

***Rab5b* Cas9-CKO Strategy**

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Reviewer:

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Design Date:

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Project Overview

Project Name

Rab5b

Project type

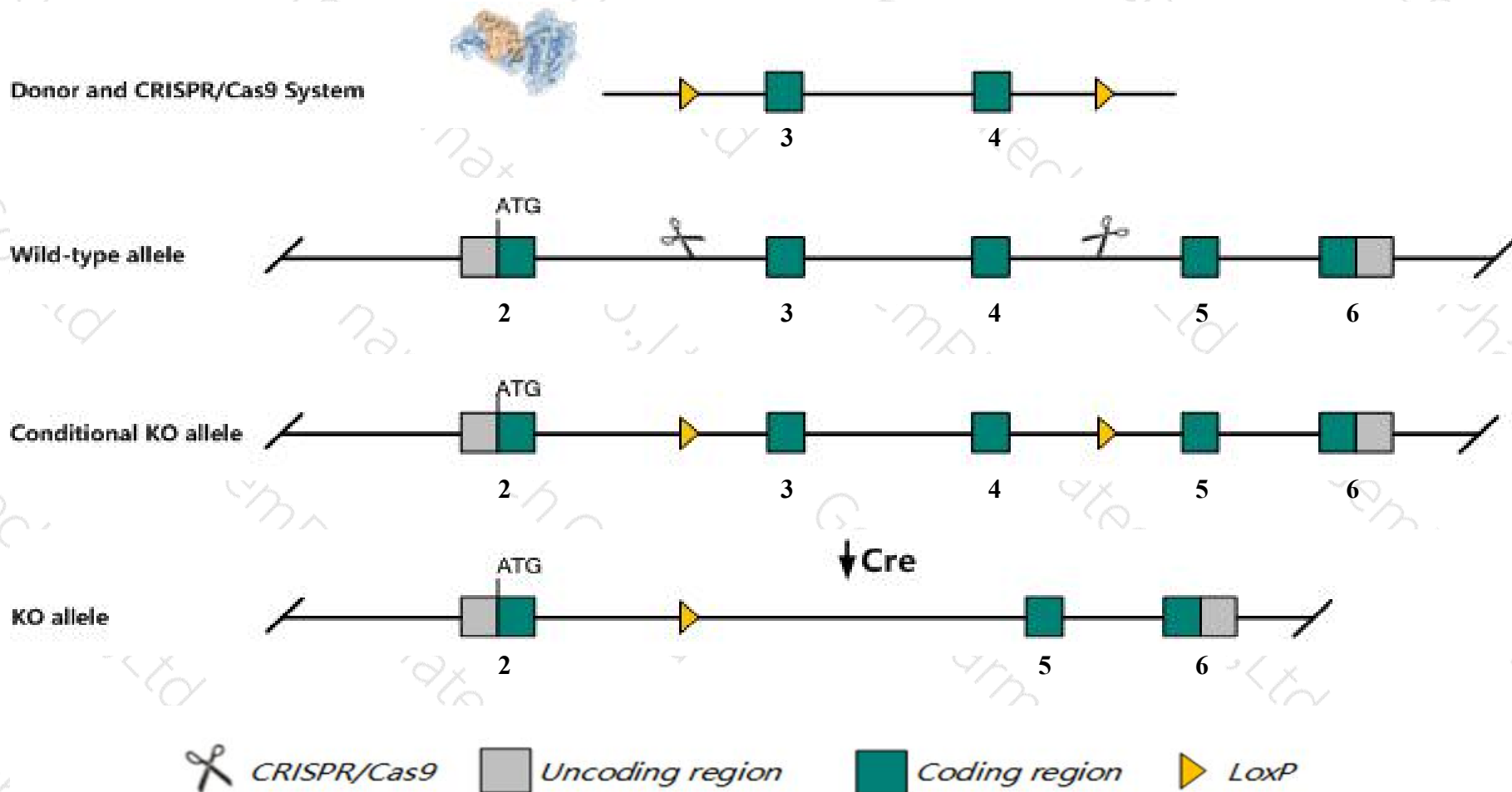
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rab5b* gene. The schematic diagram is as follows:



- The *Rab5b* gene has 2 transcripts. According to the structure of *Rab5b* gene, exon3-exon4 of *Rab5b-201* (ENSMUST00000000727.3) transcript is recommended as the knockout region. The region contains 275bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Rab5b* 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 *Rab5b* gene is located on the Chr10. 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)

Rab5b RAB5B, member RAS oncogene family [*Mus musculus* (house mouse)]

Gene ID: 19344, updated on 27-Feb-2020

Summary

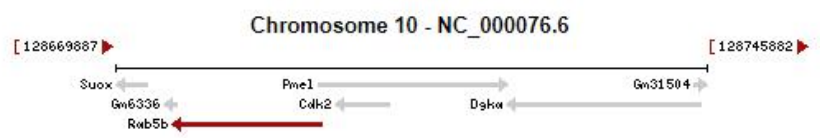
- Official Symbol [Rab5b](#) provided by [MGI](#)
- Official Full Name [RAB5B, member RAS oncogene family](#) provided by [MGI](#)
- Primary source [MGI:MGI:105938](#)
- See related [Ensembl:ENSMUSG00000000711](#)
- Gene type protein coding
- RefSeq status VALIDATED
- Organism [Mus musculus](#)
- Lineage Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
- Also known as C030027M18Rik
- Expression Ubiquitous expression in lung adult (RPKM 40.7), kidney adult (RPKM 39.7) and 28 other tissues [See more](#)
- Orthologs [human](#) [all](#)

Genomic context

Location: 10; 10 D3 [See Rab5b in Genome Data Viewer](#)

Exon count: 6

Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	10	NC_000076.6 (128677170..128696284, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	10	NC_000076.5 (128114235..128133324, complement)

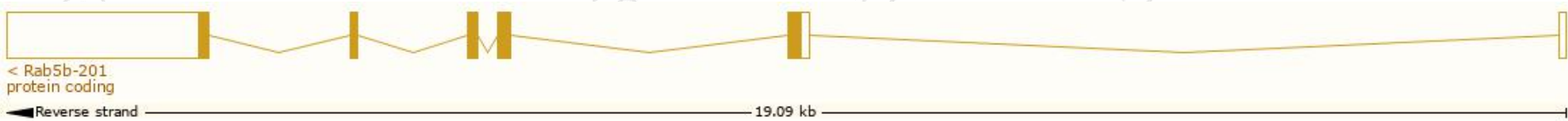


Transcript information (Ensembl)

