

Pgbd1 Cas9-CKO Strategy

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Project Overview

Project Name

Pgbd1

Project type

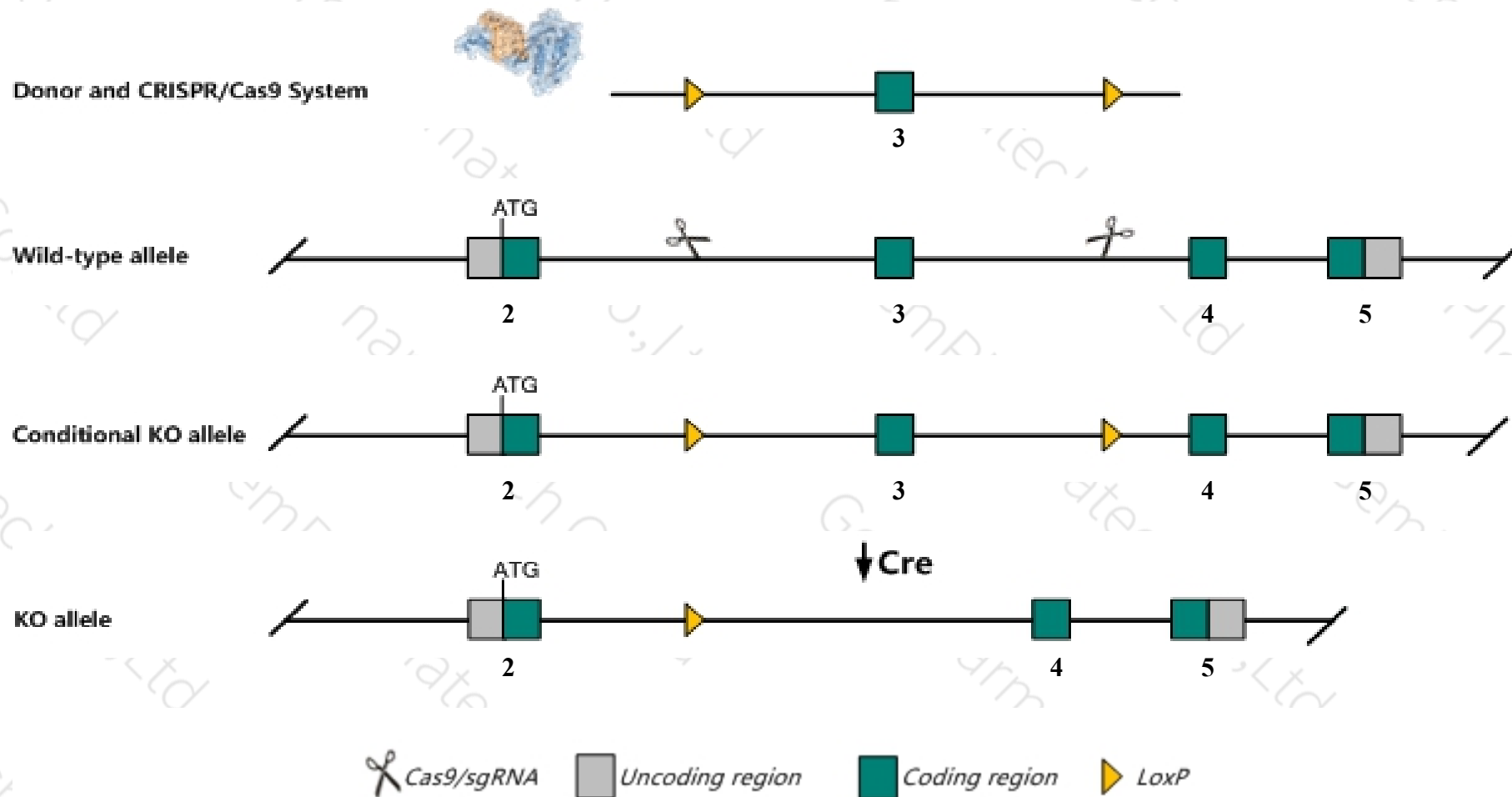
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pgbd1* gene. The schematic diagram is as follows:



Technical routes

- The *Pgbd1* gene has 8 transcripts. According to the structure of *Pgbd1* gene, exon3 of *Pgbd1-201*(ENSMUST00000099719.9) transcript is recommended as the knockout region. The region contains 152bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Pgbd1* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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 was 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.

