

***Rab14* Cas9-KO Strategy**

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Project Overview

Project Name

Rab14

Project type

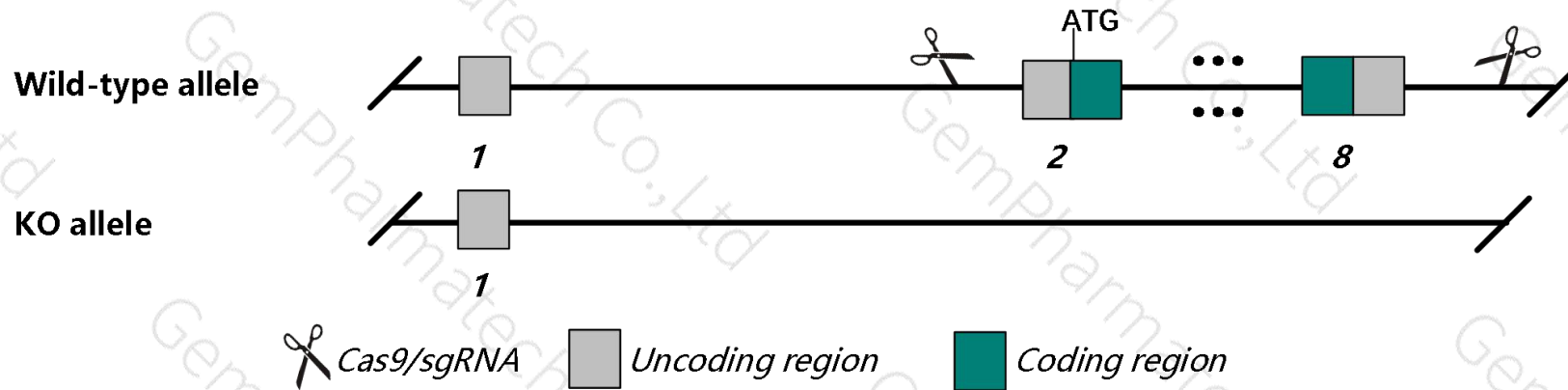
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rab14* gene. The schematic diagram is as follows:



- The *Rab14* gene has 13 transcripts. According to the structure of *Rab14* gene, exon2-exon8 of *Rab14-201* (ENSMUST00000028238.14) transcript is recommended as the knockout region. The region contains all of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Rab14* gene. The brief process is as follows: CRISPR/Cas9 system

- The knockout region is near to the C-terminal of *Cntrl* gene, this strategy may influence the regulatory function of the C-terminal of *Cntrl* gene.
- The *Rab14* gene is located on the Chr2. 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)

Rab14 RAB14, member RAS oncogene family [*Mus musculus* (house mouse)]

Gene ID: 68365, updated on 9-Feb-2020

Summary

- Official Symbol** Rab14 provided by [MGI](#)
- Official Full Name** RAB14, member RAS oncogene family provided by [MGI](#)
- Primary source** [MGI:MGI:1915615](#)
- See related** [Ensembl:ENSMUSG00000026878](#)
- 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** AI314285; AI649155; 0610030G24Rik; 2810475J17Rik; A830021G03Rik; D030017L14Rik
- Expression** Ubiquitous expression in adrenal adult (RPKM 151.4), stomach adult (RPKM 60.7) and 28 other tissues [See more](#)
- Orthologs** [human](#) [all](#)

Genomic context

Location: 2; 2 B See Rab14 in [Genome Data Viewer](#)

Exon count: 8

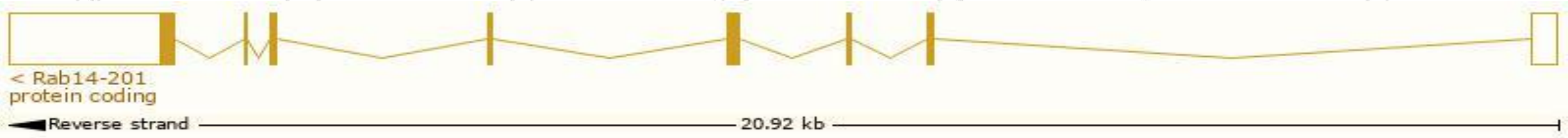
| Annotation release | Status | Assembly | Chr | Location |
|---------------------|-------------------|--|-----|--|
| 108 | current | GRCm38.p6 (GCF_000001635.26) | 2 | NC_000068.7 (35180205..35201120, complement) |
| Build 37.2 | previous assembly | MGSCv37 (GCF_000001635.18) | 2 | NC_000068.6 (35035725..35056640, complement) |

Transcript information (Ensembl)

