

Rab9 Cas9-CKO Strategy

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Project Overview

Project Name

Rab9

Project type

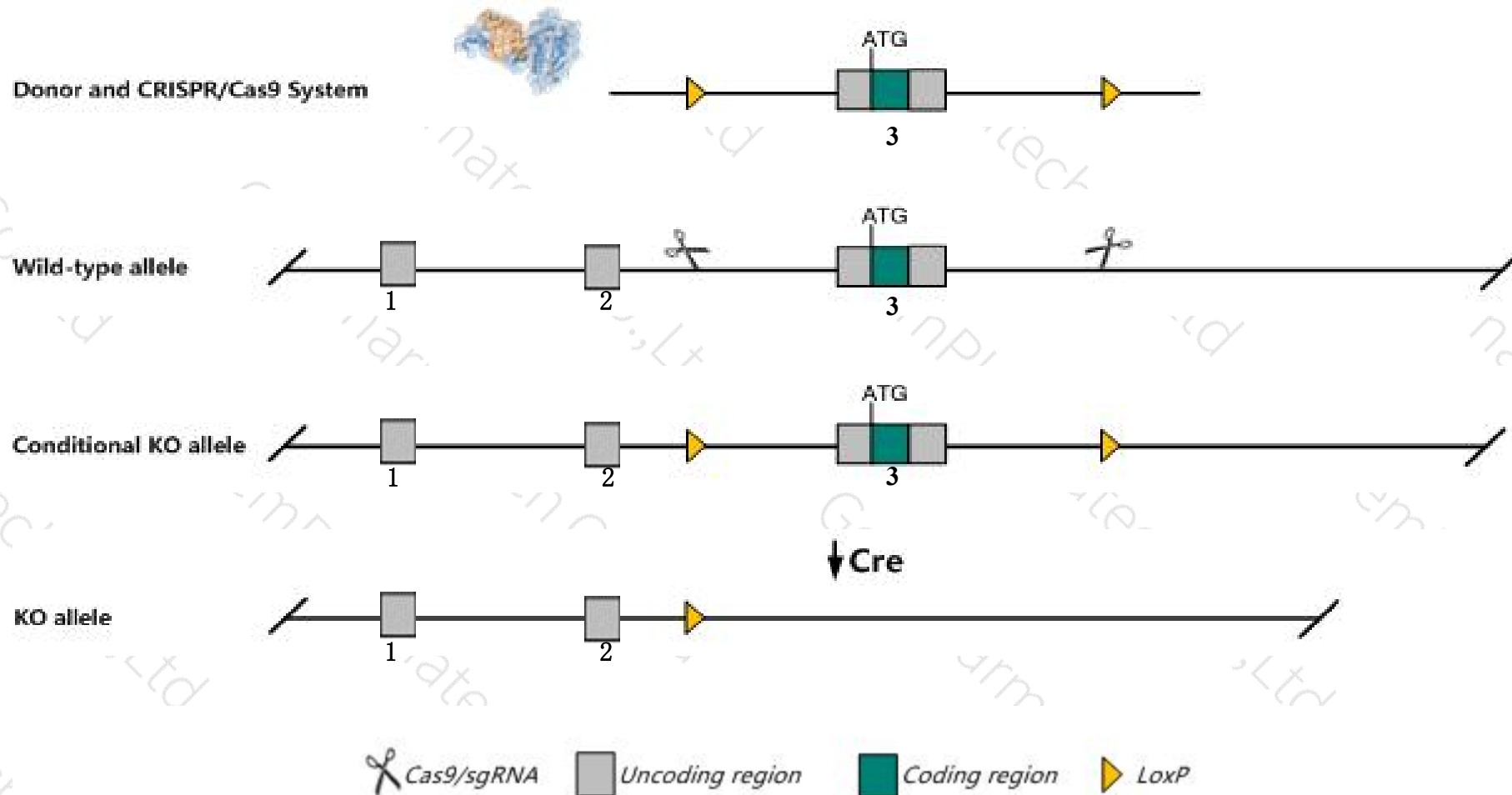
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rab9* gene. The schematic diagram is as follows:



- The *Rab9* gene has 3 transcripts. According to the structure of *Rab9* gene, exon3 of *Rab9-202* (ENSMUST00000112091.8) transcript is recommended as the knockout region. The region contains all of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Rab9* 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.