- The *Pgbd1* gene is located on the Chr13. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Pgbd1 piggyBac transposable element derived 1 [Mus musculus (house mouse)]

Gene ID: 319207, updated on 20-Mar-2020

Summary



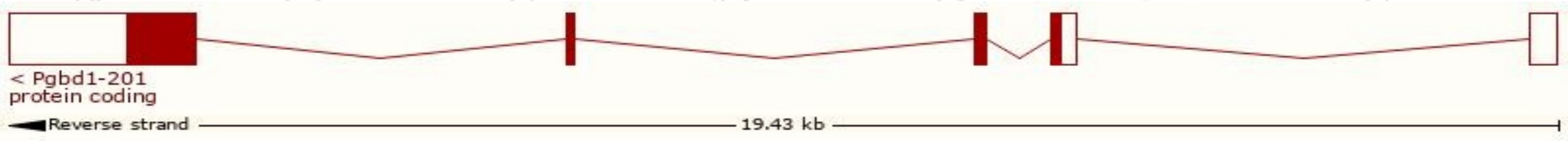
Official Symbol	Pgbd1 provided by MGI
Official Full Name	piggyBac transposable element derived 1 provided by MGI
Primary source	MGI:MGI:2441675
See related	Ensembl:ENSMUSG00000055313
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	4921509E05Rik
Expression	Broad expression in CNS E11.5 (RPKM 1.7), testis adult (RPKM 1.5) and 22 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

