

Pkmyt1 Cas9-CKO Strategy

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Project Overview

Project Name

Pkmyt1

Project type

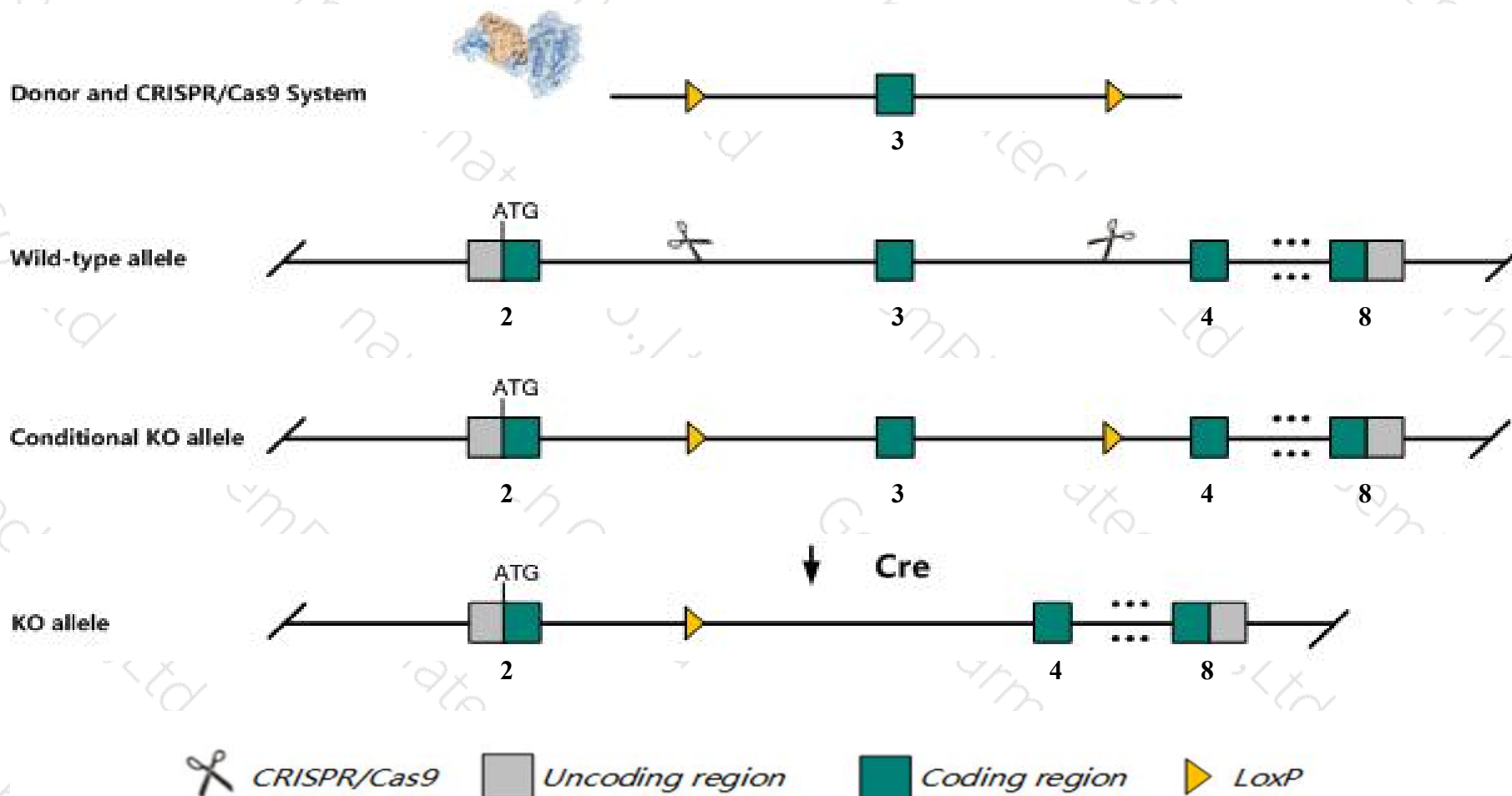
Cas9-CKO

Strain background

C57BL/6J

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pkmyt1* gene. The schematic diagram is as follows:



- The *Pkmyt1* gene has 5 transcripts. According to the structure of *Pkmyt1* gene, exon3 of *Pkmyt1-201* (ENSMUST00000024701.8) transcript is recommended as the knockout region. The region contains 494bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Pkmyt1* gene. The brief process is as follows: CRISPR/Cas9 system and Donor were microinjected into the fertilized eggs of C57BL/6J 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/6J 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 *Pkmyt1* gene is located on the Chr17. 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)

Pkmyt1 protein kinase, membrane associated tyrosine/threonine 1 [Mus musculus (house mouse)]

Gene ID: 268930, updated on 20-Mar-2020

Summary



Official Symbol	Pkmyt1 provided by MGI
Official Full Name	protein kinase, membrane associated tyrosine/threonine 1 provided by MGI
Primary source	MGI:MGI:2137630
See related	Ensembl:ENSMUSG00000023908
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	6230424P17, AW209059, Myt1
Expression	Ubiquitous expression in thymus adult (RPKM 44.6), testis adult (RPKM 32.4) and 25 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

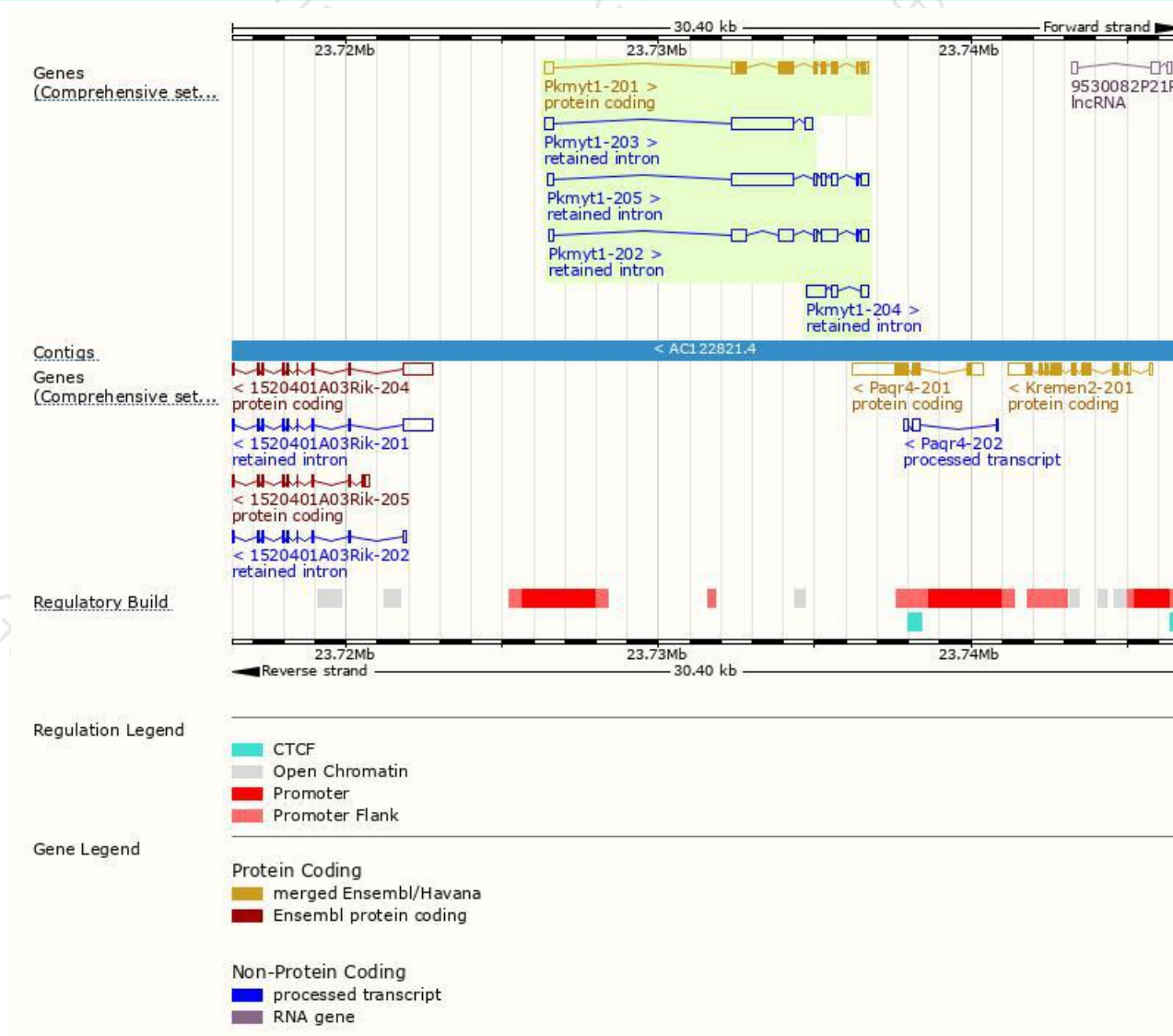
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pkmyt1-201	ENSMUST00000024701.8	2040	490aa	Protein coding	CCDS28460	Q9ESG9	TSL:1 GENCODE basic APPRIS P1
Pkmyt1-205	ENSMUST00000233954.1	2902	No protein	Retained intron	-	-	
Pkmyt1-203	ENSMUST00000233238.1	2509	No protein	Retained intron	-	-	
Pkmyt1-202	ENSMUST00000232822.1	2064	No protein	Retained intron	-	-	
Pkmyt1-204	ENSMUST00000233812.1	1045	No protein	Retained intron	-	-	