- According to the existing MGI data, male chimeras hemizygous for a gene trapped allele appear normal at E9.5.
- The *Rab9* gene is located on the ChrX. 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)



Rab9 RAB9, member RAS oncogene family [*Mus musculus* (house mouse)]

Gene ID: 56382, updated on 24-Dec-2019

Summary

Official Symbol Rab9 provided by [MGI](#)

Official Full Name RAB9, member RAS oncogene family provided by [MGI](#)

Primary source [MGI:MGI:1890695](#)

See related [Ensembl:ENSMUSG00000079316](#)

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 Rab9a; AI195561; Sid6061p; 2410064E05Rik

Expression Broad expression in placenta adult (RPKM 21.4), liver E18 (RPKM 14.0) and 22 other tissues [See more](#)

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

Transcript information (Ensembl)

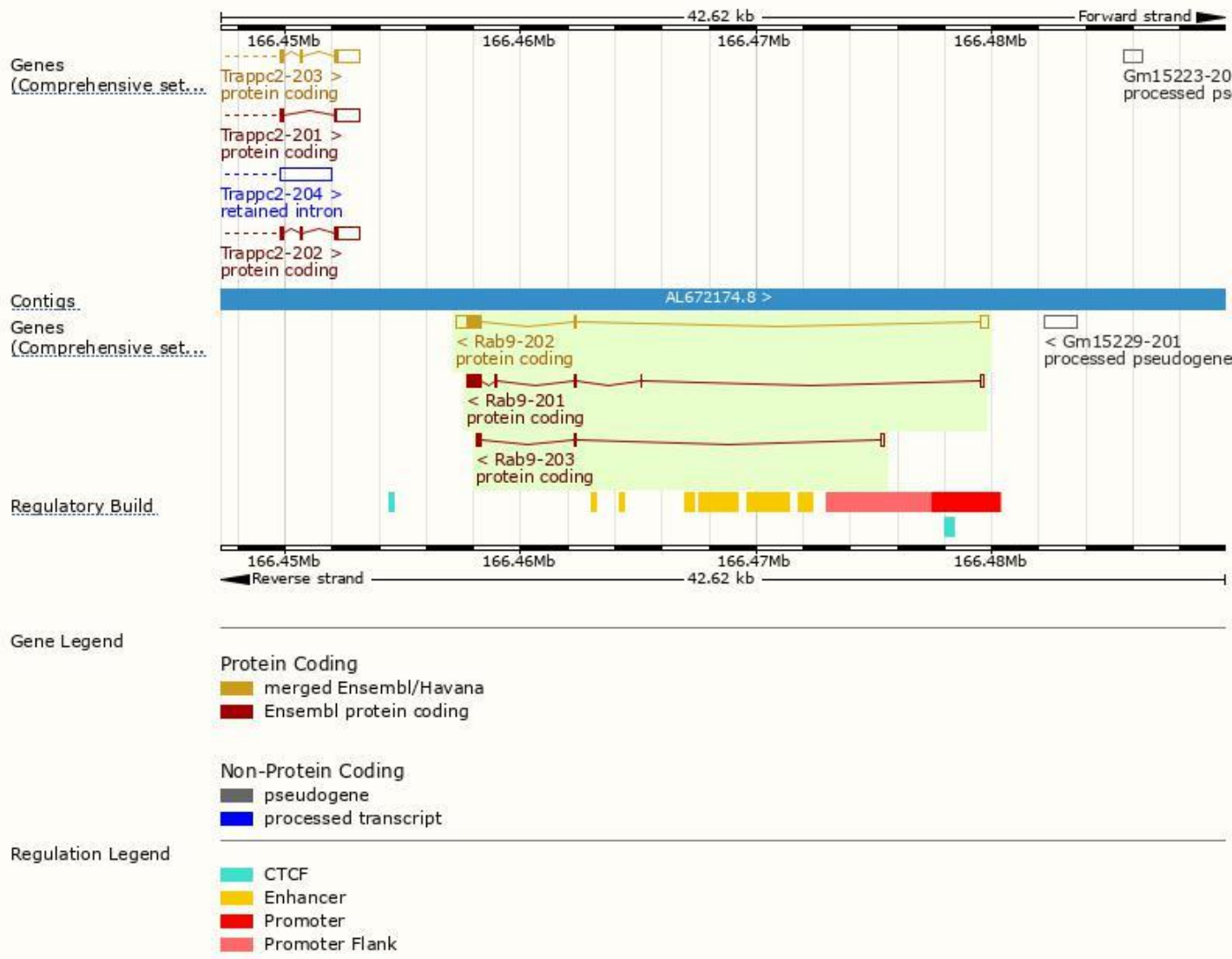
The gene has 3 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rab9-202	ENSMUST00000112091.8	1447	201aa	Protein coding	CCDS30527	Q0PD48 Q9R0M6	TSL:1 GENCODE basic APPRIS P1
Rab9-201	ENSMUST00000049435.14	876	202aa	Protein coding	-	A2AFP5	CDS 3' incomplete TSL:3
Rab9-203	ENSMUST00000149315.1	392	59aa	Protein coding	-	A2AFP4	CDS 3' incomplete TSL:5

