Prickle2 Cas9-KO Strategy

Designer: Daohua Xu
Reviewer: Huimin Su

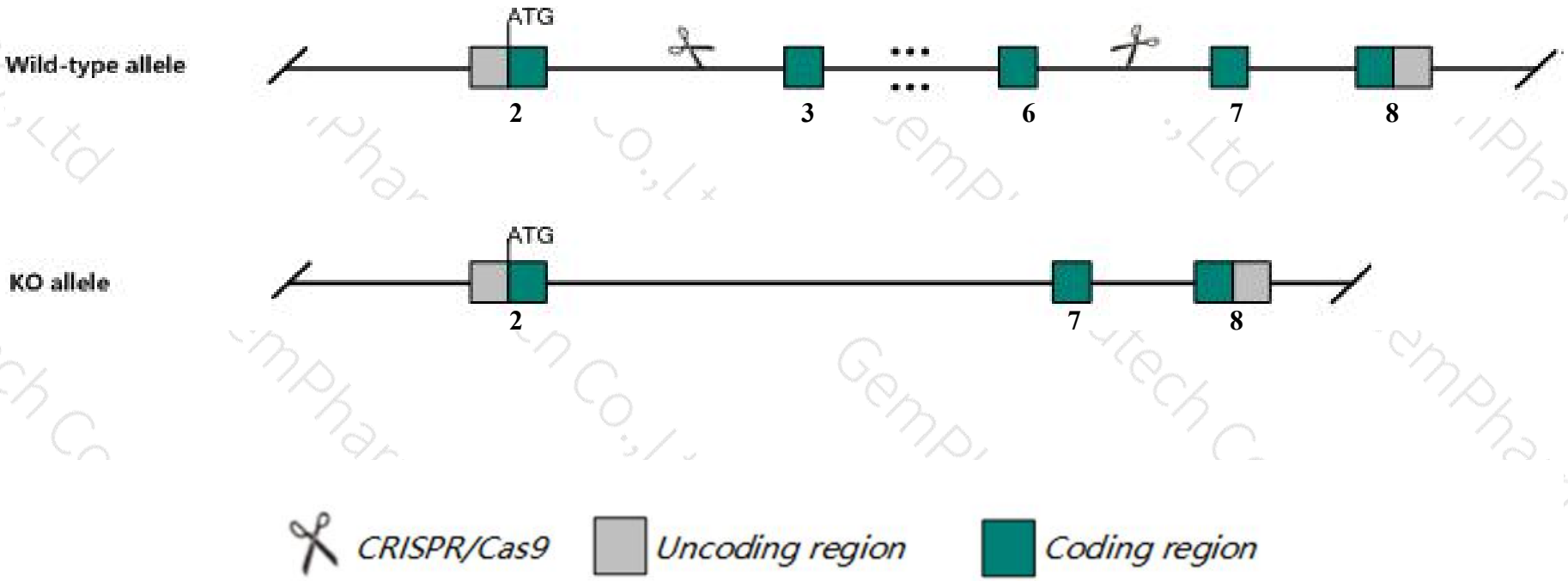
Design Date: 2020-2-11

Project Overview

Project Name	***Prickle2***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Prickle2* gene. The schematic diagram is as follows:



Technical routes

➢ The *Prickle2* gene has 4 transcripts. According to the structure of *Prickle2* gene, exon3-exon6 of *Prickle2-203* (ENSMUST00000113446.7) transcript is recommended as the knockout region.The region contains 643bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Prickle2* gene. The brief process is as follows: CRISPR/Cas9 syste

Notice

- According to the existing MGI data,Mice homozygous for a knock-out allele exhibit increased susceptibility to electroconvulsive or PTZ-induced seizures. Mice heterozygous for a knock-out allele exhibit increased susceptibility to electroconvulsive seizures.

