Rnft1 Cas9-KO Strategy

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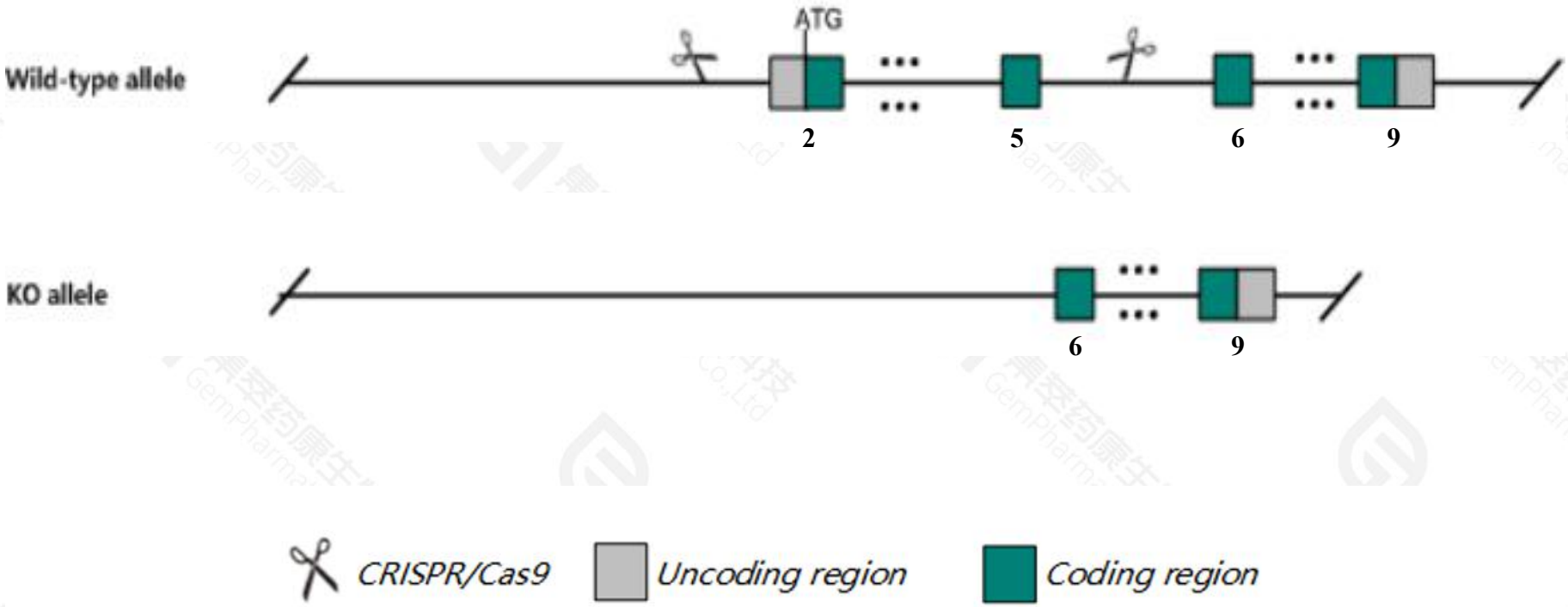
Project Overview

Project Name	***Rnft1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rnft1* gene. The schematic diagram is as follows:



Technical routes

➢ The *Rnft1* gene has 3 transcripts. According to the structure of *Rnft1* gene, exon2-exon5 of *Rnft1-201*(ENSMUST00000020827.6) transcript is recommended as the knockout region.The region contains start codon ATG.Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Rnft1* gene. The brief process is as follows: CRISPR/Cas9 system 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.

