

Rragc Cas9-CKO Strategy

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Project Overview

Project Name

Rragc

Project type

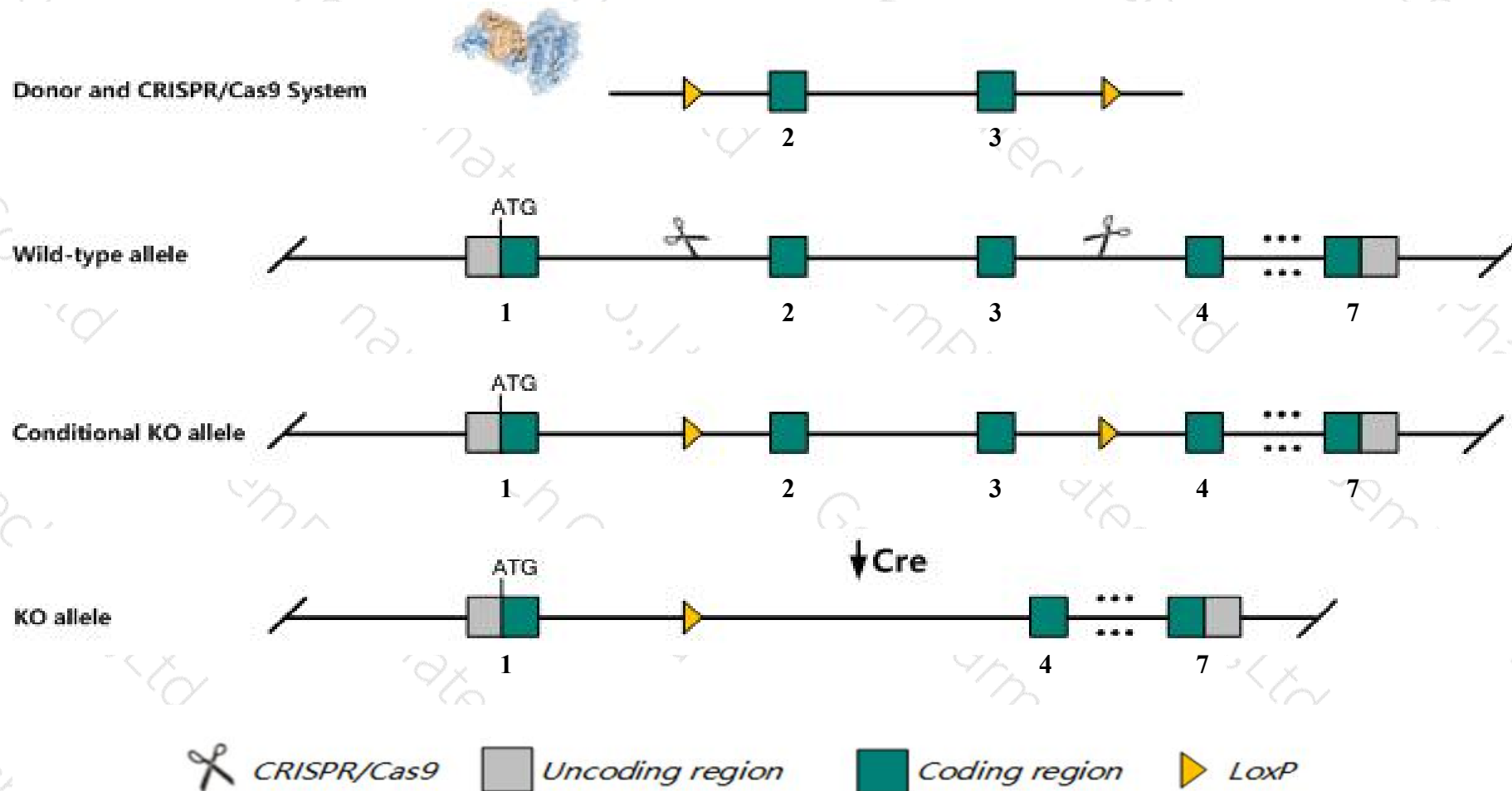
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



Technical routes

- The *Rragc* gene has 5 transcripts. According to the structure of *Rragc* gene, exon2-exon3 of *Rragc-201* (ENSMUST00000030399.6) transcript is recommended as the knockout region. The region contains 404bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Rragc* 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.

