

***Rem1* Cas9-KO Strategy**

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Project Overview

Project Name

Rem1

Project type

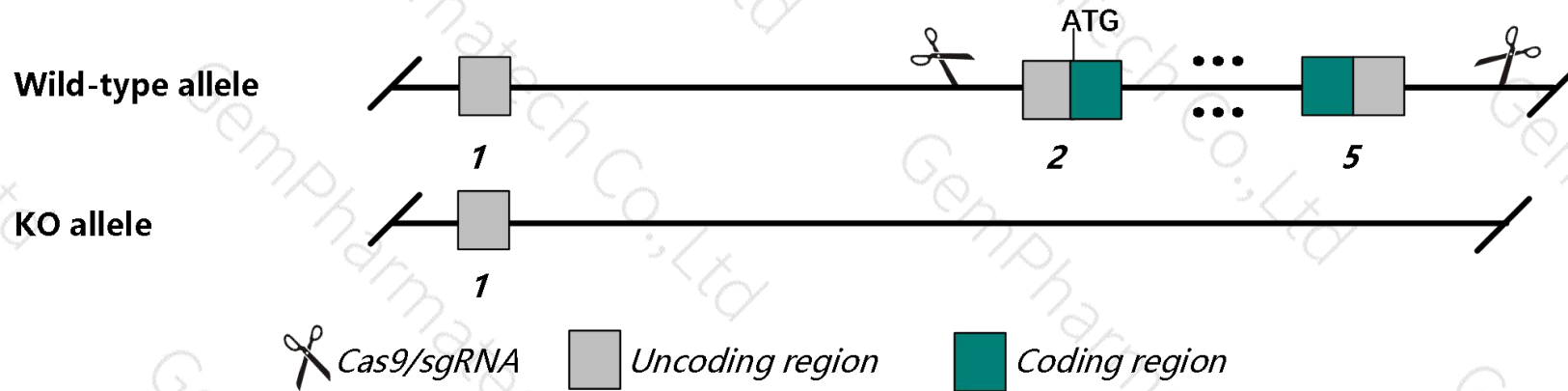
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rem1* gene. The schematic diagram is as follows:



- The *Rem1* gene has 3 transcripts. According to the structure of *Rem1* gene, exon2-exon5 of *Rem1-201* (ENSMUST00000000369.3) 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 *Rem1* gene. The brief process is as follows: CRISPR/Cas9 system

- The floxed region is near to the N-terminal of *Defb25* gene, this strategy may influence the regulatory function of the N-terminal of *Defb25* gene.
- The *Rem1* 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)



Rem1 rad and gem related GTP binding protein 1 [*Mus musculus* (house mouse)]

Gene ID: 19700, updated on 12-Aug-2019

Summary

- Official Symbol

Rem1 provided by MGI
- Official Full Name

rad and gem related GTP binding protein 1 provided by MGI
- Primary source

MGI:MGI:1097696
- See related

Ensembl:ENSMUSG00000000359
- Gene type

protein coding
- RefSeq status

PROVISIONAL
- Organism

Mus musculus
- Lineage

Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
- Also known as

Ras; Rem; E030011C07Rik
- Expression

Broad expression in genital fat pad adult (RPKM 15.2), ovary adult (RPKM 10.6) and 15 other tissues [See more](#)
- Orthologs

[human](#) [all](#)

Genomic context

Location: 2; 2 H1

Exon count: 5

See Rem1 in [Genome Data Viewer](#)

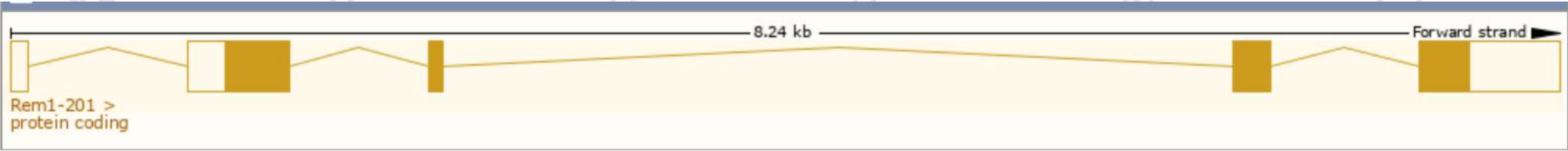
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	2	NC_000068.7 (152627008..152635191)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	2	NC_000068.6 (152452744..152460927)

Transcript information (Ensembl)