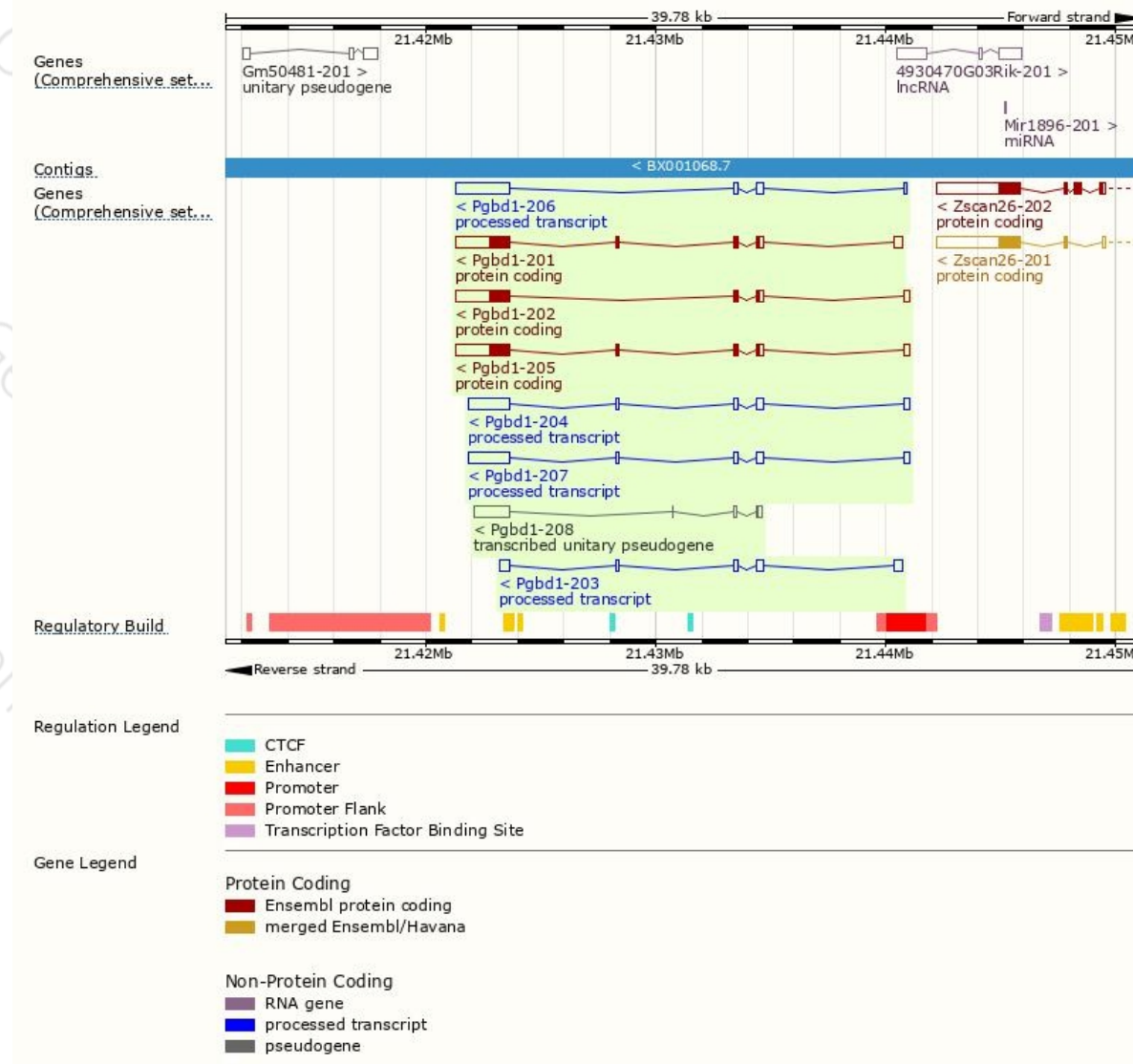
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pgbd1-201	ENSMUST00000099719.9	3283	415aa	Protein coding	CCDS49210	E9Q492	TSL:1 GENCODE basic APPRIS P4
Pgbd1-205	ENSMUST00000151743.8	3225	415aa	Protein coding	CCDS49210	E9Q492	TSL:1 GENCODE basic APPRIS P4
Pgbd1-202	ENSMUST00000122872.8	3114	378aa	Protein coding	CCDS49209	E9Q2C6	TSL:1 GENCODE basic APPRIS ALT2
Pgbd1-206	ENSMUST00000239222.1	2965	No protein	Processed transcript	-	-	
Pgbd1-207	ENSMUST00000239246.1	2642	No protein	Processed transcript	-	-	
Pgbd1-204	ENSMUST00000148071.7	2600	No protein	Processed transcript	-	-	TSL:1
Pgbd1-203	ENSMUST00000145494.1	1367	No protein	Processed transcript	-	-	TSL:1
Pgbd1-208	ENSMUST00000239296.1	1927	No protein	Transcribed unitary pseudogene	-	-	