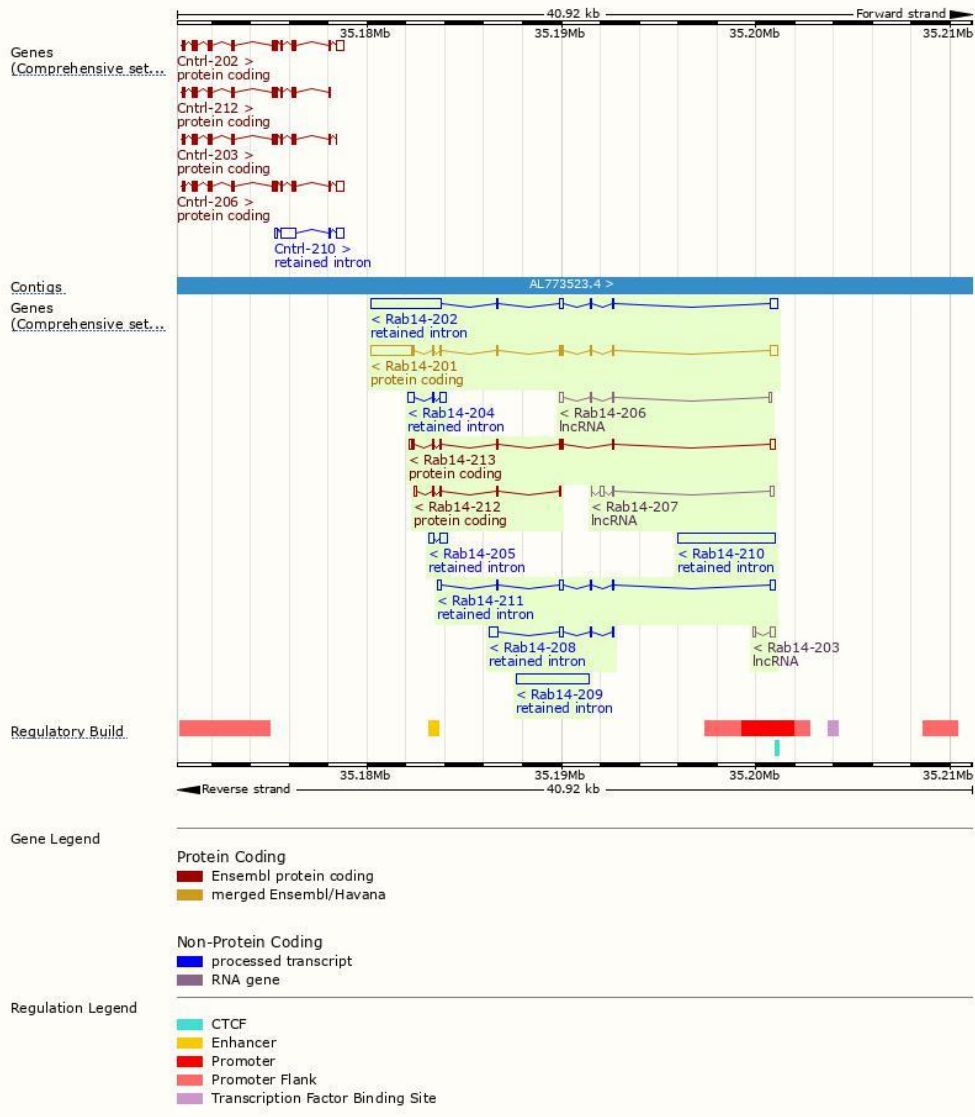
The gene has 13 transcripts,all transcripts are shown below:

| Name | Transcript ID | bp | Protein | Biotype | CCDS | UniProt | Flags |
|-----------|---------------------------------------|------|-----------------------|-----------------|---------------------------|-------------------------------|-------------------------------|
| Rab14-201 | ENSMUST00000028238.14 | 3081 | 215aa | Protein coding | CCDS15959 | Q50HX4 Q91V41 | TSL:1 GENCODE basic APPRIS P1 |
| Rab14-213 | ENSMUST00000230751.1 | 925 | 197aa | Protein coding | - | Q50HX3 | GENCODE basic |
| Rab14-212 | ENSMUST00000230657.1 | 415 | 83aa | Protein coding | - | A0A2R8VHW9 | CDS 5' incomplete |
| Rab14-210 | ENSMUST00000201896.1 | 5003 | No protein | Retained intron | - | - | TSL:NA |
| Rab14-202 | ENSMUST00000113025.1 | 4346 | No protein | Retained intron | - | - | TSL:1 |
| Rab14-209 | ENSMUST00000201694.1 | 3717 | No protein | Retained intron | - | - | TSL:NA |
| Rab14-211 | ENSMUST00000202602.3 | 800 | No protein | Retained intron | - | - | TSL:1 |
| Rab14-208 | ENSMUST00000155483.7 | 731 | No protein | Retained intron | - | - | TSL:3 |
| Rab14-204 | ENSMUST00000137709.1 | 657 | No protein | Retained intron | - | - | TSL:2 |
| Rab14-205 | ENSMUST00000142015.1 | 639 | No protein | Retained intron | - | - | TSL:3 |
| Rab14-207 | ENSMUST00000155359.2 | 494 | No protein | lncRNA | - | - | TSL:2 |
| Rab14-206 | ENSMUST00000148543.1 | 400 | No protein | lncRNA | - | - | TSL:3 |
| Rab14-203 | ENSMUST00000126224.1 | 355 | No protein | lncRNA | - | - | TSL:3 |

