Pgam2 Cas9-CKO Strategy

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Design Date:	**2020-2-21**

Project Overview

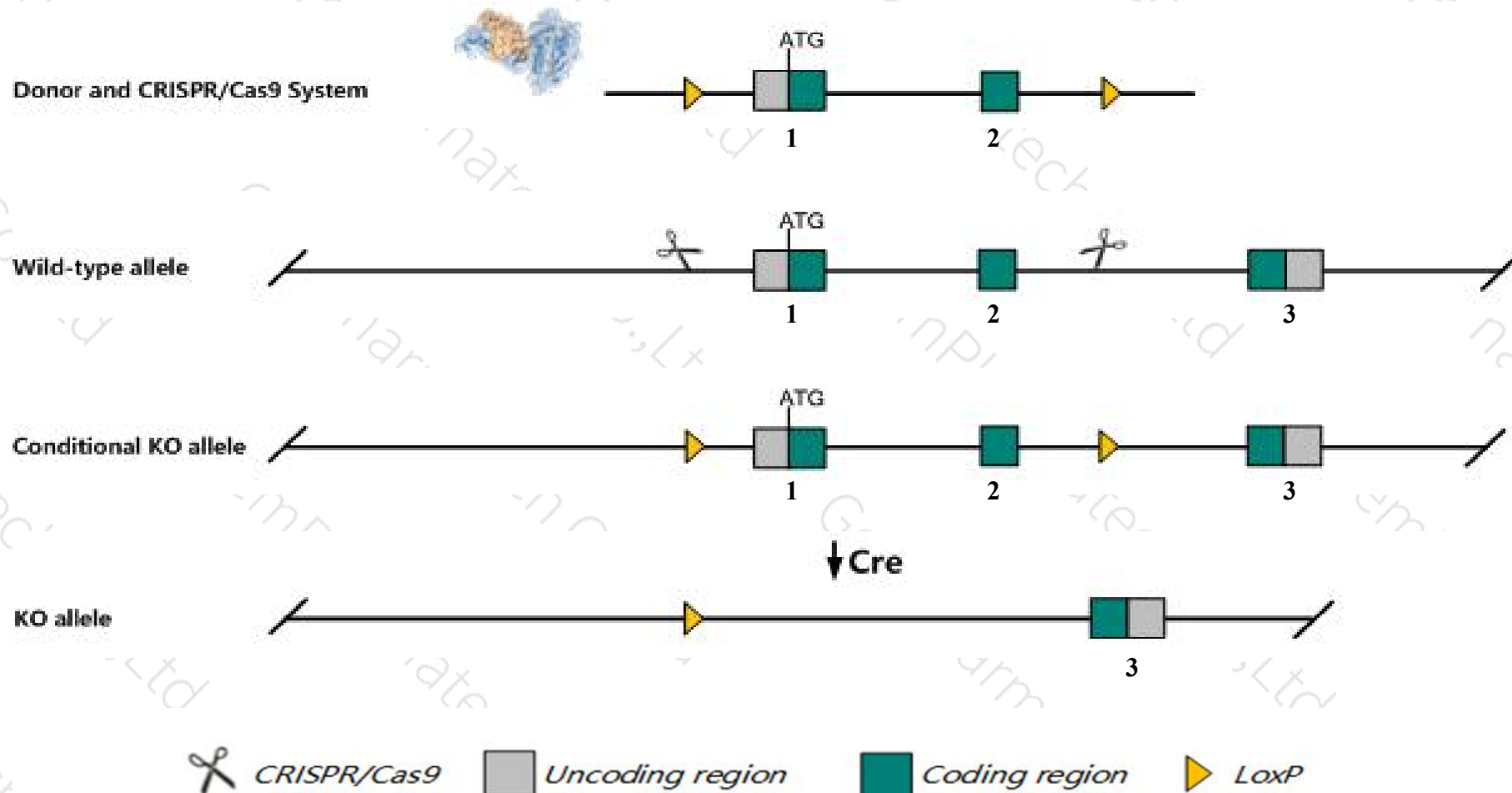|	
Project Name	*Pgam2*
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pgam2* gene. The schematic diagram is as follows:

Technical routes

➢ The *Pgam2* gene has 1 transcript. According to the structure of *Pgam2* gene, exon1-exon2 of *Pgam2-201* (ENSMUST00000020768.3) transcript is recommended as the knockout region.The region contains start codon ATG. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Pgam2* gene. The brief process is as follows:CRISPR/Cas9 system 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 will be 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.

Notice

➢ The *Pgam2* gene is located on the Chr11. 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）

Pgam2 phosphoglycerate mutase 2 [*Mus musculus* (house mouse)]

Gene ID: 56012, updated on 12-Aug-2019

▲ Summary

|	
Official Symbol	Pgam2 provided by MGI
Official Full Name	phosphoglycerate mutase 2 provided by MGI
Primary source	MGI:MGI:1933118
See related	Ensembl:ENSMUSG00000020475
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	Biased expression in testis adult (RPKM 618.6), heart adult (RPKM 314.4) and 2 other tissues See more
Orthologs	human all

▲ Genomic context

Location: 11; 11 A1   See Pgam2 in Genome Data Viewer

Exon count: 3

| Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	11	NC_000077.6 (5801637..5803796, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	11	NC_000077.5 (5701640..5703799, complement)

Chromosome 11 - NC_000077.6

[5713417 ▶   [5878256 ▶

Urgcp   Dbn1   Polm   Aebp1
    Ube2d-ps   Pgam2 ◀   Pold2
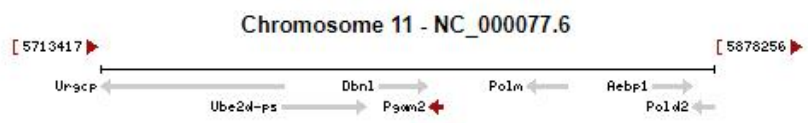
Transcript information（Ensembl）

The gene has 1 transcript,and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags		
Pgam2-201	ENSMUST00000020768.3	840	253aa	▌Protein coding	CCDS24404 ⟟	O70250 ⟟ Q5NCI4 ⟟	TSL:1	GENCODE basic	APPRIS P1

The strategy is based on the design of *Pgam2-201* transcript,The transcription is shown below