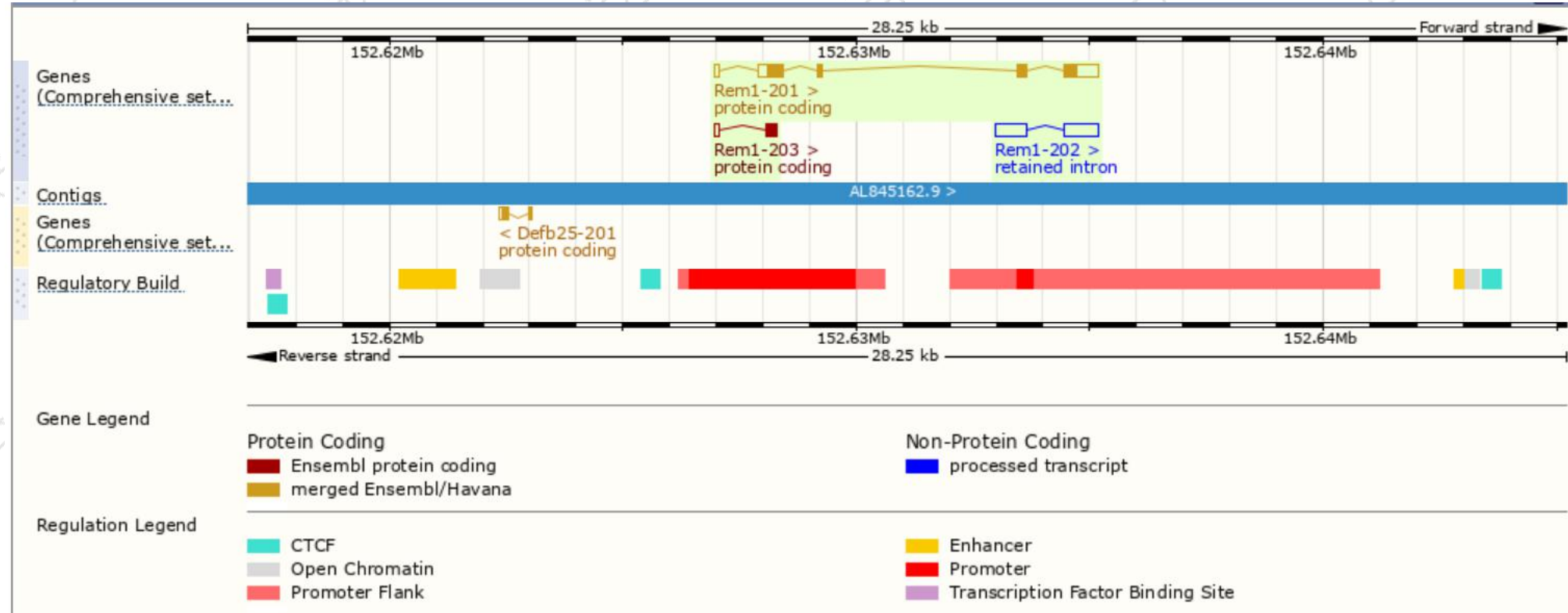
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rem1-201	ENSMUST00000000369.3	1663	297aa	Protein coding	CCDS16895	Q35929	TSL:1 Gencode basic APPRIS P1
Rem1-203	ENSMUST00000150913.1	339	69aa	Protein coding	-	A3KGR6	CDS 3' incomplete TSL:2
Rem1-202	ENSMUST00000139370.1	1444	No protein	Retained intron	-	-	TSL:1

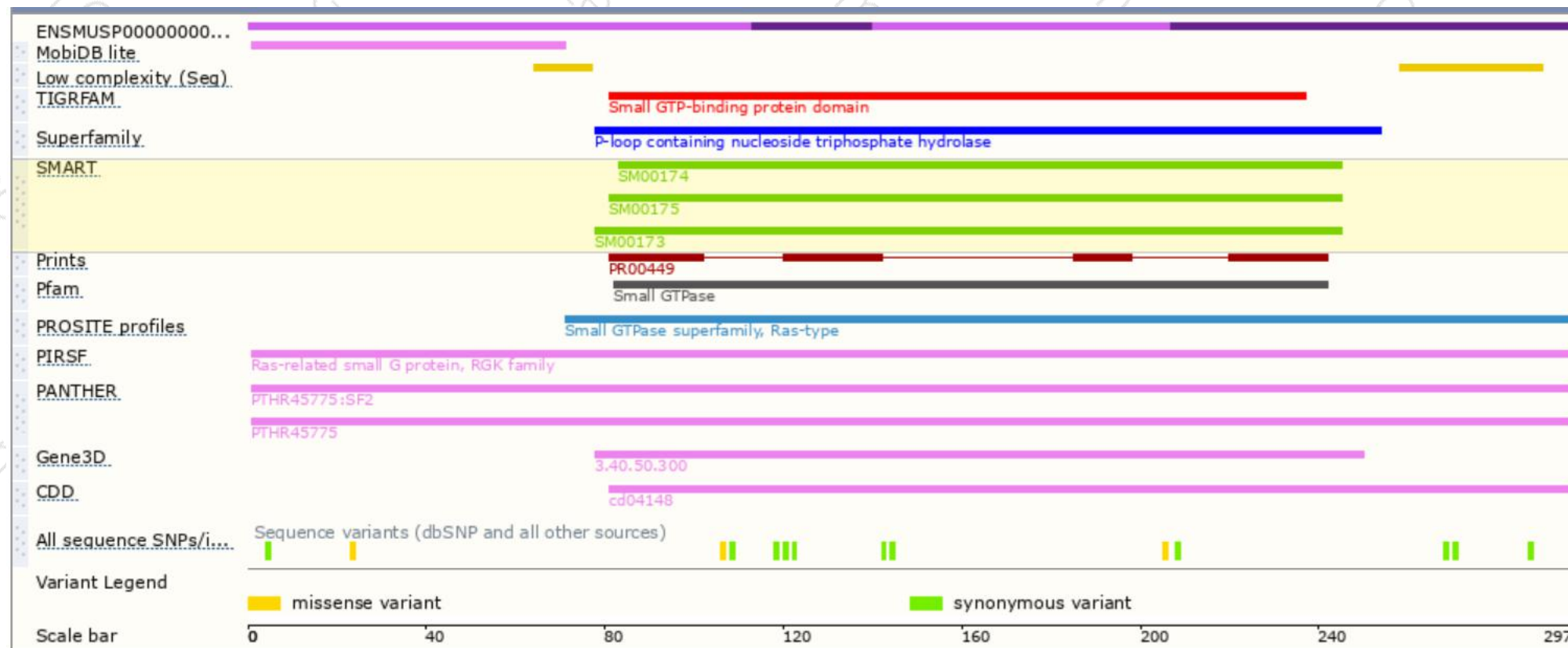
The strategy is based on the design of *Rem1-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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