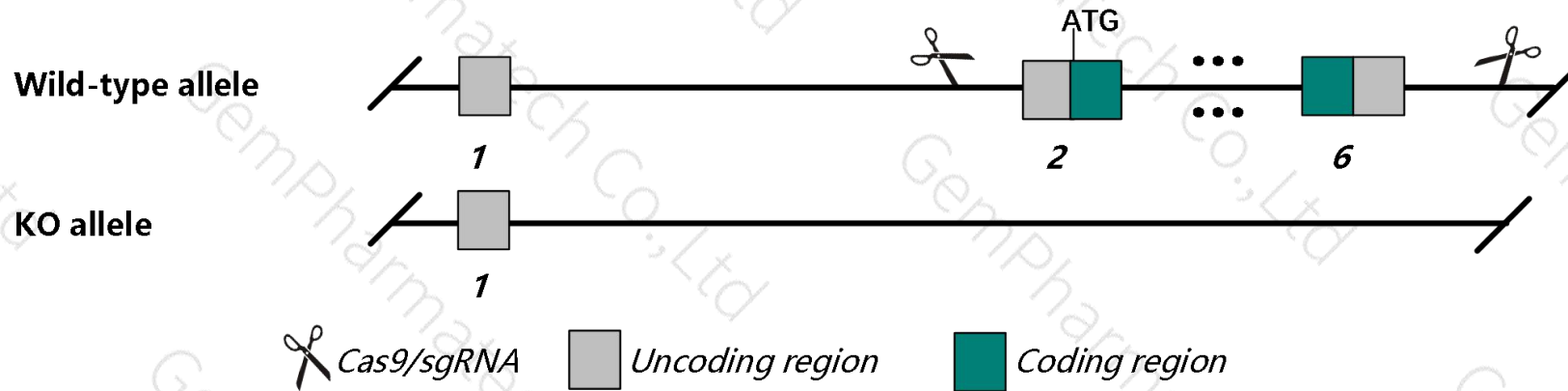|	
Project Name	*Cacng7*
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

This model will use CRISPR/Cas9 technology to edit the *Cacng7* gene. The schematic diagram is as follows:

Technical routes

➢ The *Cacng7* gene has 2 transcripts. According to the structure of *Cacng7* gene, exon2-exon6 of *Cacng7-201* (ENSMUST00000092891.5) transcript is recommended as the knockout region.The region contains all of the coding sequence.Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Cacng7* gene. The brief process is as follows: CRISPR/Cas9 syster

Notice

➢ According to the existing MGI data,Mice homozygous for a knock-out allele are viable, fertile, and indistinguishable from wild-type controls.

➢ *Gm44256* gene will be deleted.

➢ The *Cacng7* 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）

Cacng7 calcium channel, voltage-dependent, gamma subunit 7 [*Mus musculus* (house mouse)]

Gene ID: 81904, updated on 29-Oct-2019

▲ Summary

Official Symbol	Cacng7 provided by MGI
Official Full Name	calcium channel, voltage-dependent, gamma subunit 7 provided by MGI
Primary source	MGI:MGI:1932374
See related	Ensembl:ENSMUSG00000069806
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 cerebellum adult (RPKM 41.3), frontal lobe adult (RPKM 39.7) and 16 other tissues See more
Orthologs	human all

▲ Genomic context

Location: 7 A1; 7 1.95 cM

See Cacng7 in Genome Data Viewer

Exon count: 7

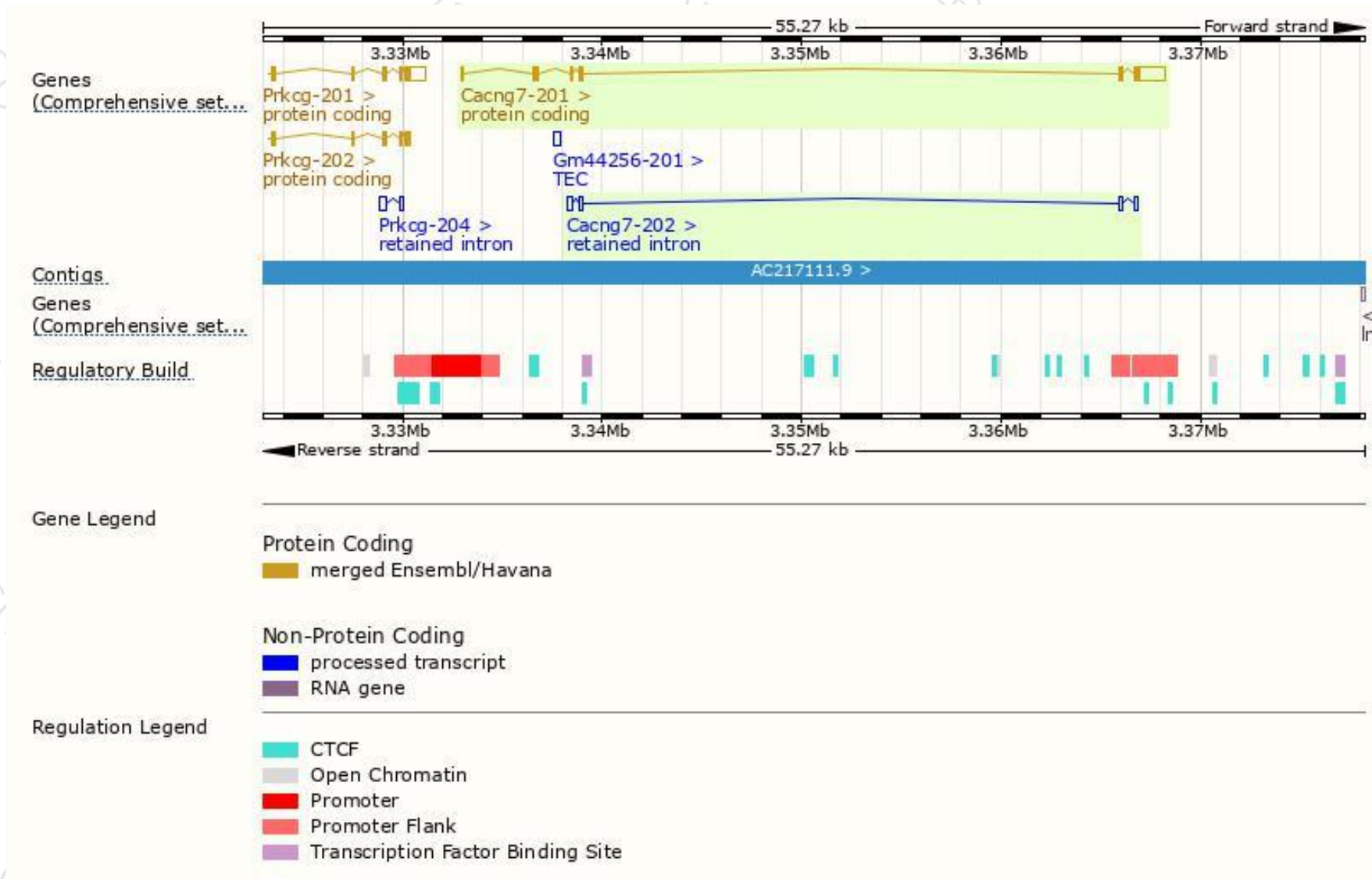| Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	7	NC_000073.6 (3332027..3368221)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	7	NC_000073.5 (3336685..3366537)

