Pdzd2 Cas9-KO Strategy

Designer: Huimin Su

Reviewer: Ruiuri Zhang

Design Date: 2020-8-13

集萃药康 GemPharmatech

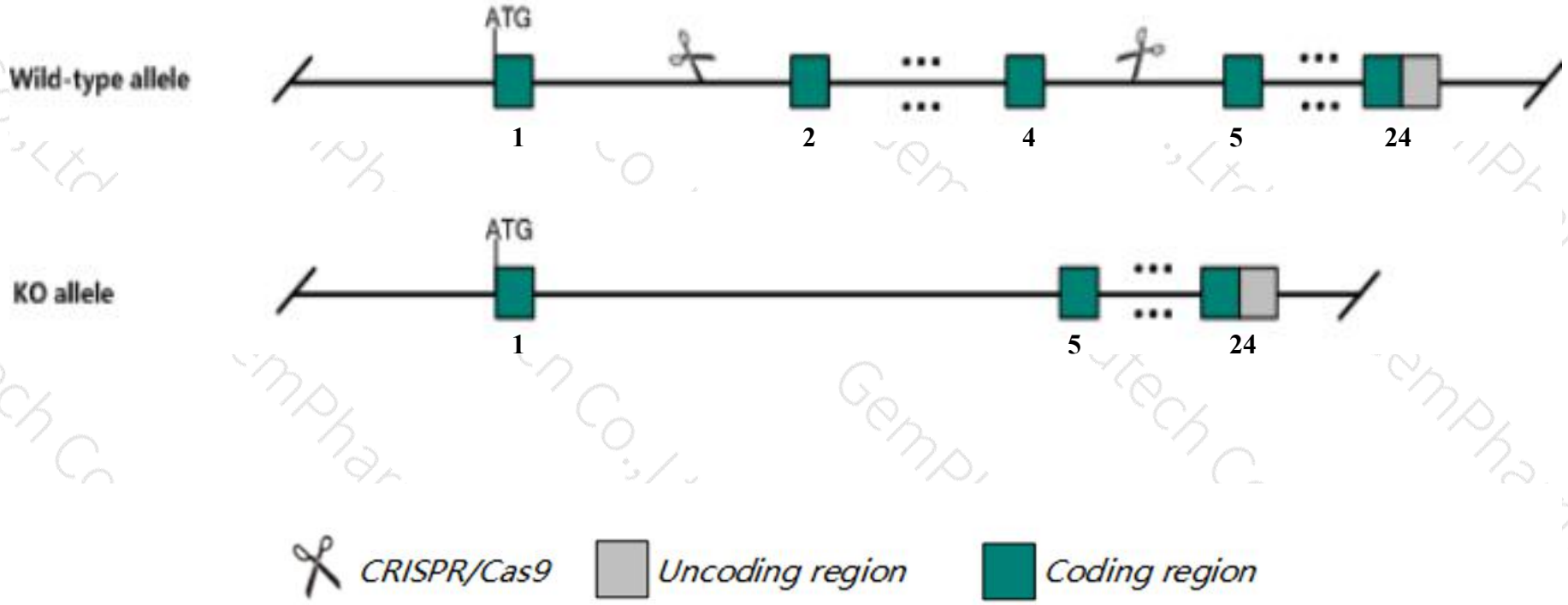
Project Overview

集萃药康 GemPharmatech

Project Name	***Pdzd2***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pdzd2* gene. The schematic diagram is as follows:



Technical routes

➢ The *Pdzd2* gene has 9 transcripts. According to the structure of *Pdzd2* gene, exon2-exon4 of *Pdzd2-201*(ENSMUST00000075317.11) transcript is recommended as the knockout region.The region contains 778bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Pdzd2* gene. The brief process is as follows: CRISPR/Cas9 system 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.

Notice

➢ According to the existing MGI data,mice homozygous for a gene trapped allele exhibit normal response to acute and chronic pain.