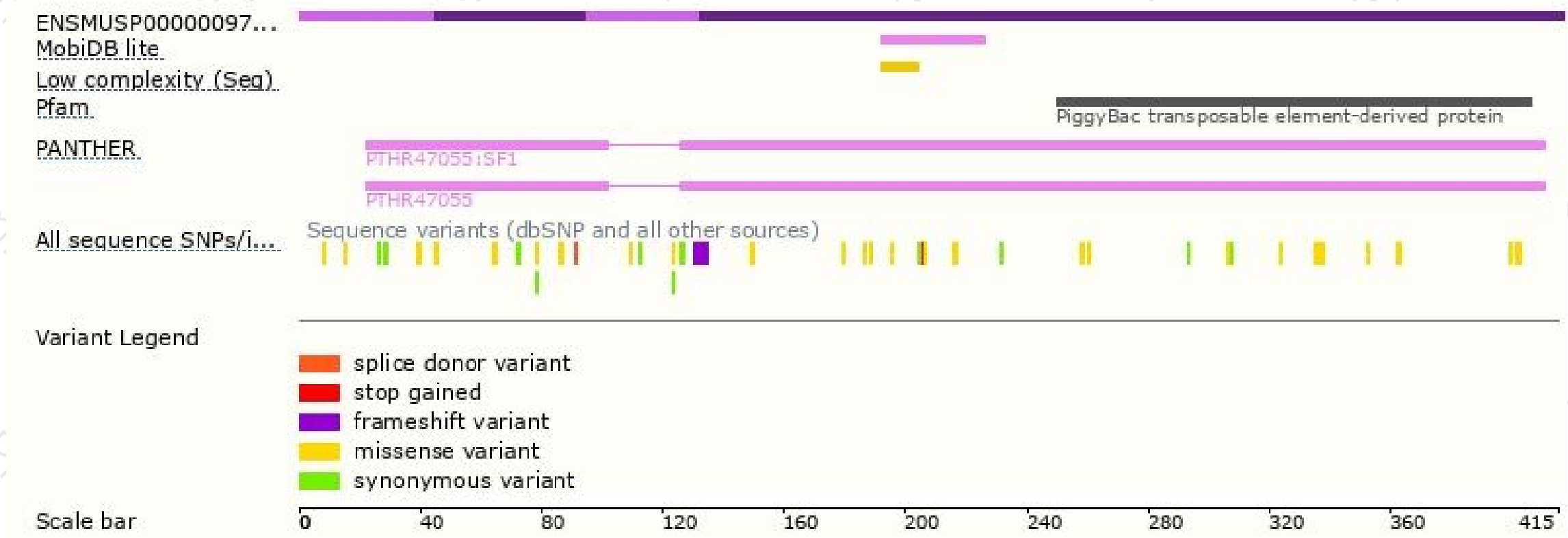
The strategy is based on the design of *Pgbd1-201* transcript,the transcription is shown below:



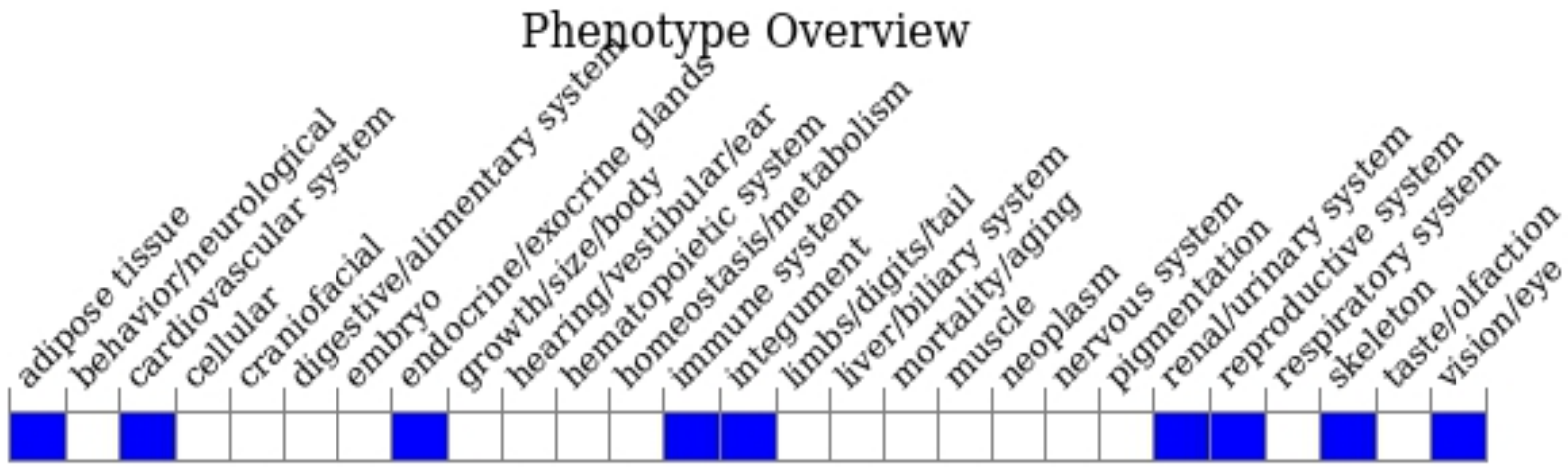
Genomic location distribution



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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