- The flox region is about 1.5 kb away from the 5th end of the *Gm12905* gene, and its effect is unknown.
- The *Rragc* gene is located on the Chr4. 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)

Rragc Ras-related GTP binding C [*Mus musculus* (house mouse)]

Gene ID: 54170, updated on 8-Dec-2019

Summary

Official Symbol	Rragc provided by MGI
Official Full Name	Ras-related GTP binding C provided by MGI
Primary source	MGI:MGI:1858751
See related	Ensembl:ENSMUSG00000028646
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	Gtr2; RAGC; TIB929; YGR163W; AU041672
Expression	Ubiquitous expression in placenta adult (RPKM 33.1), subcutaneous fat pad adult (RPKM 30.2) and 28 other tissues See more
Orthologs	human all

Genomic context

Location: 4; 4 D2.2

Exon count: 7

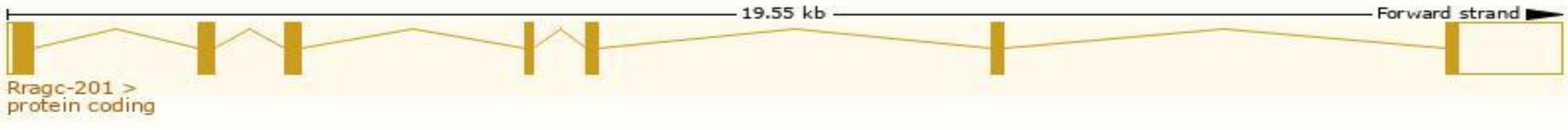
See Rragc in [Genome Data Viewer](#)

Transcript information (Ensembl)

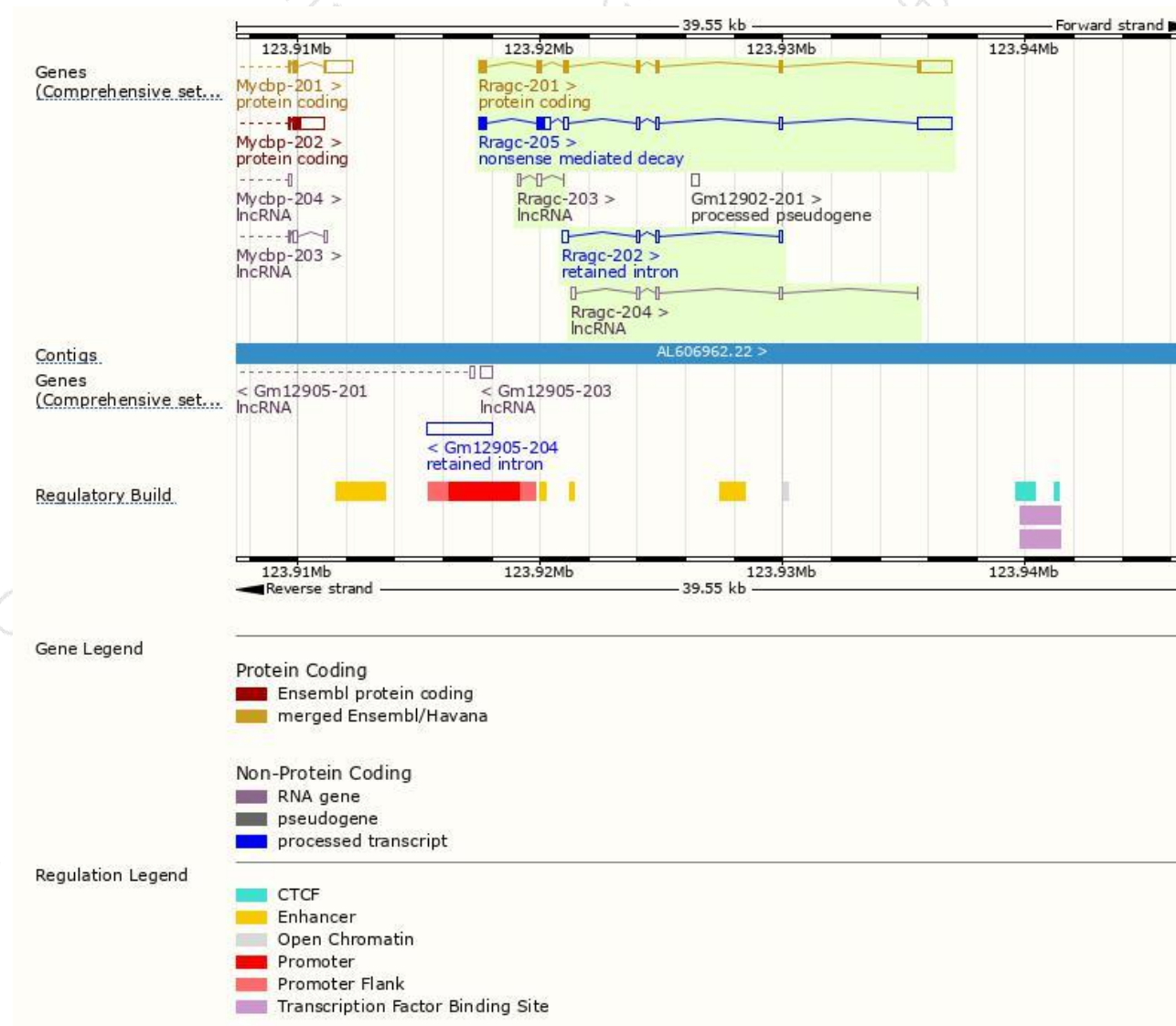
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rragc-201	ENSMUST00000030399.6	2593	398aa	Protein coding	CCDS18622	Q99K70	TSL:1 GENCODE basic APPRIS P1
Rragc-205	ENSMUST00000155757.7	2950	182aa	Nonsense mediated decay	-	Q99K70	TSL:1
Rragc-202	ENSMUST00000133445.7	642	No protein	Retained intron	-	-	TSL:2
Rragc-204	ENSMUST00000155454.1	599	No protein	lncRNA	-	-	TSL:2
Rragc-203	ENSMUST00000143635.1	377	No protein	lncRNA	-	-	TSL:3