Transcript information（Ensembl）

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

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cacng7-201	ENSMUST00000092891.5	2212	275aa	Protein coding	CCDS39725	B9EJ14 P62956	TSL:1 GENCODE basic APPRIS P1
Cacng7-202	ENSMUST00000203497.1	812	No protein	Retained intron	-	-	TSL:2

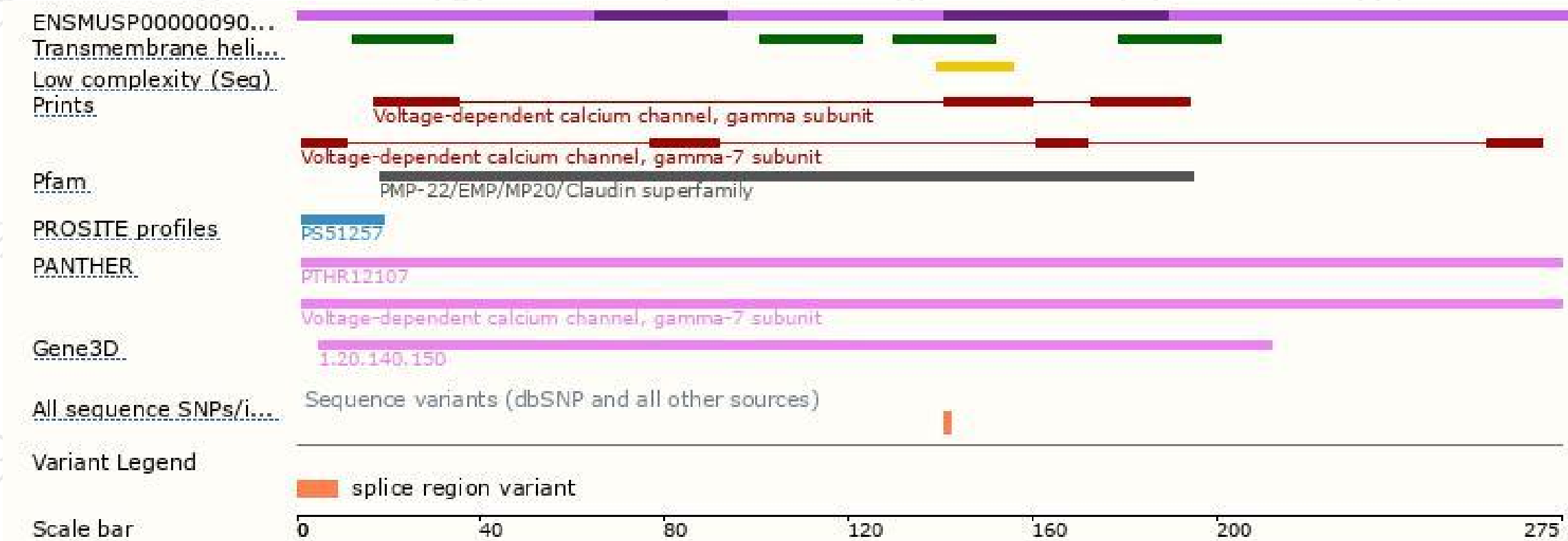The strategy is based on the design of *Cacng7-201* transcript,The transcription is shown below

Genomic location distribution

Protein domain

ENSMUSP0000090...	
Transmembrane heli...	
Low complexity (Seg)	
Prints	Voltage-dependent calcium channel, gamma subunit
	Voltage-dependent calcium channel, gamma-7 subunit
Pfam	PMP-22/EMP/MP20/Claudin superfamily
PROSITE profiles	PS51257
PANTHER	PTHR12107
	Voltage-dependent calcium channel, gamma-7 subunit
Gene3D	1.20.140.150
All sequence SNPs/i...	Sequence variants (dbSNP and all other sources)
Variant Legend	splice region variant
Scale bar	0 40 80 120 160 200 275

If you have any questions, you are welcome to inquire.
Tel: 400-9660890

集萃药康生物科技
GemPharmatech Co.,Ltd