

***Rab3c* Cas9-CKO Strategy**

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Project Overview

Project Name

Rab3c

Project type

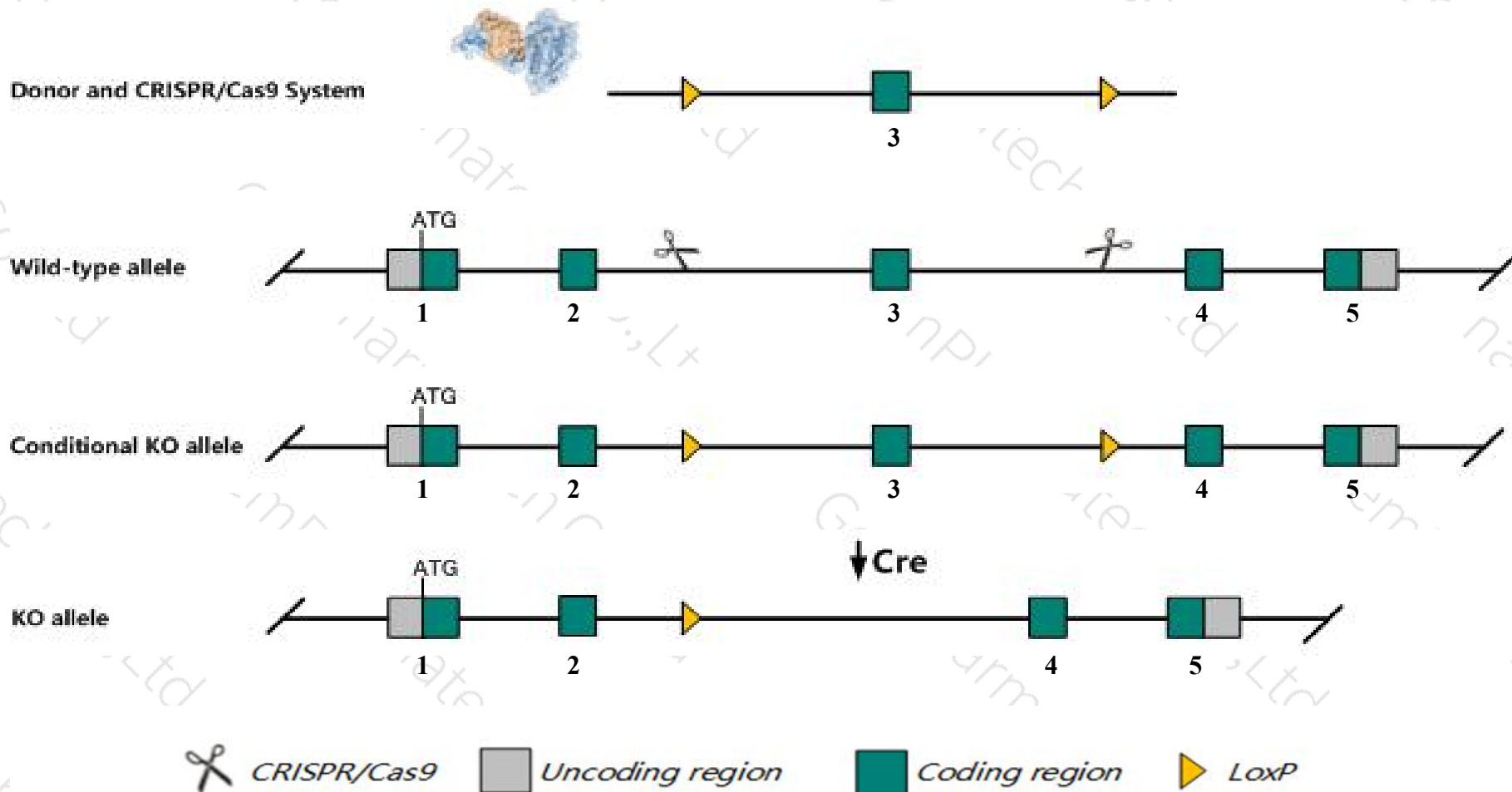
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rab3c* gene. The schematic diagram is as follows:



- The *Rab3c* gene has 5 transcripts. According to the structure of *Rab3c* gene, exon3 of *Rab3c-201* (ENSMUST00000167824.2) transcript is recommended as the knockout region. The region contains 119bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Rab3c* 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, Mice homozygous for a knock-out allele are viable and fertile.
- The *Rab3c* gene is located on the Chr13. 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)

Rab3c RAB3C, member RAS oncogene family [*Mus musculus* (house mouse)]

