

Pgam1 Cas9-CKO Strategy

Designer:

Yang Zeng

Reviewer:

Yanhua Shen

Design Date:

2019-10-31

Project Overview

Project Name

Pgam1

Project type

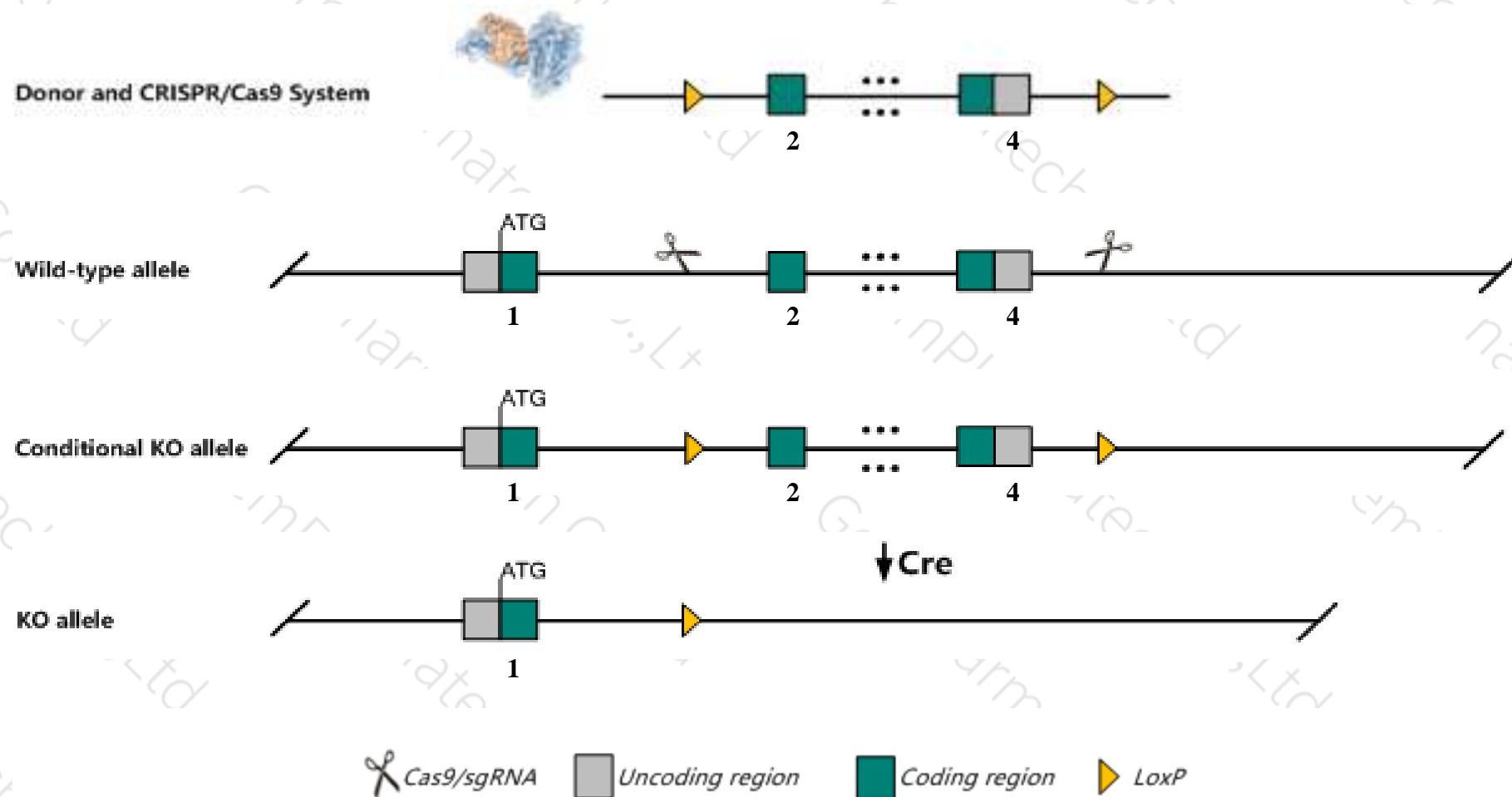
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pgam1* gene. The schematic diagram is as follows:



- The *Pgam1* gene has 3 transcripts. According to the structure of *Pgam1* gene, exon2-exon4 of *Pgam1*-201 (ENSMUST00000011896.7) transcript is recommended as the knockout region. The region contains most of coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Pgam1* 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 *Pgam1* gene is located on the Chr19. 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.