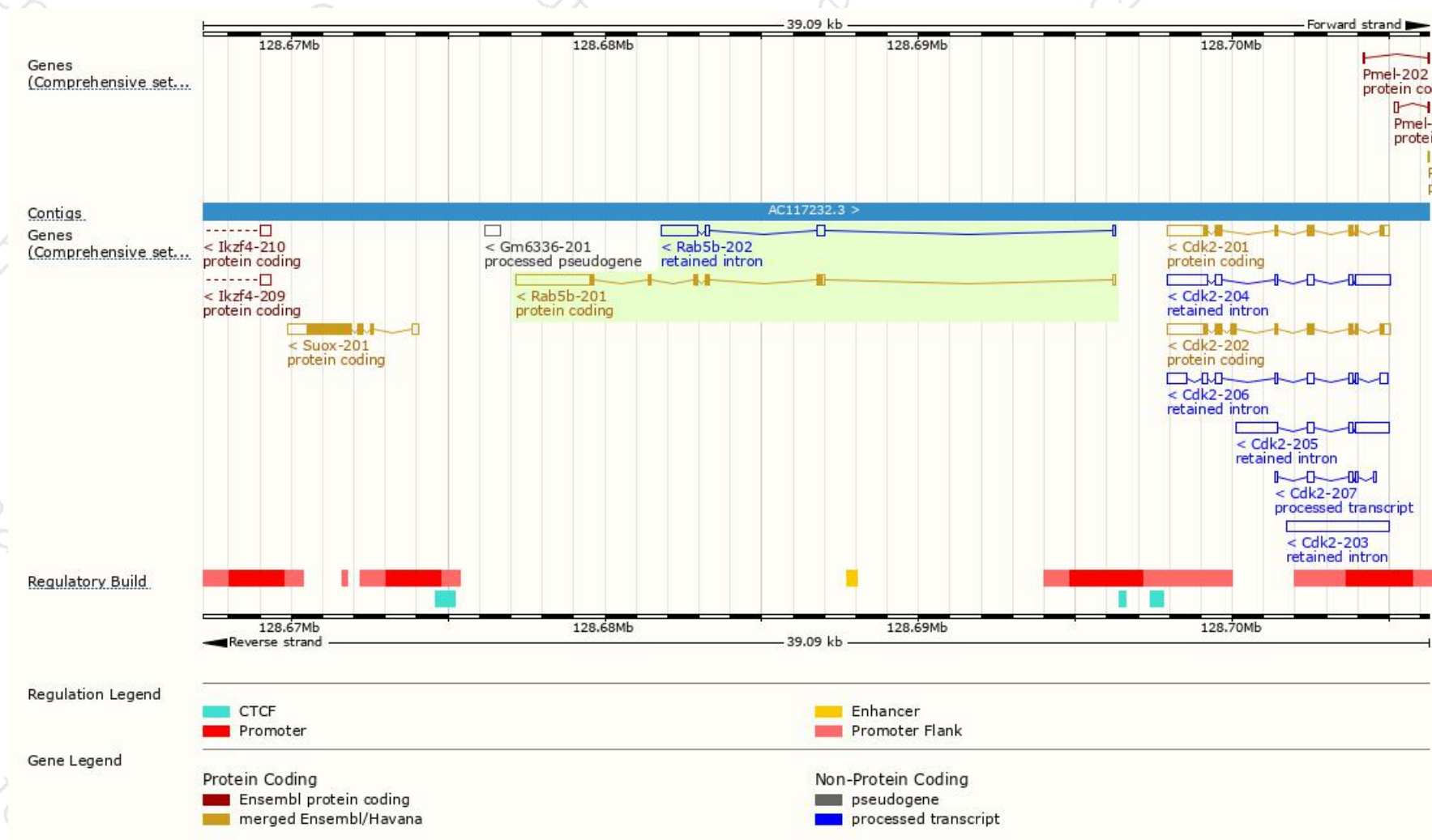
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rab5b-201	ENSMUST00000000727.3	3180	215aa	Protein coding	CCDS24287	B2RPS1 P61021	TSL:1 Gencode basic APPRIS P1
Rab5b-202	ENSMUST00000220593.1	1629	No protein	Retained intron	-	-	TSL:1