- The *Prickle2* gene is located on the Chr6. 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）

集萃药康 GemPharmatech

Prickle2 prickle planar cell polarity protein 2 [Mus musculus (house mouse)]

Gene ID: 243548, updated on 19-Feb-2019

Summary

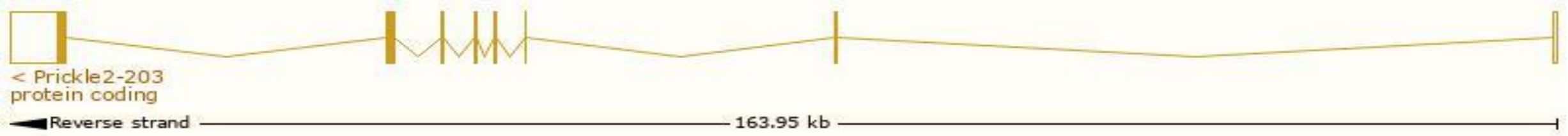
Official Symbol	Prickle2 provided by MGI
Official Full Name	prickle planar cell polarity protein 2 provided byMGI
Primary source	MGI:MGI:1925144
See related	Ensembl:ENSMUSG00000030020
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	6230400G14Rik, 6720451F06Rik, mpk2
Expression	Broad expression in cortex adult (RPKM 12.7), frontal lobe adult (RPKM 12.2) and 19 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

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

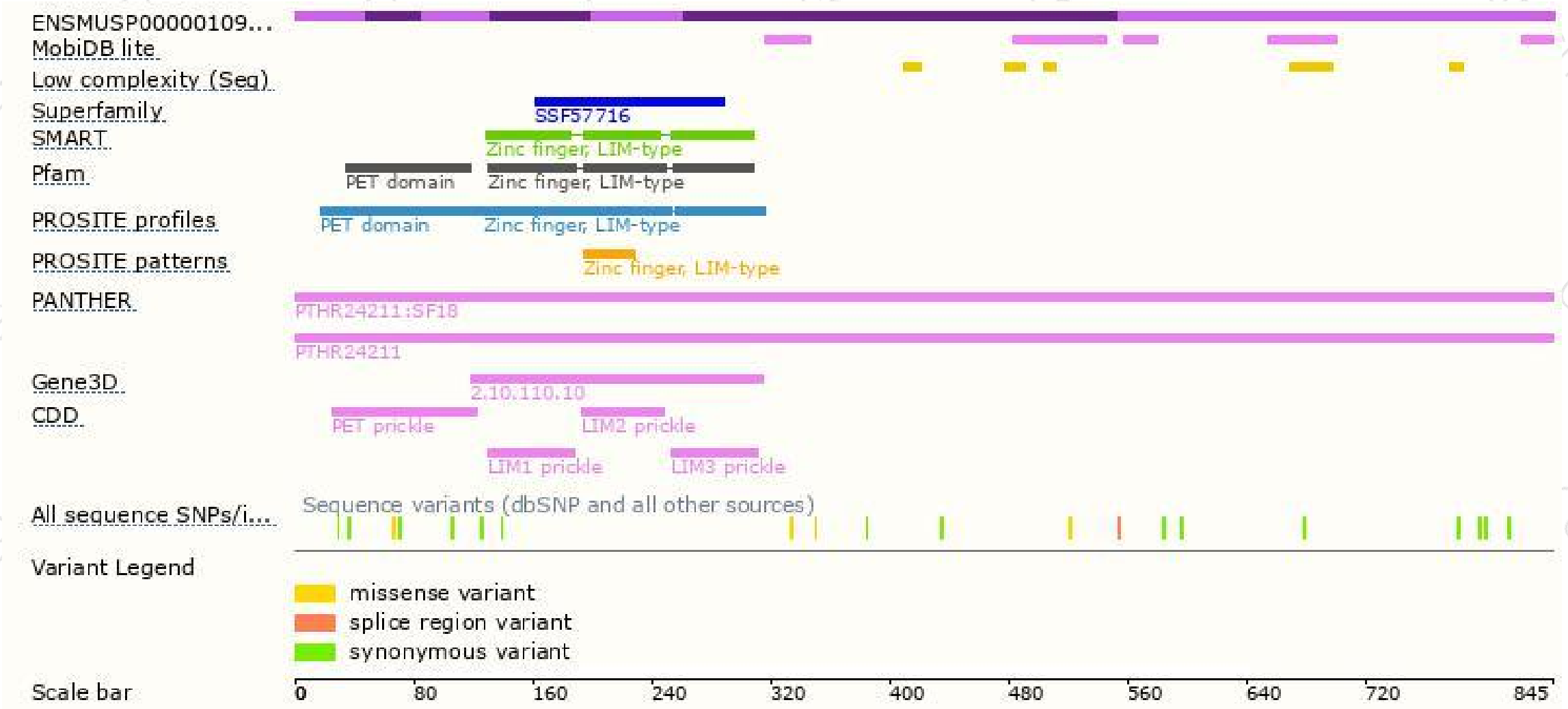
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Prickle2-203	ENSMUST00000113446.7	7860	845aa	Protein coding	CCDS51854	Q80Y24	TSL:1 GENCODE basic APPRIS ALT1
Prickle2-201	ENSMUST00000032093.11	7754	901aa	Protein coding	CCDS39572	A7YQ68	TSL:1 GENCODE basic APPRIS P3
Prickle2-204	ENSMUST00000113447.7	7679	845aa	Protein coding	CCDS51854	Q80Y24	TSL:1 GENCODE basic APPRIS ALT1
Prickle2-202	ENSMUST00000113445.1	3708	845aa	Protein coding	CCDS51854	Q80Y24	TSL:1 GENCODE basic APPRIS ALT1

