

***Pgam2* Cas9-KO Strategy**

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Reviewer:

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Design Date:

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Project Overview

Project Name

Pgam2

Project type

Cas9-KO

Strain background

C57BL/6JGpt

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: sgRNA was transcribed in vitro. Cas9 and sgRNA 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 *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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology 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](#)

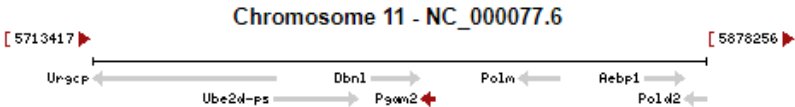
Orthologs [human](#) [all](#)

 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)

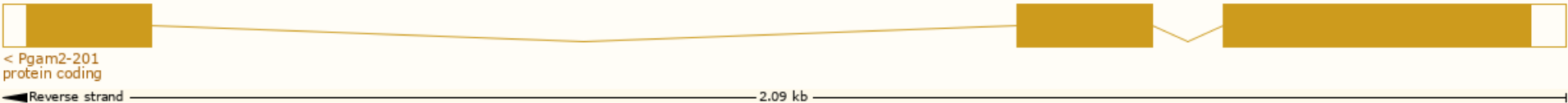


Transcript information (Ensembl)

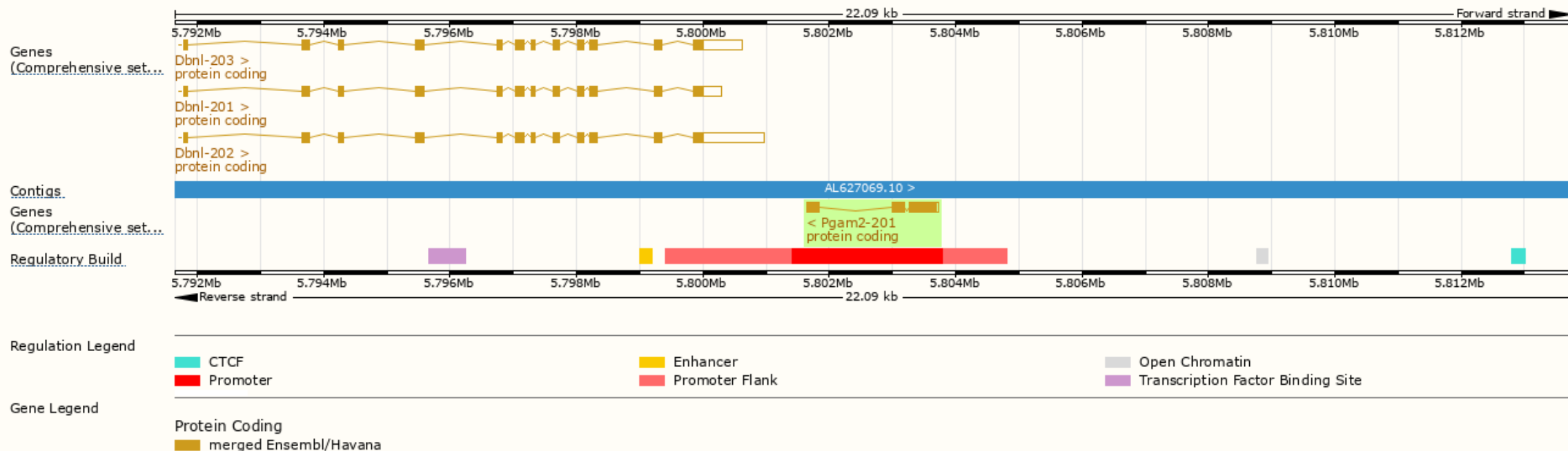
The gene has 1 transcript, and the transcript is shown below:

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

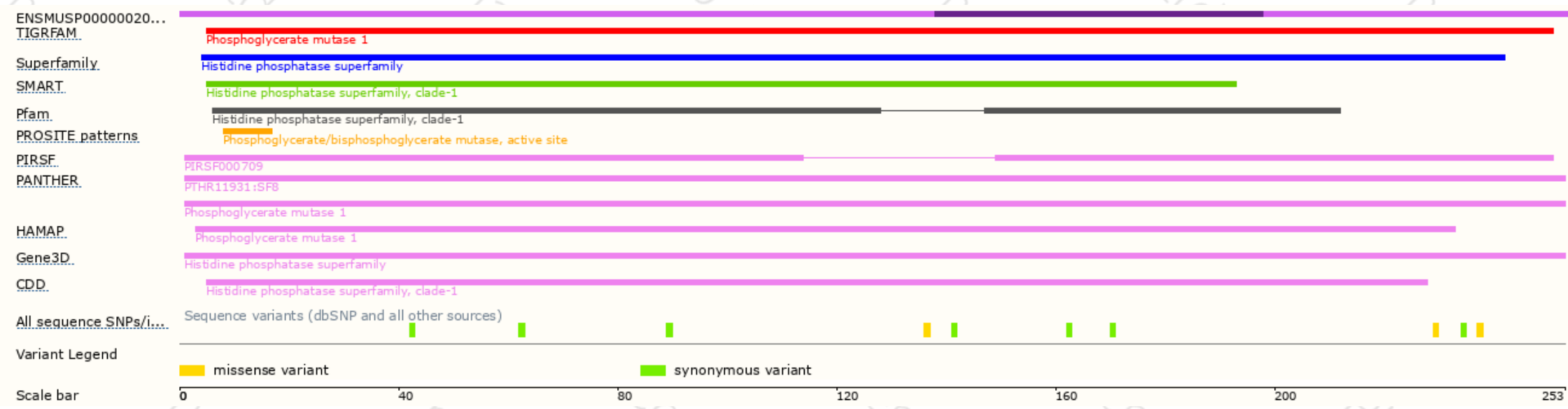
The strategy is based on the design of *Pgam2-201* transcript, The transcription is shown below



Genomic location distribution



Protein domain



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

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