Notice

➢ The *Rnft1* gene is located on the Chr11. 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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Rnft1 ring finger protein, transmembrane 1 [Mus musculus (house mouse)]

Gene ID: 76892, updated on 13-Mar-2020

Summary

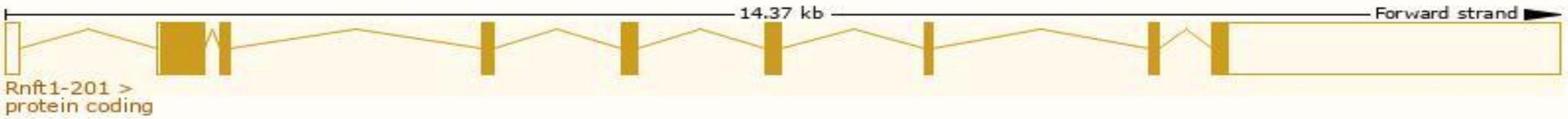
Official Symbol	Rnft1 provided by MGI
Official Full Name	ring finger protein, transmembrane 1 provided byMGI
Primary source	MGI:MGI:1924142
See related	Ensembl:ENSMUSG00000020521
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	0610013E23Rik, AV007605
Expression	Ubiquitous expression in bladder adult (RPKM 6.6), limb E14.5 (RPKM 4.7) and 24 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

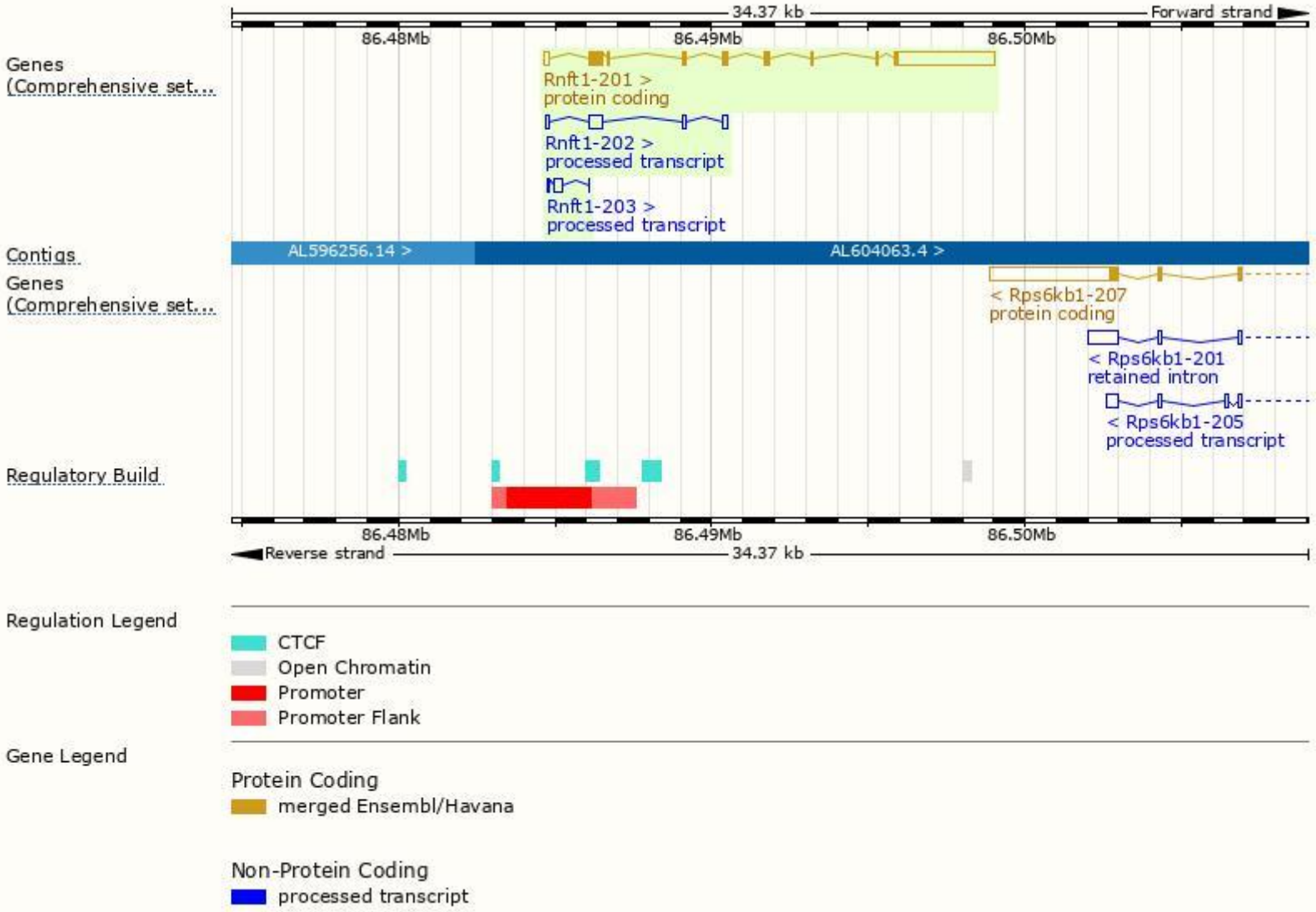
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rnft1-201	ENSMUST00000020827.6	4452	395aa	Protein coding	CCDS25200	Q9DCN7	TSL:1 GENCODE basic APPRIS P1
Rnft1-202	ENSMUST00000125675.1	815	No protein	Processed transcript	-	-	TSL:5
Rnft1-203	ENSMUST00000131246.1	382	No protein	Processed transcript	-	-	TSL:3

