

***Rab3gap2* Cas9-CKO Strategy**

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Project Overview

Project Name

Rab3gap2

Project type

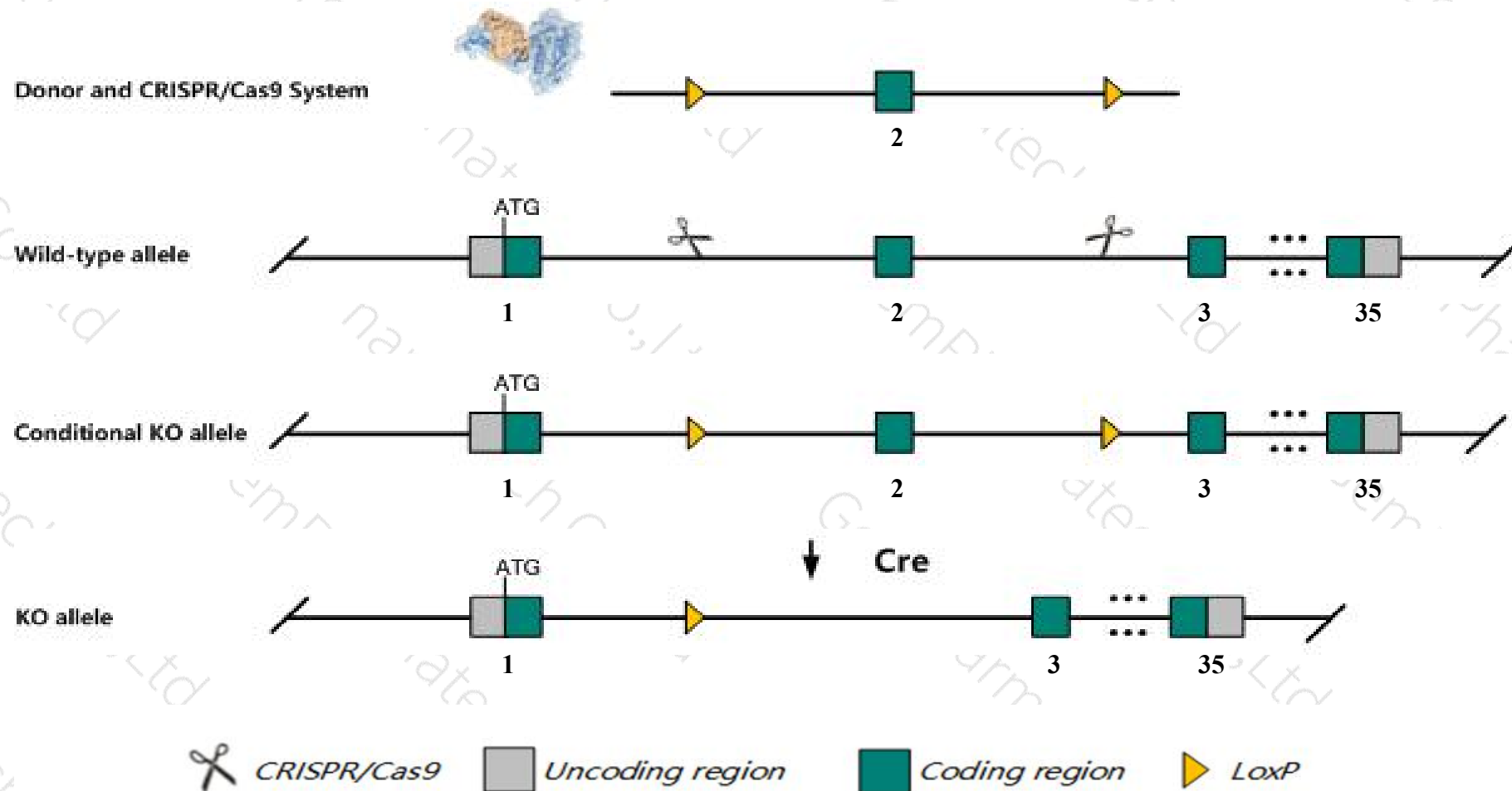
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rab3gap2* gene. The schematic diagram is as follows:



- The *Rab3gap2* gene has 6 transcripts. According to the structure of *Rab3gap2* gene, exon2 of *Rab3gap2-201* (ENSMUST00000069652.7) transcript is recommended as the knockout region. The region contains 65bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Rab3gap2* 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 *Rab3gap2* gene is located on the Chr1. 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)

