

Pgbd5 Cas9-KO Strategy

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Project Overview

Project Name

Pgbd5

Project type

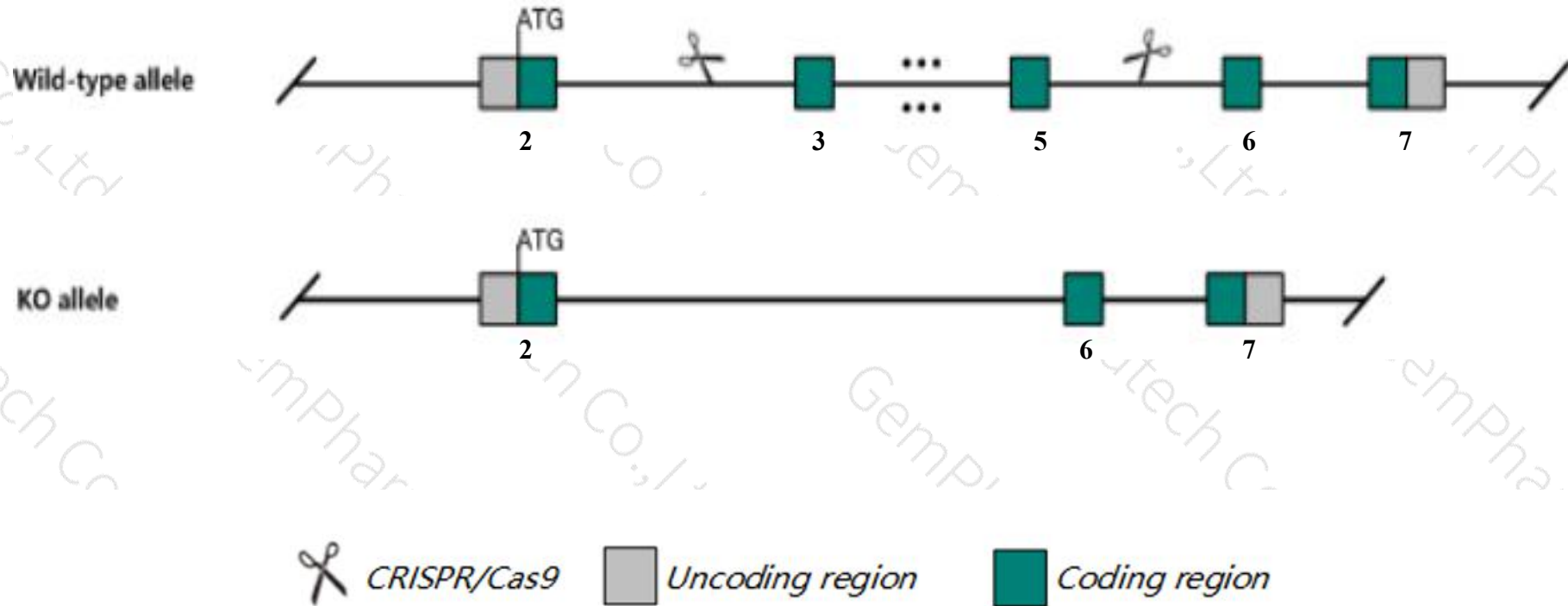
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pgbd5* gene. The schematic diagram is as follows:



- The *Pgbd5* gene has 6 transcripts. According to the structure of *Pgbd5* gene, exon3-exon5 of *Pgbd5*-201(ENSMUST00000052580.9) transcript is recommended as the knockout region. The region contains 514bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Pgbd5* 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.

- The *Pgbd5* gene is located on the Chr8. 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)

Pgbd5 piggyBac transposable element derived 5 [Mus musculus (house mouse)]

Gene ID: 209966, updated on 13-Mar-2020

Summary



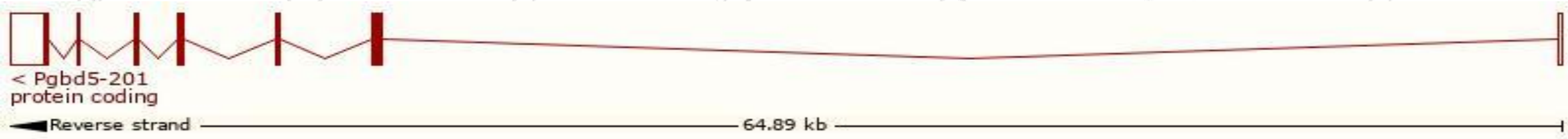
Official Symbol	Pgbd5 provided by MGI
Official Full Name	piggyBac transposable element derived 5 provided by MGI
Primary source	MGI:MGI:2429955
See related	Ensembl:ENSMUSG00000050751
Gene type	protein coding
RefSeq status	REVIEWED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2900019M05Rik, AI854313
Summary	The piggyBac family of proteins, found in diverse animals, are transposases related to the transposase of the canonical piggyBac transposon from the moth, <i>Trichoplusia ni</i> . This family also includes genes in several genomes that appear to have been derived from the piggyBac transposons. This gene belongs to the subfamily of piggyBac transposable element derived (PGBD) genes. The PGBD proteins appear to be novel, with no obvious relationship to other transposases, or other known protein families. The exact function of this gene is not known. [provided by RefSeq, Jul 2008]
Expression	Biased expression in cortex adult (RPKM 40.9), frontal lobe adult (RPKM 35.4) and 11 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