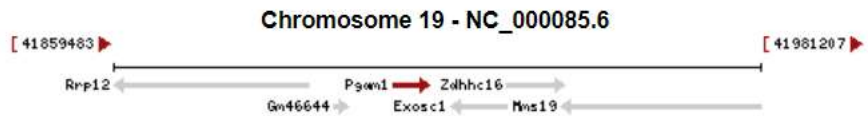
Gene information (NCBI)

Pgam1 phosphoglycerate mutase 1 [*Mus musculus* (house mouse)]

Gene ID: 18648, updated on 12-Aug-2019

Summary

- Official Symbol** Pgam1 provided by [MGI](#)
- Official Full Name** phosphoglycerate mutase 1 provided by [MGI](#)
- Primary source** [MGI:MGI:97552](#)
- See related** [Ensembl:ENSMUSG00000011752](#)
- 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** Pgam-1; 2310050F24Rik
- Expression** Ubiquitous expression in adrenal adult (RPKM 262.8), kidney adult (RPKM 216.4) and 28 other tissues [See more](#)
- Orthologs** [human](#) [all](#)

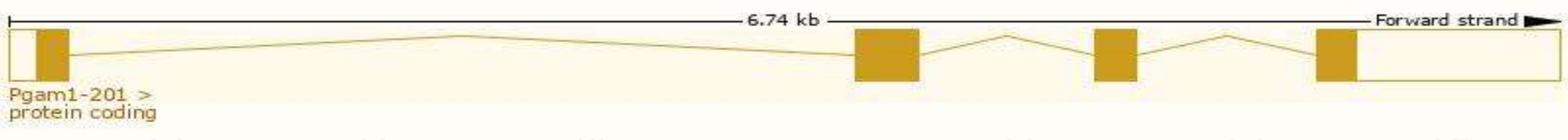


Transcript information (Ensembl)

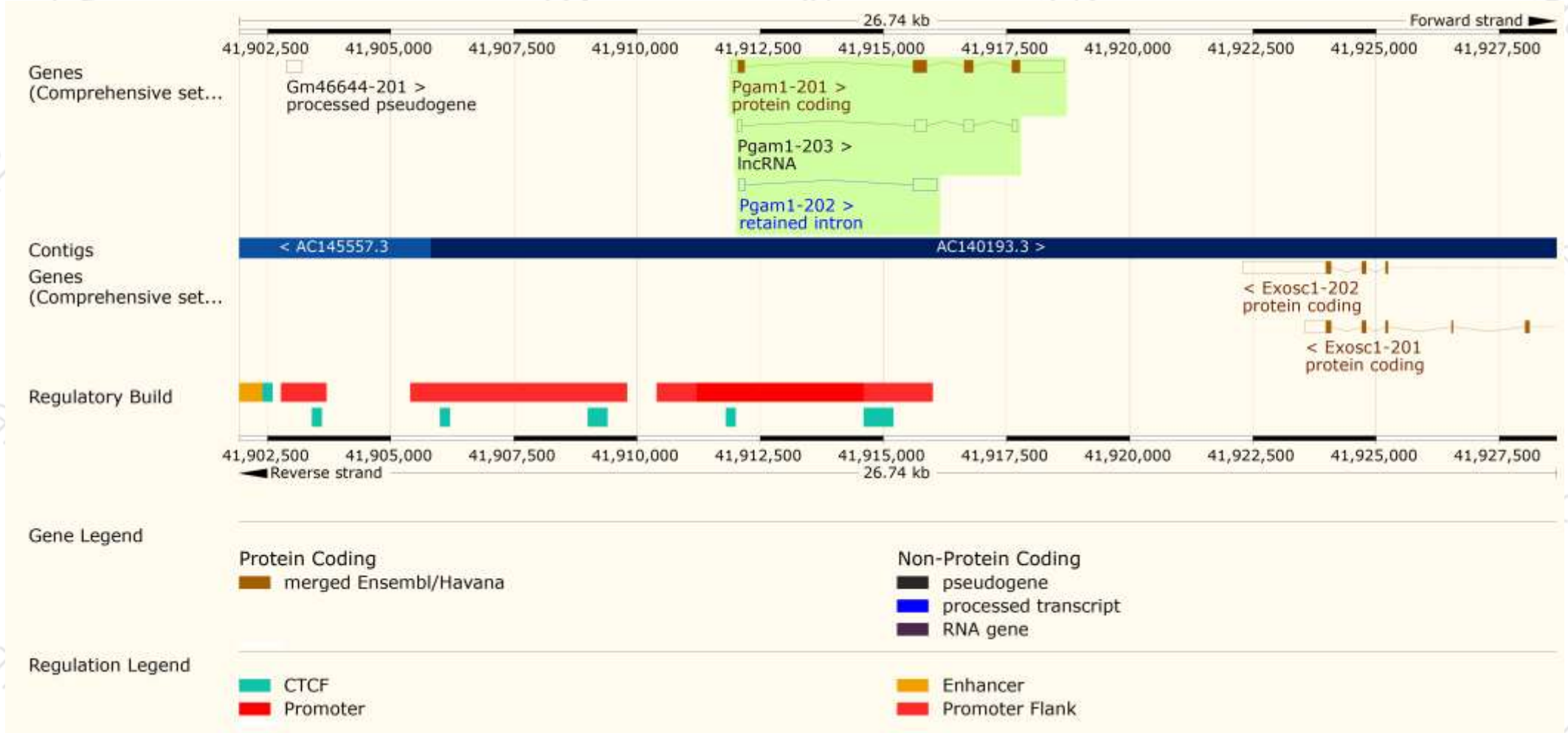
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Pgam1-201	ENSMUST00000011896.7	1775	254aa	ENSMUSP00000011896.6	Protein coding	CCDS29815	Q3U7Z6 Q9DBJ1	TSL:1 GENCODE basic APPRIS P1
Pgam1-202	ENSMUST00000235468.1	593	No protein	-	Retained intron	-	-	-
Pgam1-203	ENSMUST00000237510.1	617	No protein	-	lncRNA	-	-	-