Rab3gap2 RAB3 GTPase activating protein subunit 2 [Mus musculus (house mouse)]

Gene ID: 98732, updated on 13-Mar-2020

Summary



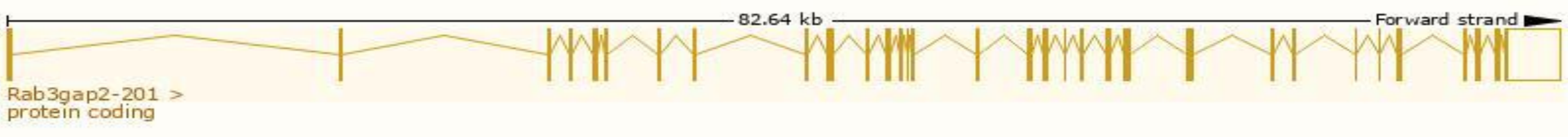
Official Symbol	Rab3gap2 provided by MGI
Official Full Name	RAB3 GTPase activating protein subunit 2 provided by MGI
Primary source	MGI:MGI:1916043
See related	Ensembl:ENSMUSG00000039318
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1110059F07Rik, 2010002H18Rik, 5830469C09, AI851069, AW743433, RAB3-GAP150, mKIAA0839
Expression	Ubiquitous expression in frontal lobe adult (RPKM 9.3), cortex adult (RPKM 8.7) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

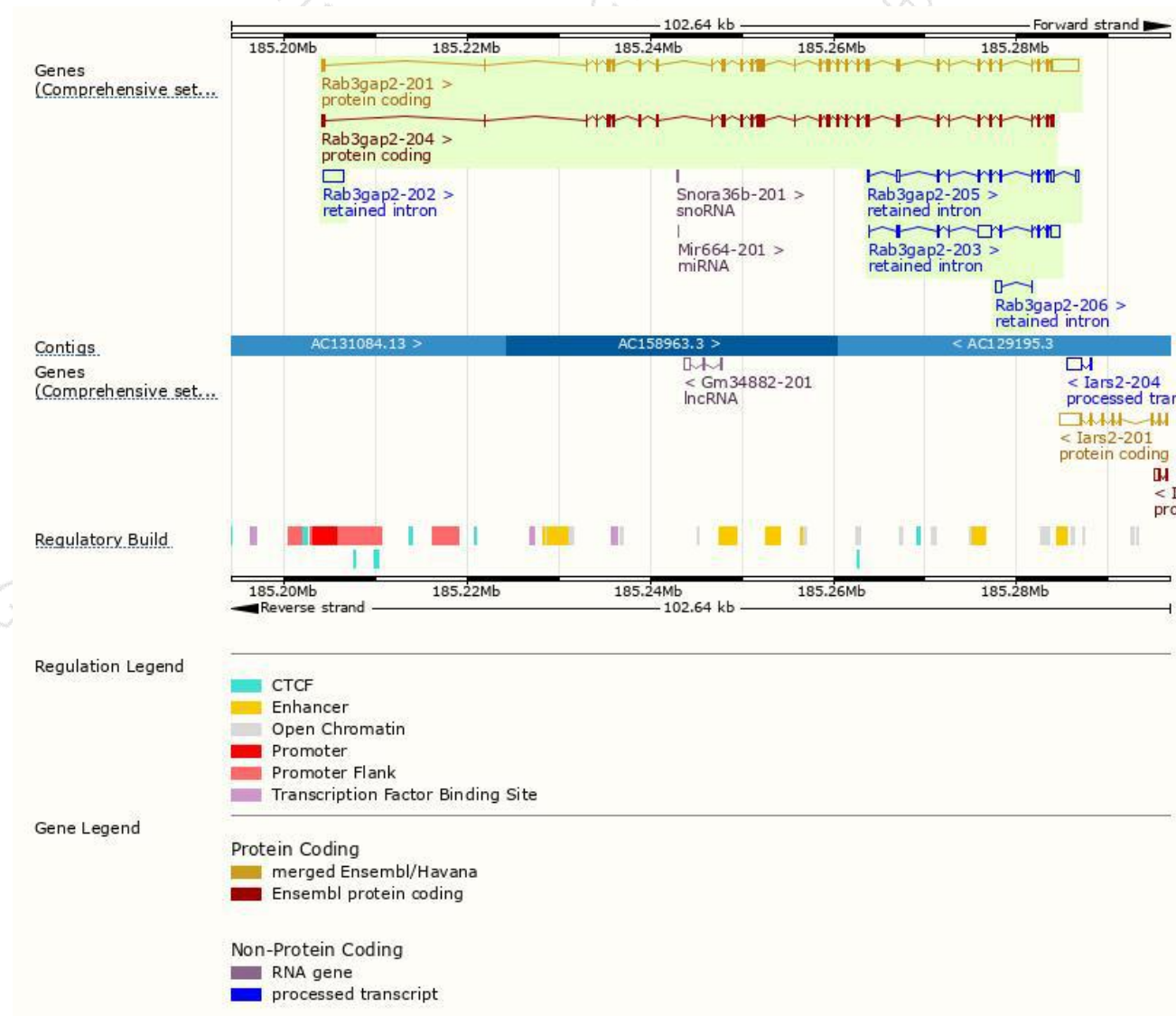
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rab3gap2-201	ENSMUST00000069652.7	7052	1387aa	Protein coding	CCDS48478	E9QKE4	TSL:5 GENCODE basic APPRIS P2
Rab3gap2-204	ENSMUST00000194740.5	4418	1367aa	Protein coding	-	A0A0A6YWM5	TSL:5 GENCODE basic APPRIS ALT2
Rab3gap2-203	ENSMUST00000193482.1	3245	No protein	Retained intron	-	-	TSL:5
Rab3gap2-202	ENSMUST00000191966.1	2277	No protein	Retained intron	-	-	TSL:NA
Rab3gap2-205	ENSMUST00000195042.5	1981	No protein	Retained intron	-	-	TSL:5
Rab3gap2-206	ENSMUST00000195534.1	614	No protein	Retained intron	-	-	TSL:3