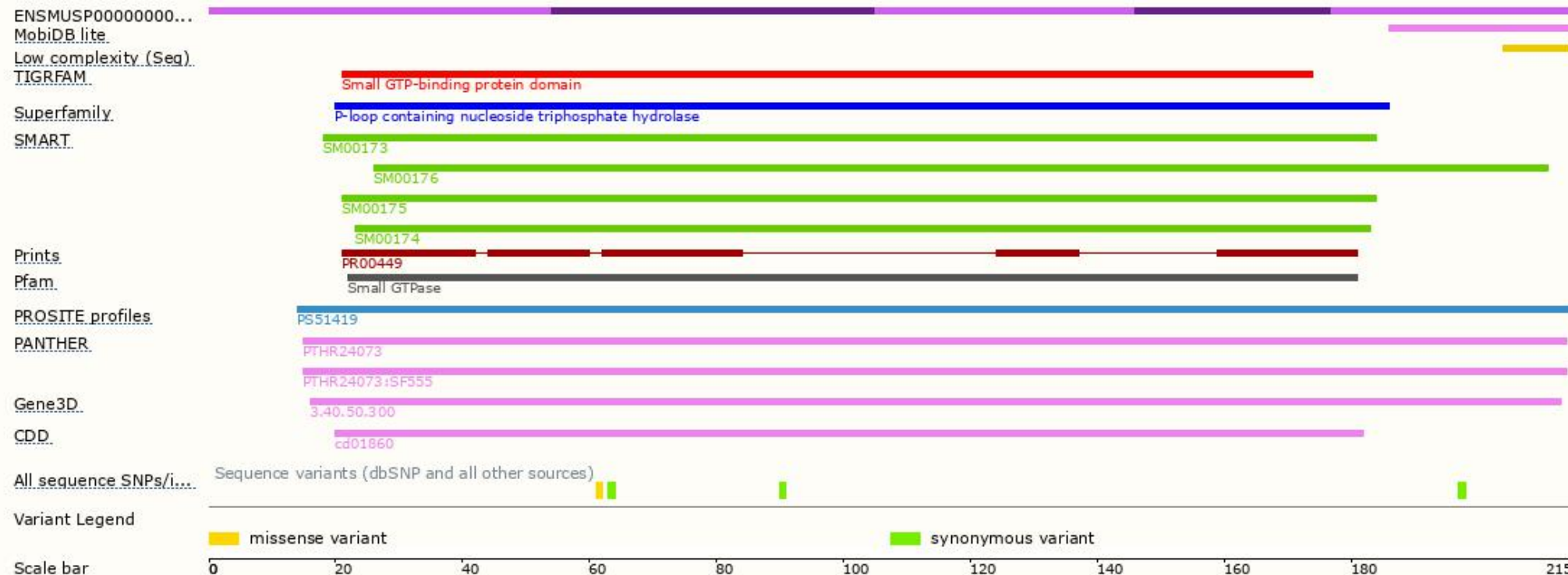
The strategy is based on the design of *Rab5b-201* transcript,The transcription is shown below



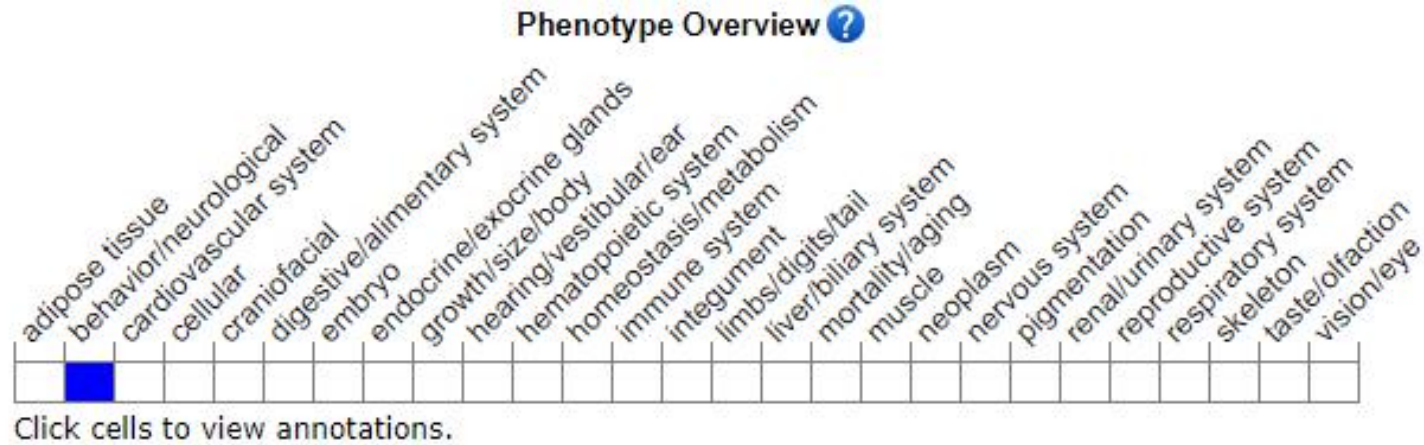
Genomic location distribution



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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