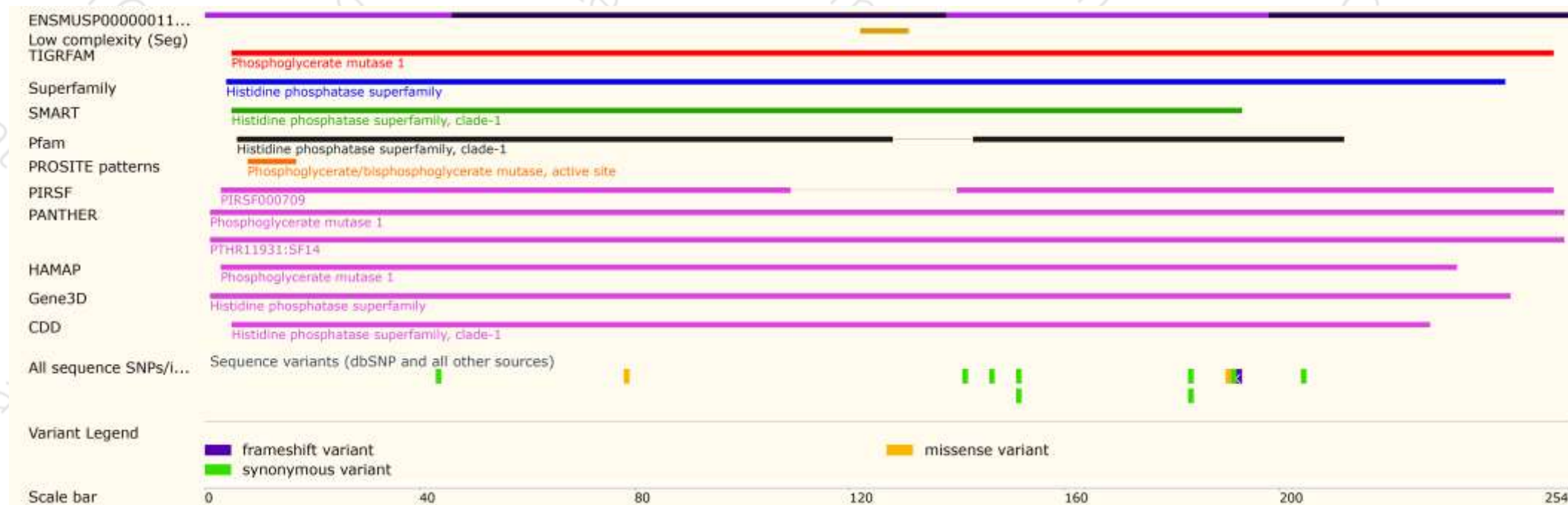
The strategy is based on the design of *Pgam1-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

Tel: 025-5864 1534