➢ The *Pdzd2* gene is located on the Chr15. 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）

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Pdzd2 PDZ domain containing 2 [*Mus musculus* (house mouse)]

Gene ID: 68070, updated on 26-Jun-2020

Summary

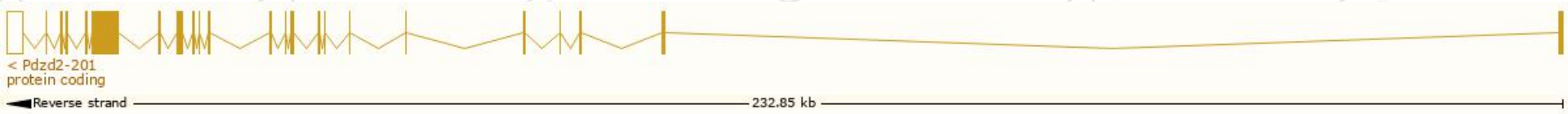
Official Symbol	Pdzd2 provided by MGI
Official Full Name	PDZ domain containing 2 provided by MGI
Primary source	MGI:MGI:1922394
See related	Ensembl:ENSMUSG00000022197
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Gm82; Pdzk3; Gm21706; 4930537L06Rik; A930022H17Rik
Expression	Biased expression in lung adult (RPKM 19.6), subcutaneous fat pad adult (RPKM 4.3) and 13 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

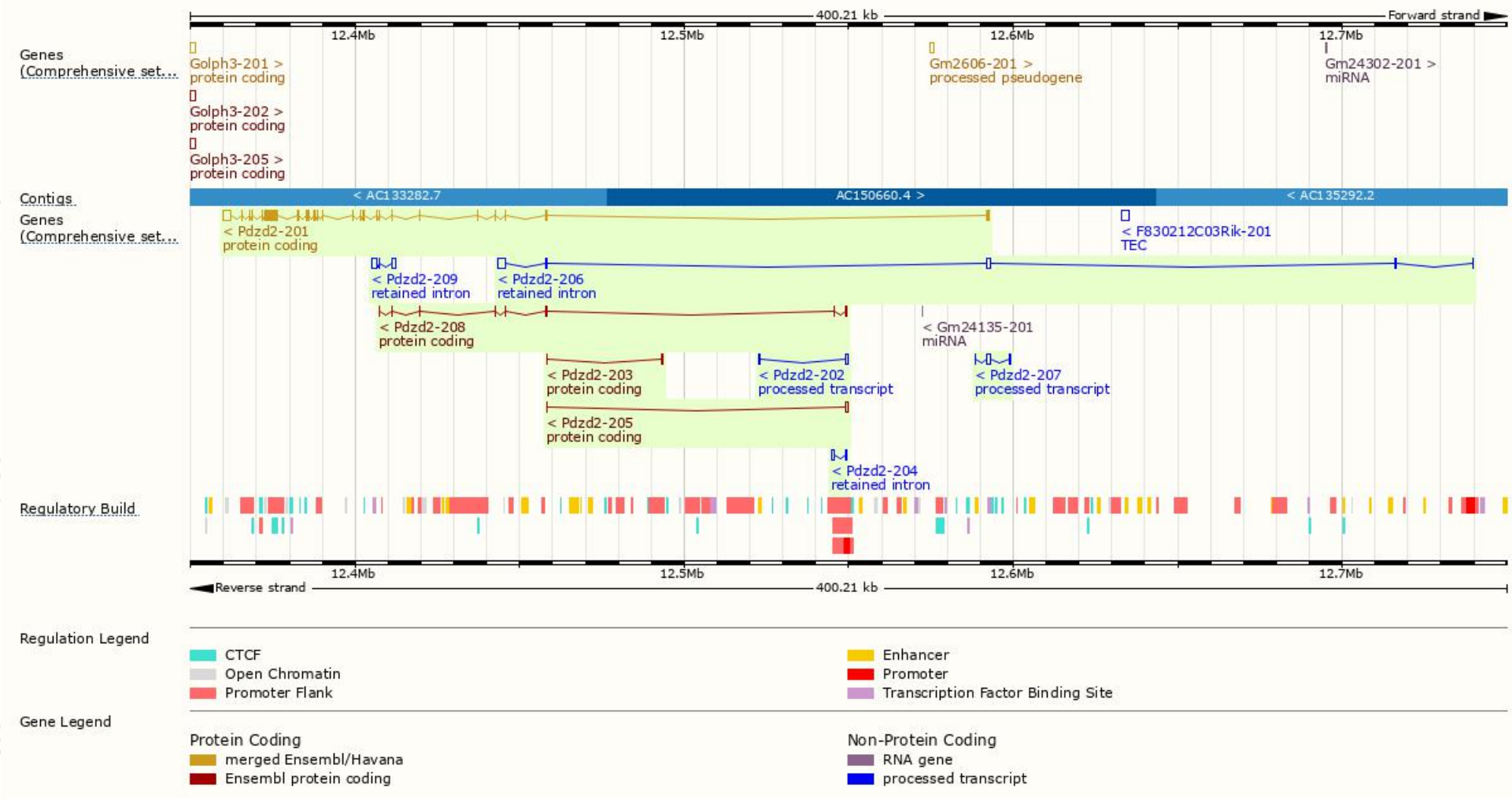
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pdzd2-205	ENSMUST00000189324.1	796	36aa	Protein coding	-	A0A087WS85	CDS 3' incomplete TSL:1
Pdzd2-203	ENSMUST00000186113.1	438	49aa	Protein coding	-	A0A087WQ09	CDS 3' incomplete TSL:3
Pdzd2-208	ENSMUST00000190929.1	1210	363aa	Protein coding	-	A0A087WRL4	CDS 3' incomplete TSL:1
Pdzd2-201	ENSMUST00000075317.11	10756	2796aa	Protein coding	CCDS37045	E9Q1M1	TSL:5 GENCODE basic APPRIS P1
Pdzd2-207	ENSMUST00000189746.1	1051	No protein	Processed transcript	-	-	TSL:1
Pdzd2-202	ENSMUST00000185619.1	818	No protein	Processed transcript	-	-	TSL:2
Pdzd2-206	ENSMUST00000189469.6	4071	No protein	Retained intron	-	-	TSL:1
Pdzd2-209	ENSMUST00000191339.1	3143	No protein	Retained intron	-	-	TSL:1
Pdzd2-204	ENSMUST00000187398.1	622	No protein	Retained intron	-	-	TSL:3