The strategy is based on the design of *Rab3gap2-201* transcript,the transcription is shown below:



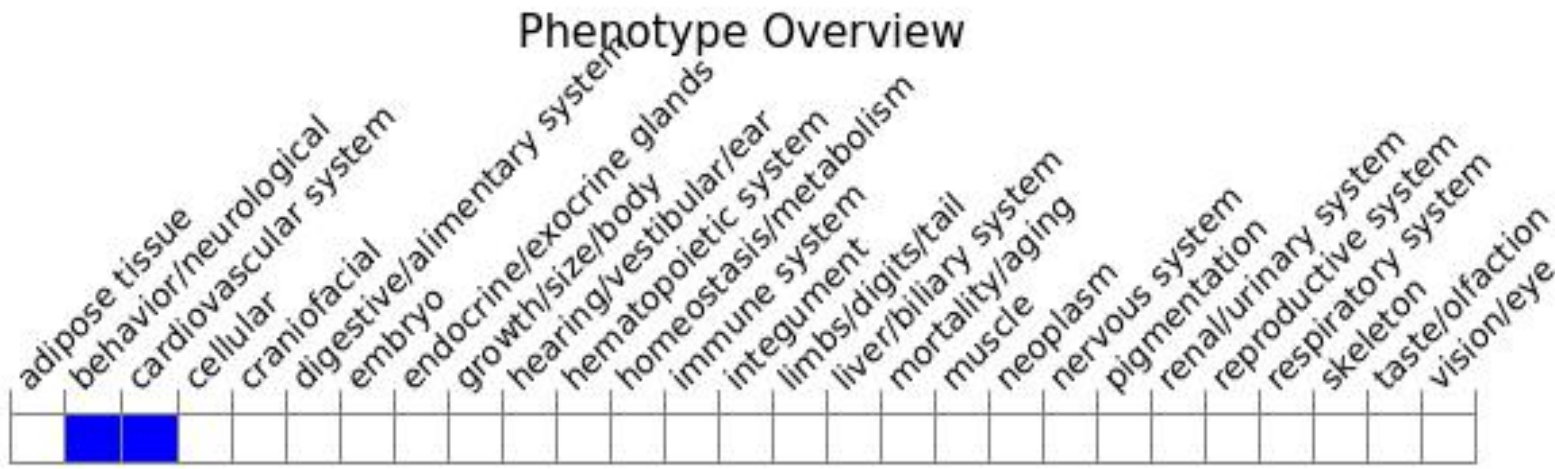
Genomic location distribution



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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