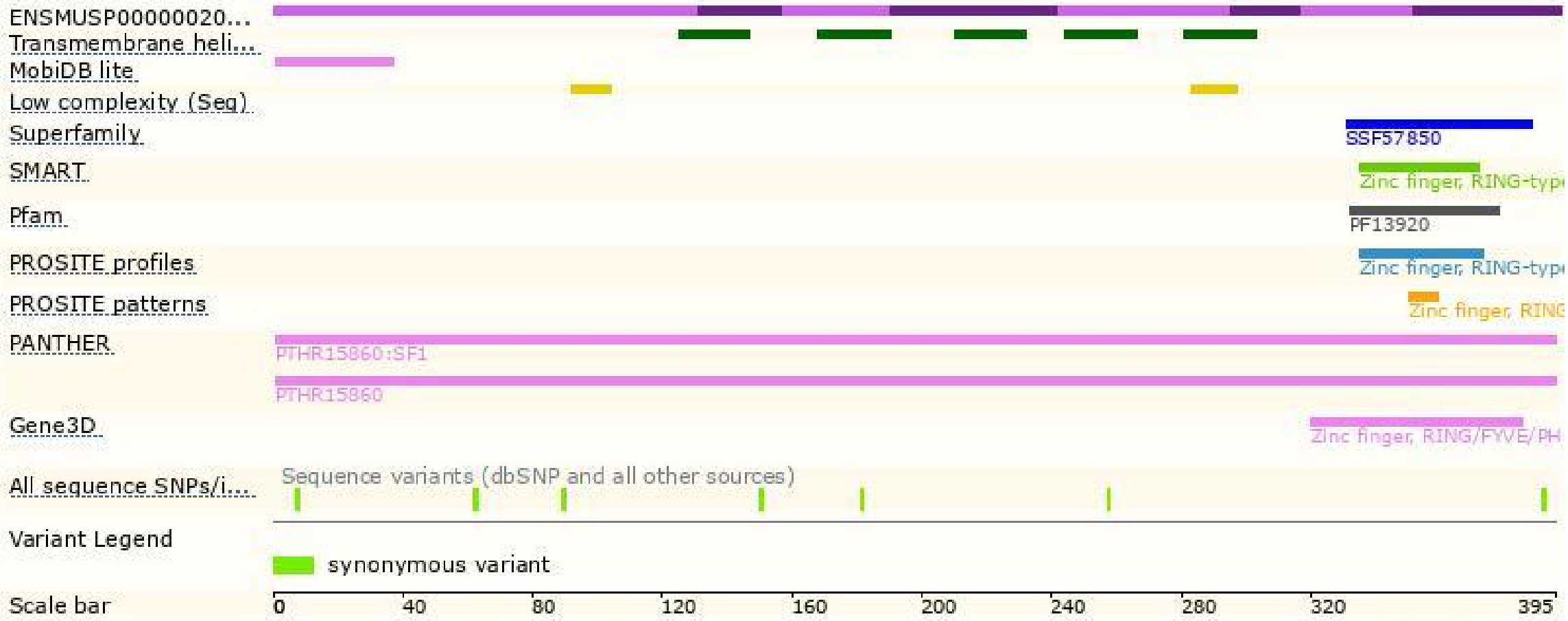
The strategy is based on the design of *Rnft1-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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