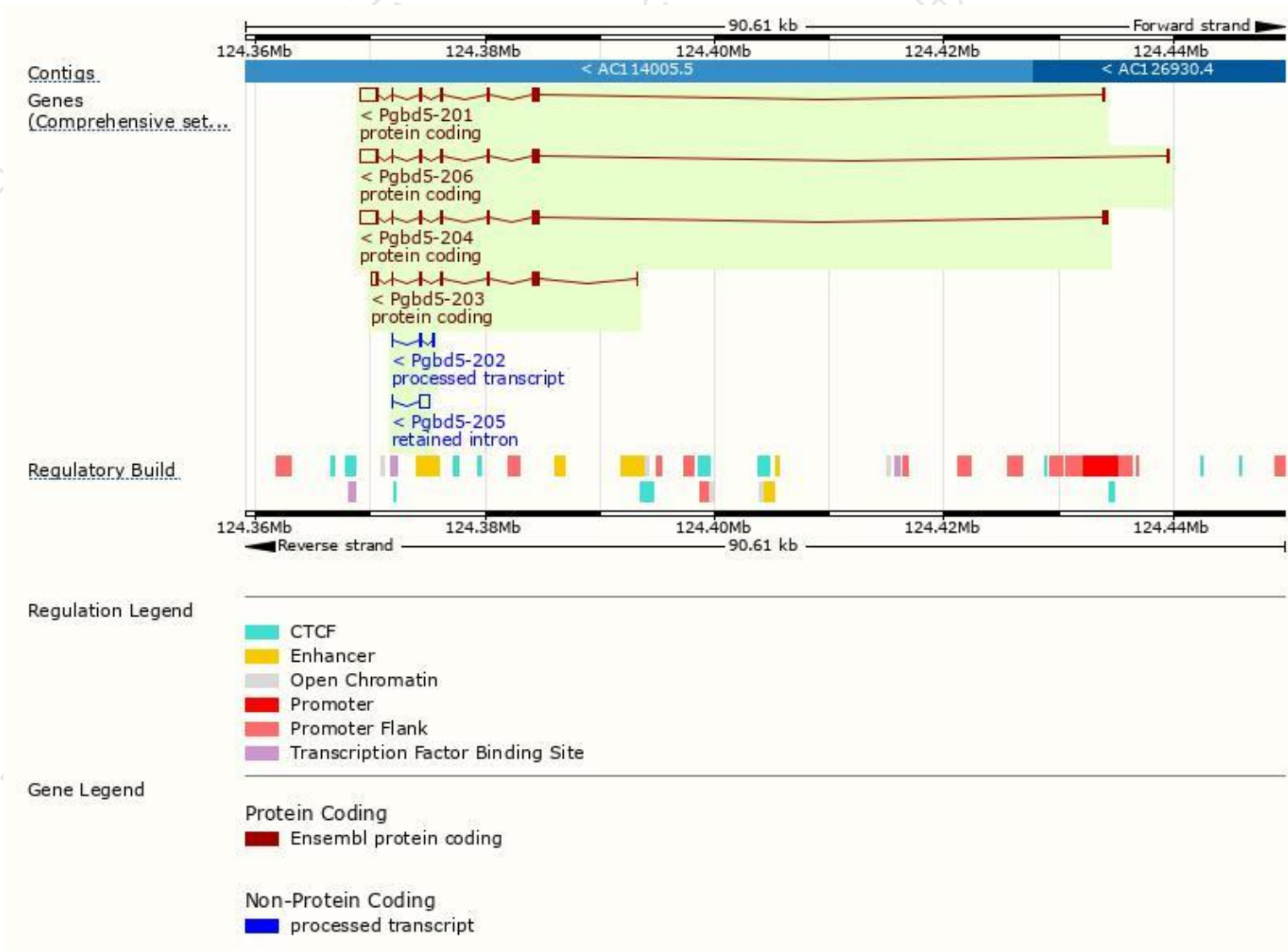
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pgbd5-201	ENSMUST00000052580.9	2824	409aa	Protein coding	CCDS22770	D3YZI9	TSL:5 GENCODE basic APPRIS P2
Pgbd5-203	ENSMUST00000136892.2	1739	409aa	Protein coding	CCDS22770	D3YZI9	TSL:5 GENCODE basic APPRIS P2
Pgbd5-204	ENSMUST00000140012.7	3222	523aa	Protein coding	-	D3YZI9	TSL:5 GENCODE basic APPRIS ALT2
Pgbd5-206	ENSMUST00000172566.7	2842	432aa	Protein coding	-	G3UX58	TSL:1 GENCODE basic
Pgbd5-202	ENSMUST00000128312.1	407	No protein	Processed transcript	-	-	TSL:3
Pgbd5-205	ENSMUST00000140126.1	939	No protein	Retained intron	-	-	TSL:5