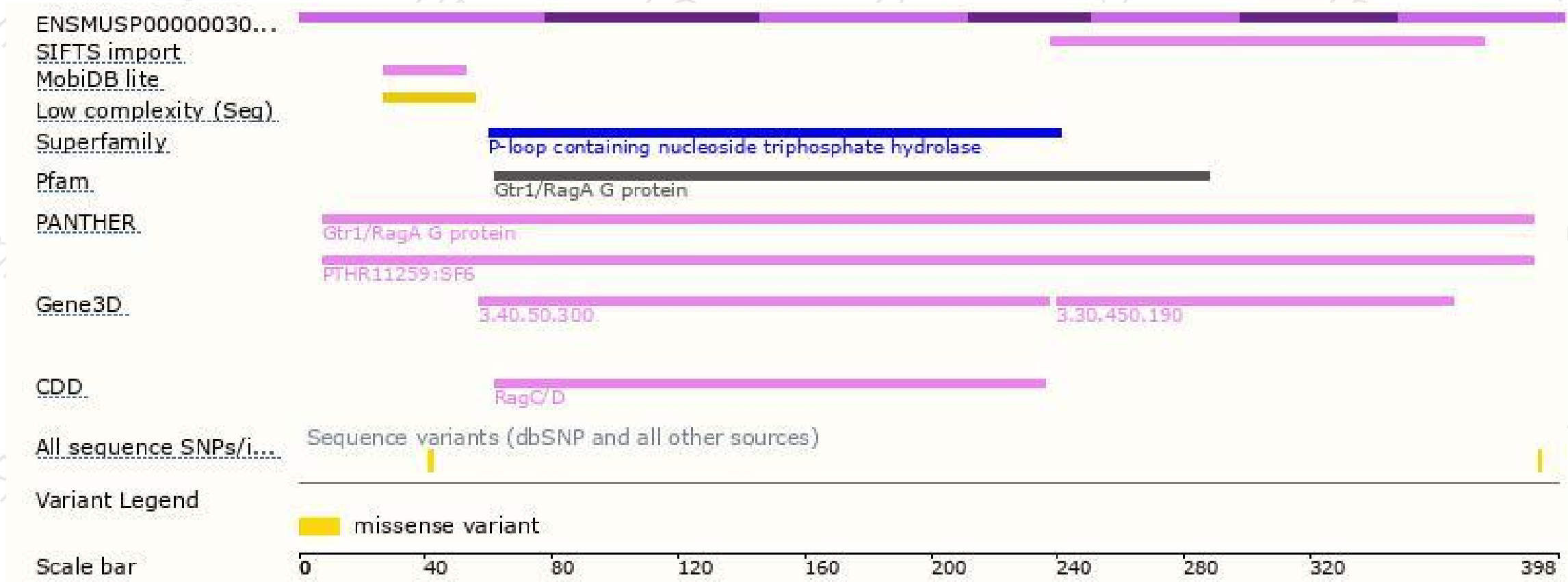
The strategy is based on the design of *Rragc-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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