The strategy is based on the design of *Pkmyt1-201* transcript,the transcription is shown below:



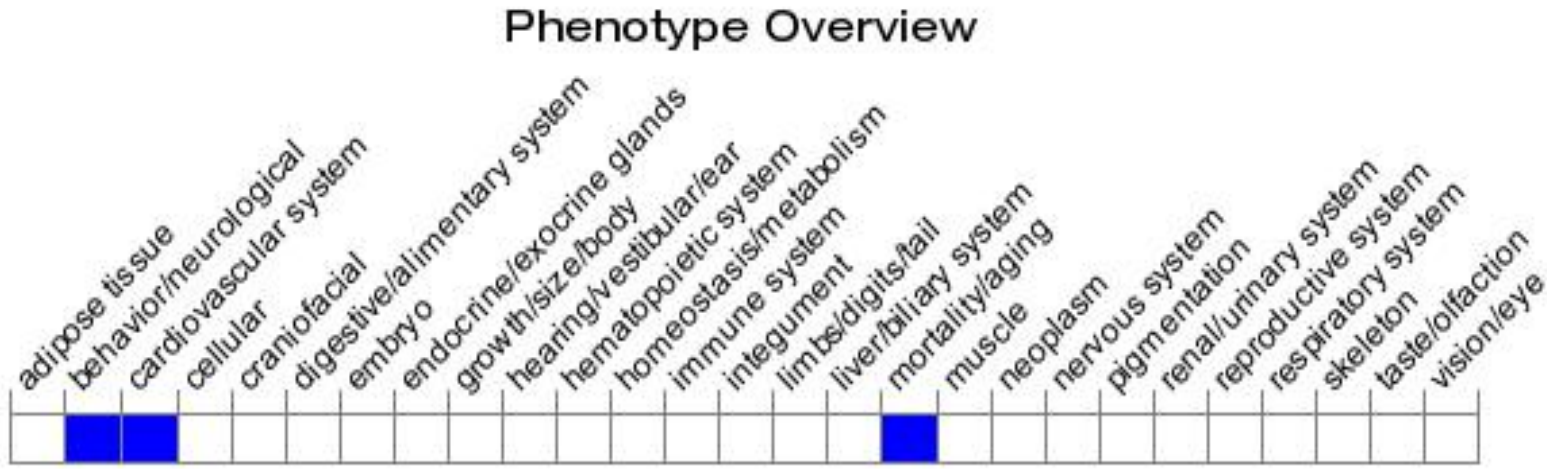
Genomic location distribution



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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