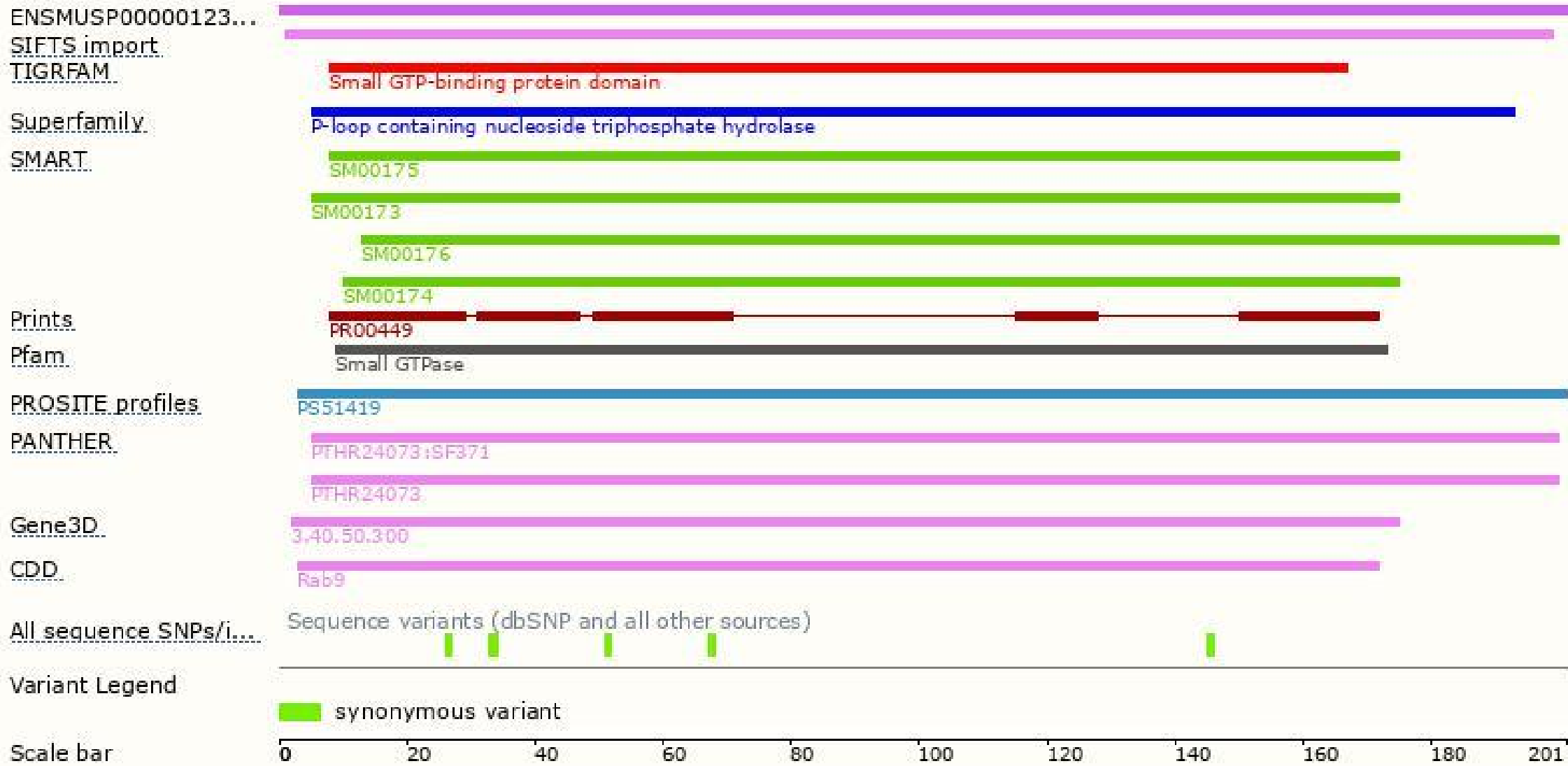
The strategy is based on the design of *Rab9-202* transcript, the transcription is shown below:



Genomic location distribution



Protein domain



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

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