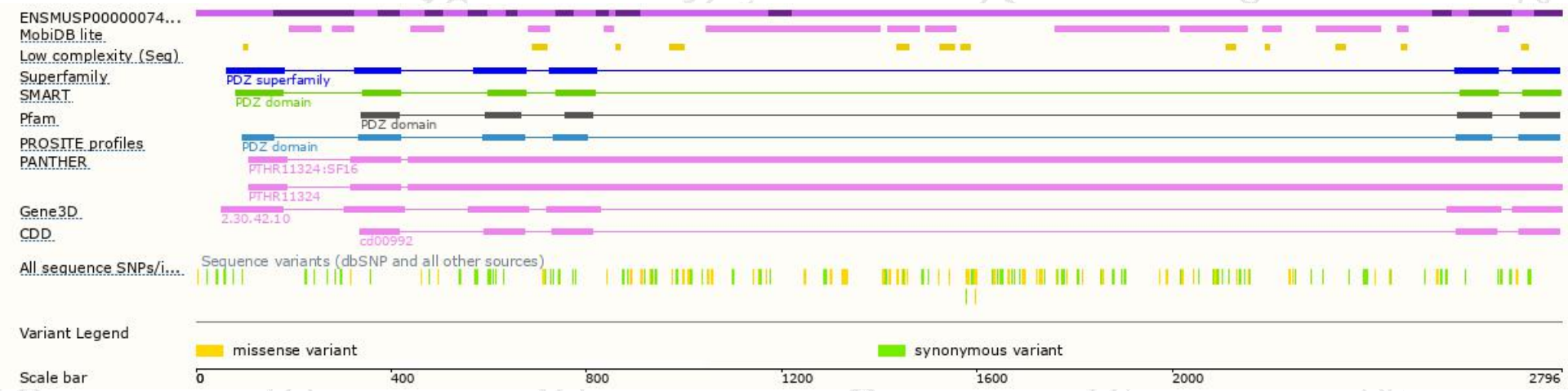
The strategy is based on the design of *Pdzd2-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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