Gene ID: 67295, updated on 9-Feb-2020

Summary

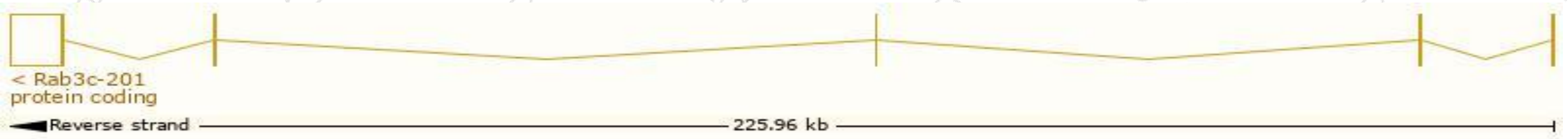
Official Symbol	Rab3c provided by MGI
Official Full Name	RAB3C, member RAS oncogene family provided by MGI
Primary source	MGI:MGI:1914545
See related	Ensembl:ENSMUSG000000021700
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI850886; 2700062I01Rik; 3110015B08Rik; 3110037E15Rik
Expression	Biased expression in whole brain E14.5 (RPKM 16.0), frontal lobe adult (RPKM 15.2) and 5 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

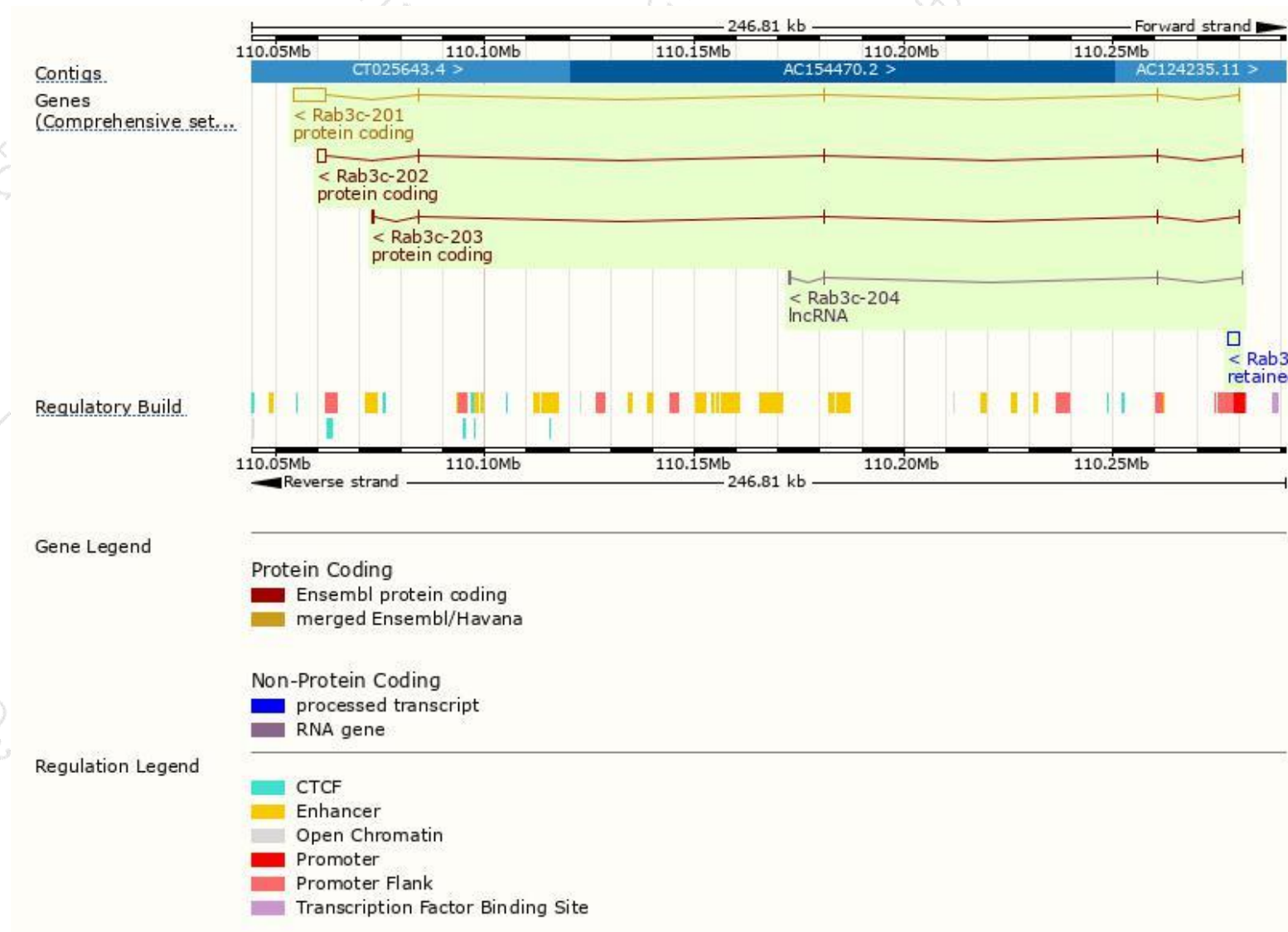
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rab3c-201	ENSMUST00000167824.2	8444	227aa	Protein coding	CCDS26764	P62823 Q542T7	TSL:1 GENCODE basic APPRIS P2
Rab3c-202	ENSMUST00000223922.1	2398	225aa	Protein coding	-	A0A286YDR2	GENCODE basic APPRIS ALT 1
Rab3c-203	ENSMUST00000224180.1	967	169aa	Protein coding	-	Q9CXS2	GENCODE basic
Rab3c-205	ENSMUST00000226040.1	2846	No protein	Retained intron	-	-	
Rab3c-204	ENSMUST00000224287.1	923	No protein	lncRNA	-	-	