< Pgam2-201
protein coding

◄ Reverse strand ——————————————— 2.09 kb ——————————————————►
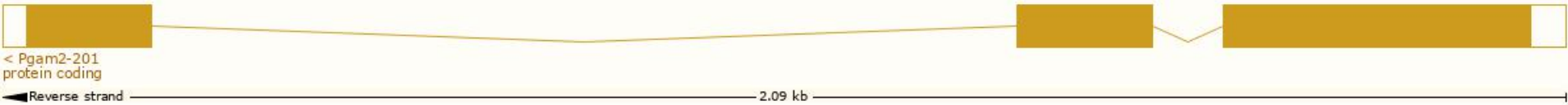
Genomic location distribution
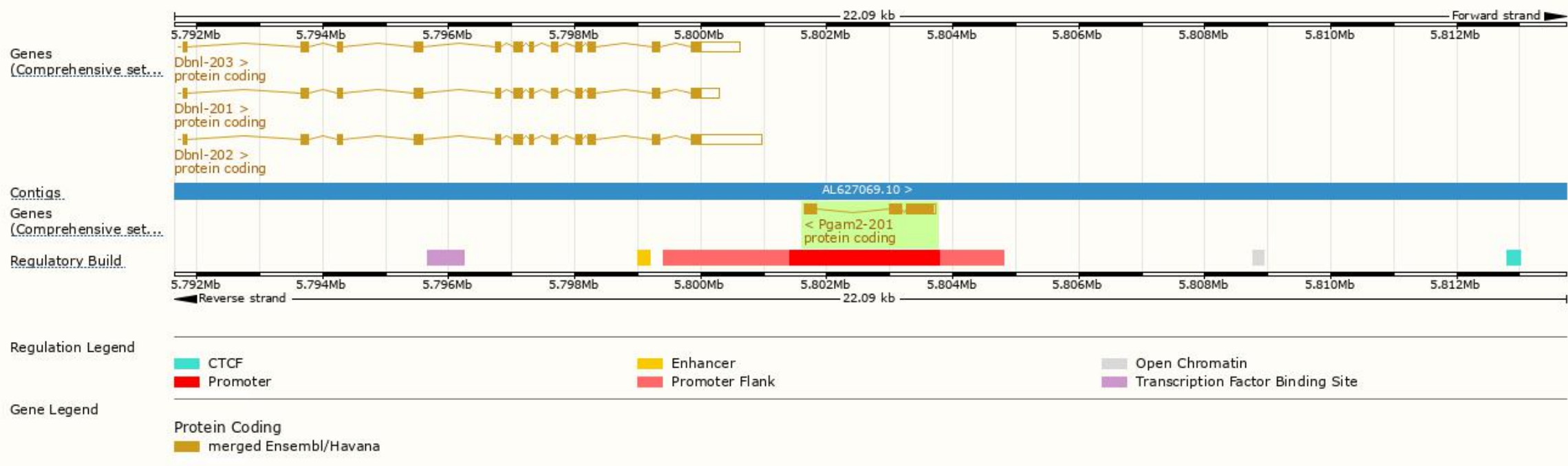
Protein domain
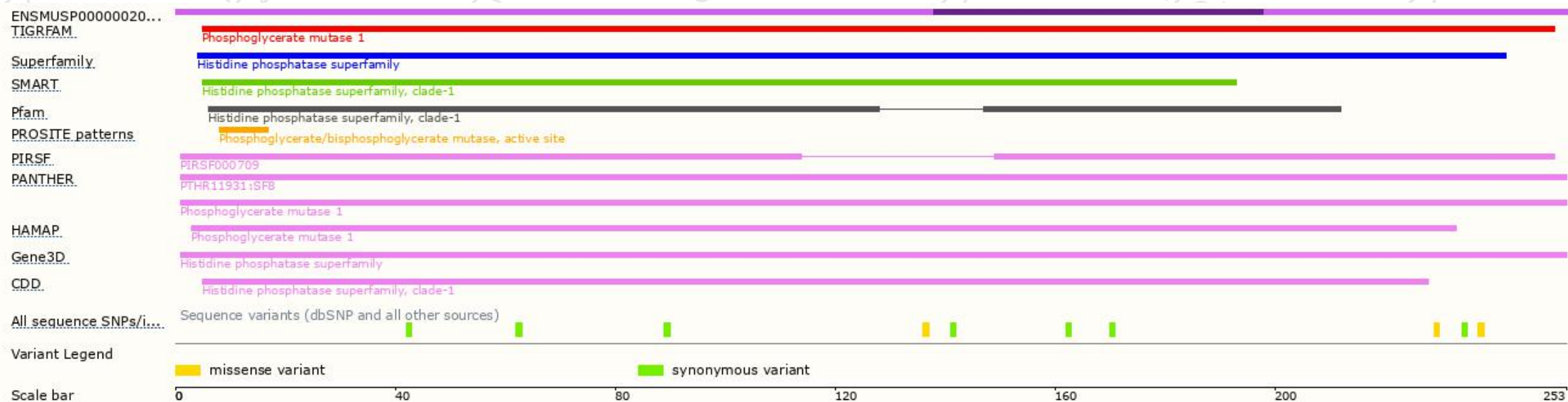
If you have any questions, you are welcome to inquire.
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