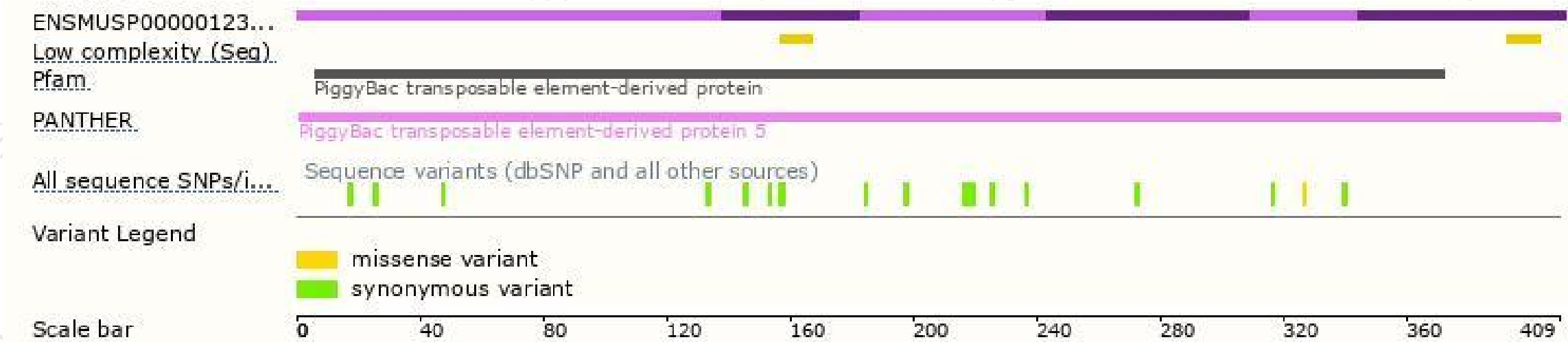
The strategy is based on the design of *Pgbd5-201* transcript,the transcription is shown below:



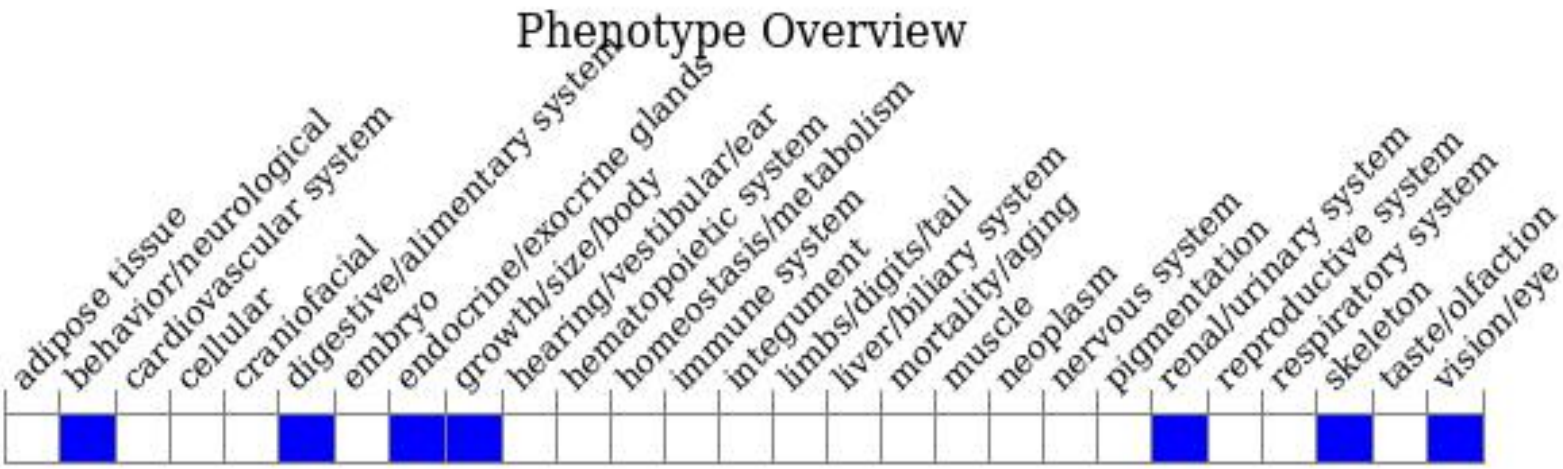
Genomic location distribution



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/>).

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

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