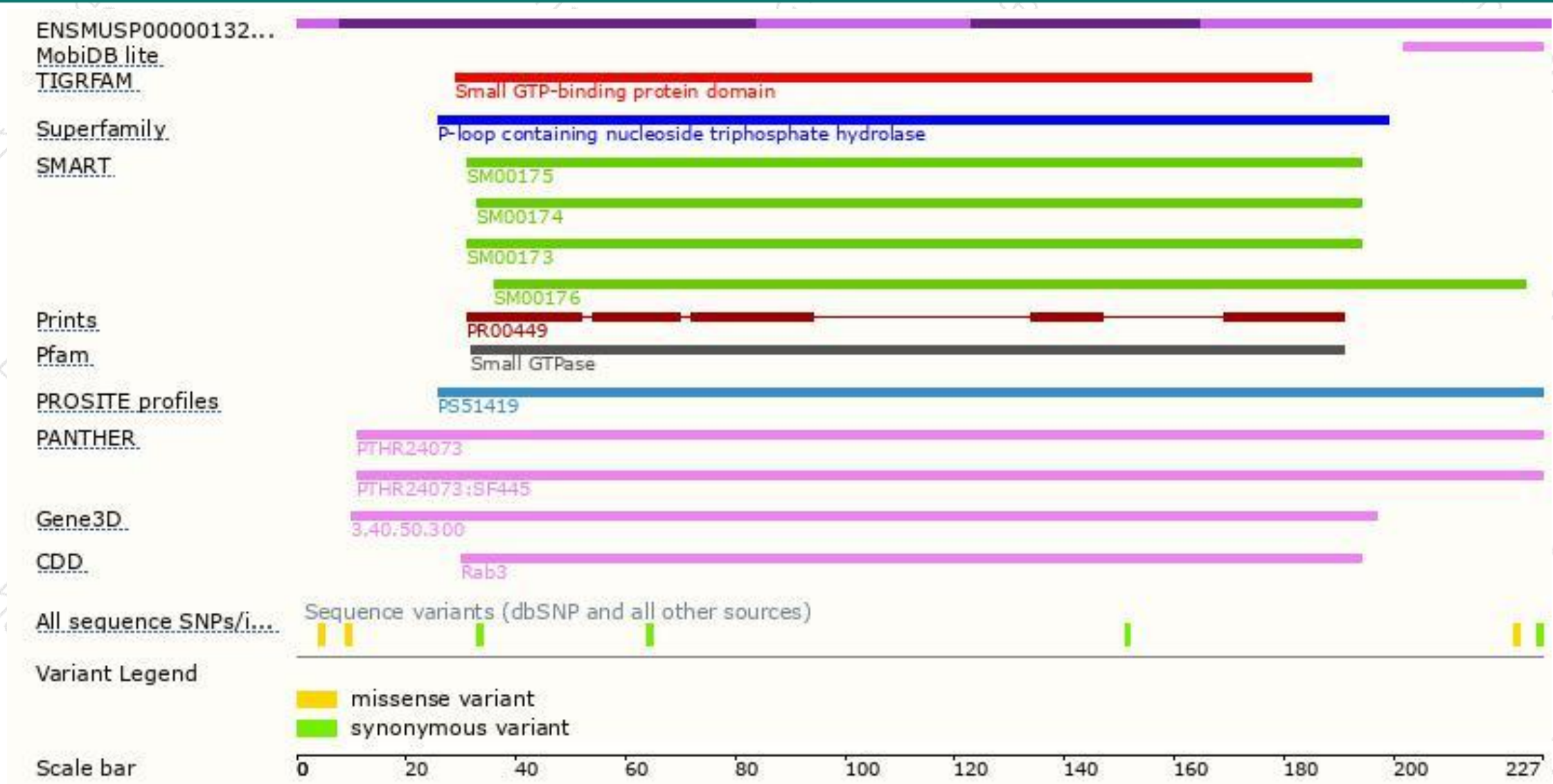
The strategy is based on the design of *Rab3c-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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