The strategy is based on the design of *Prickle2-203* transcript,The transcription is shown below

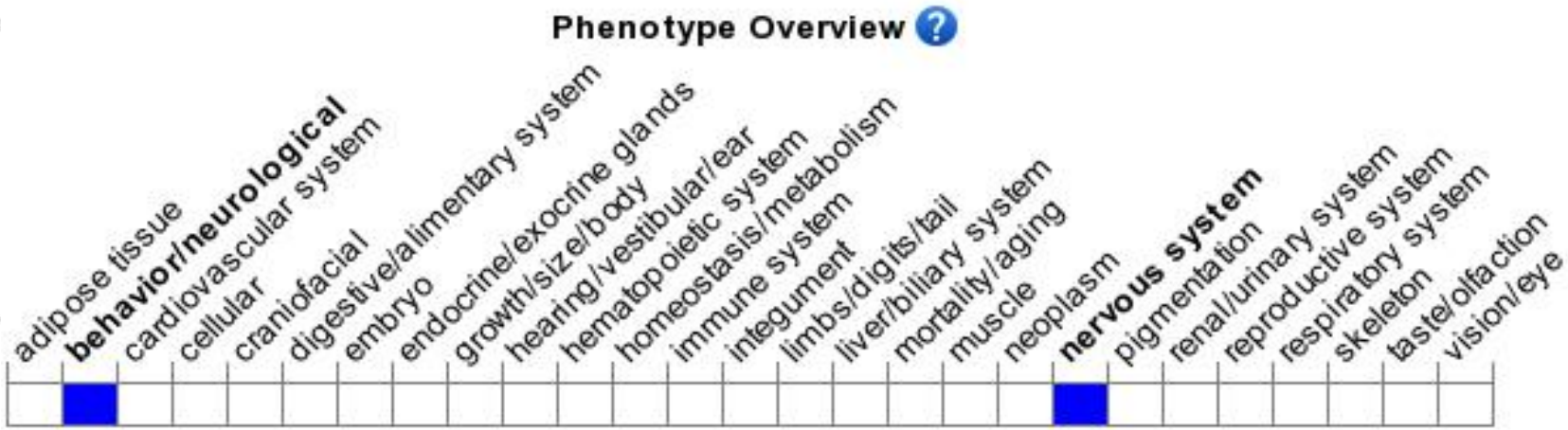


Genomic location distribution

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 increased susceptibility to electroconvulsive or PTZ-induced seizures. Mice heterozygous for a knock-out allele exhibit increased susceptibility to electroconvulsive seizures.

集萃药康
GemPharmatech

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

Tel: 400-9660890

集萃药康生物科技
GemPharmatech Co.,Ltd