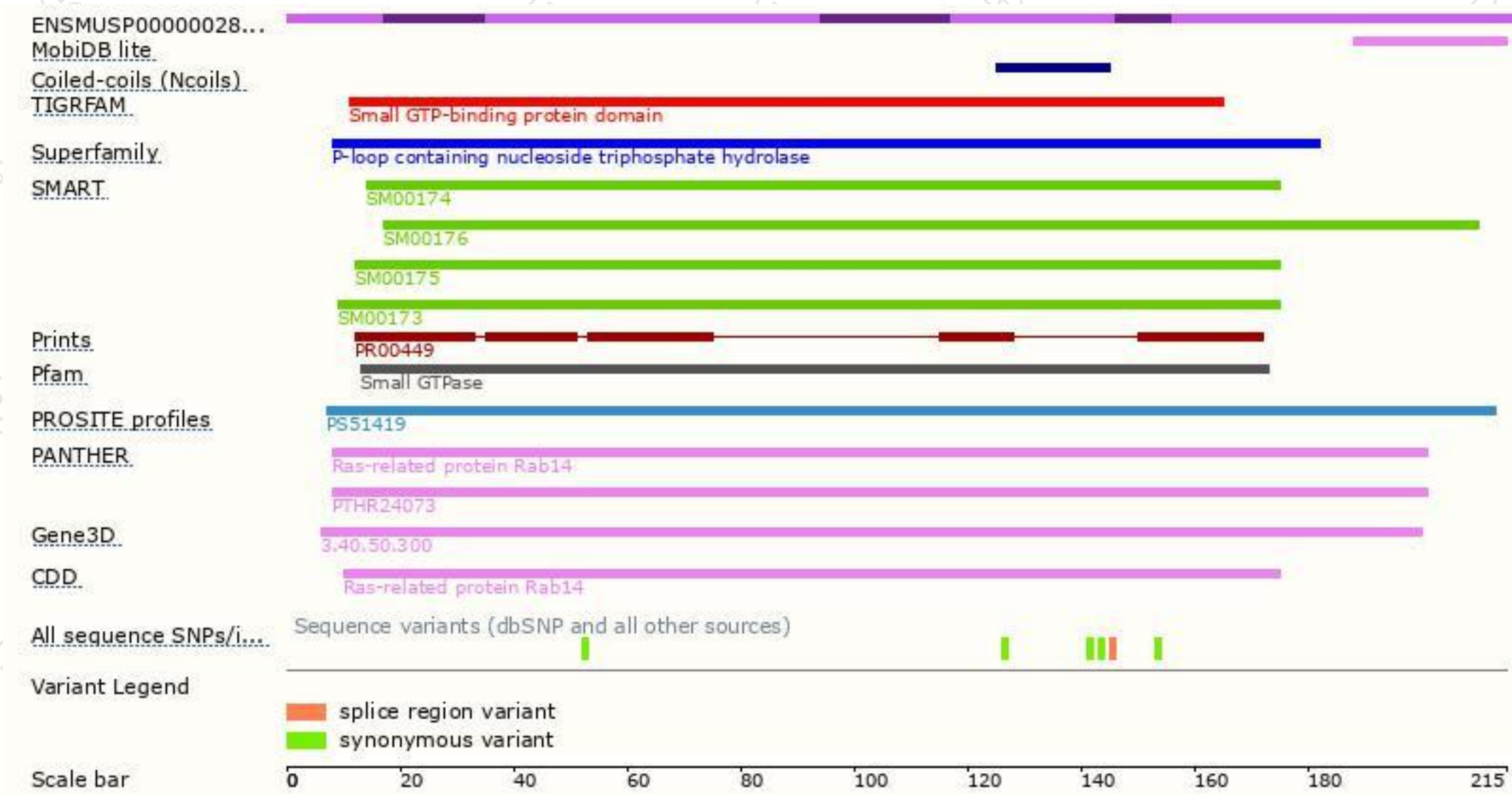
The strategy is based on the design of *Rab14-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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