Rragc Cas9-KO Strategy

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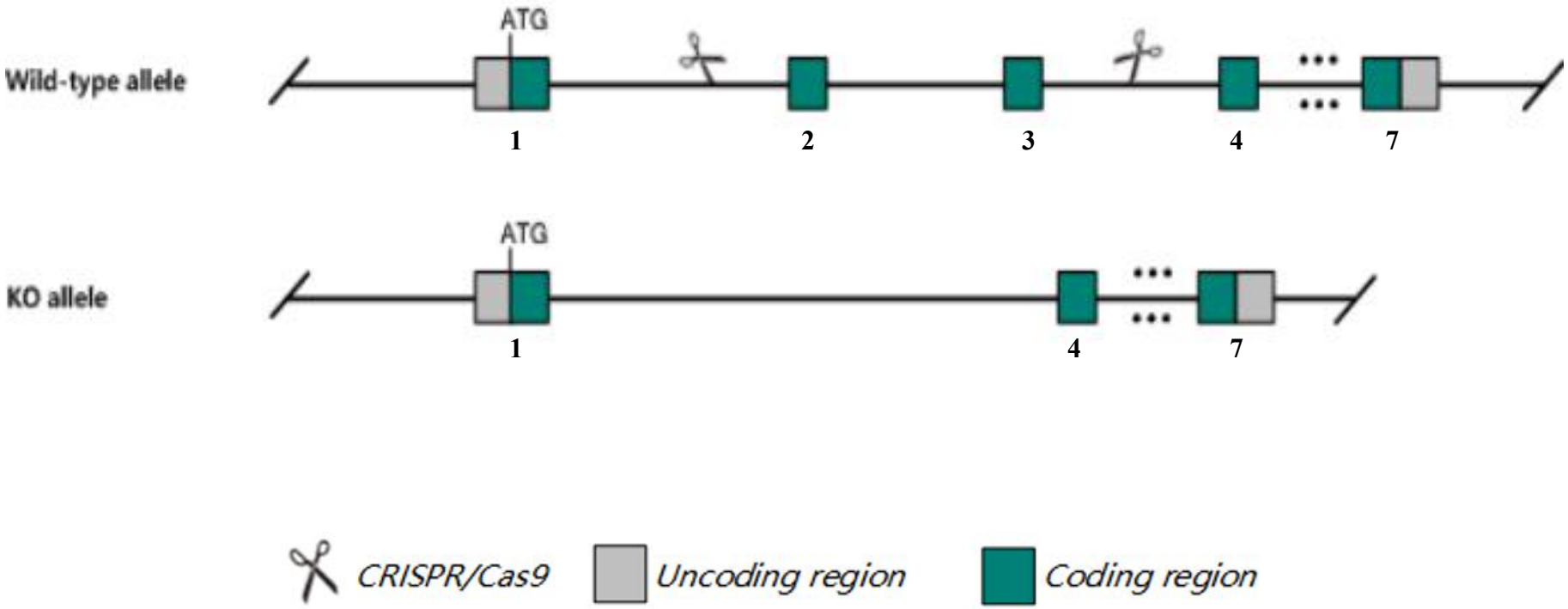
Project Overview

Project Name	***Rragc***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

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

Notice

The knockout 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information NCBI

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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

See Rragc in Genome Data Viewer

Exon count: 7

Transcript information Ensembl

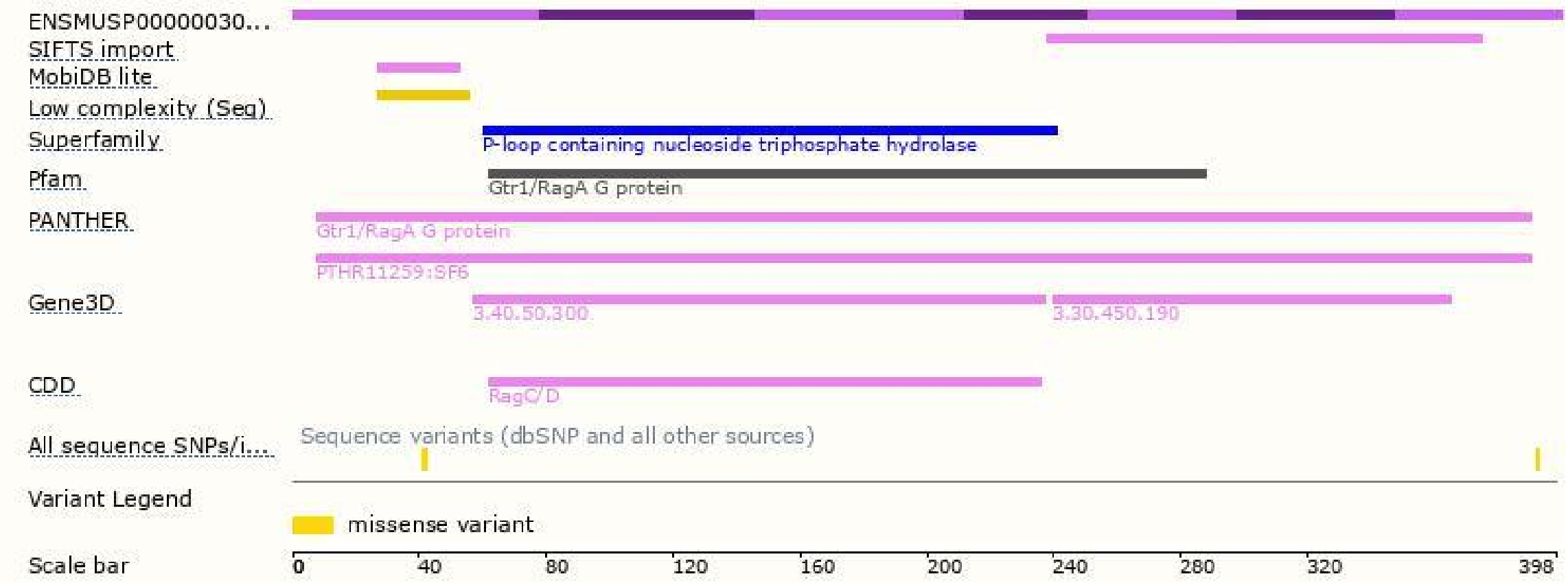
The gene has 5 transcripts,all transcripts are shown below:

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



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