Rragb Cas9-CKO Strategy

Designer: Yanhua Shen
Reviewer：Xueting Zhang
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Project Overview

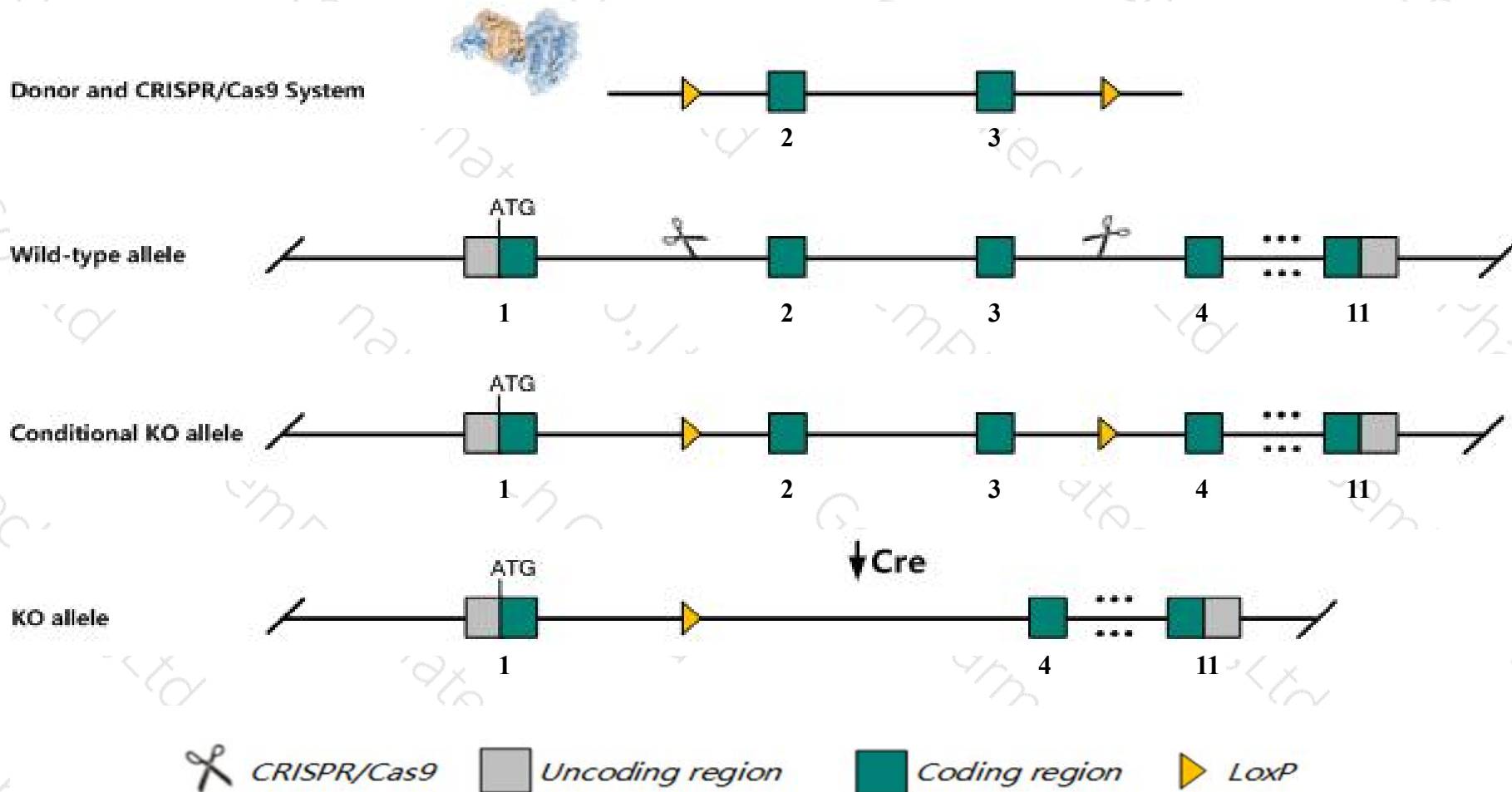|	
Project Name	*Rragb*
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

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

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➤ The *Rragb* gene has 2 transcripts. According to the structure of *Rragb* gene, exon2-exon3 of *Rragb-201* (ENSMUST00000039720.10) transcript is recommended as the knockout region.The region contains 134bp coding sequence. Knock out the region will result in disruption of protein function.

➤ In this project we use CRISPR/Cas9 technology to modify *Rragb* 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.

Notice

➢ According to the existing MGI data,Mice homozygous or hemizygous for a null allele are viable with no gross abnormalities.

➢ The *Rragb* gene is located on the ChrX. 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）

Rragb Ras-related GTP binding B [*Mus musculus* (house mouse)]

Gene ID: 245670, updated on 27-Feb-2020

Summary

Official Symbol	Rragb provided by MGI
Official Full Name	Ras-related GTP binding B provided by MGI
Primary source	MGI:MGI:3038613
See related	Ensembl:ENSMUSG00000041658
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
Expression	Biased expression in CNS E18 (RPKM 18.2), cerebellum adult (RPKM 16.5) and 9 other tissues See more
Orthologs	human all

Genomic context

Location: X; X F3

See Rragb in Genome Data Viewer

Exon count: 13

Transcript information（Ensembl）

The gene has 2 transcripts,all transcripts are shown below:

| Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rragb-201	ENSMUST00000039720.10	2258	374aa	Protein coding	CCDS30480	Q6NTA4	TSL:1 GENCODE basic APPRIS P1
Rragb-202	ENSMUST00000144175.2	847	116aa	Protein coding	-	G3UYP1	CDS 3' incomplete TSL:5

The strategy is based on the design of *Rragb-201* transcript,The transcription is shown below
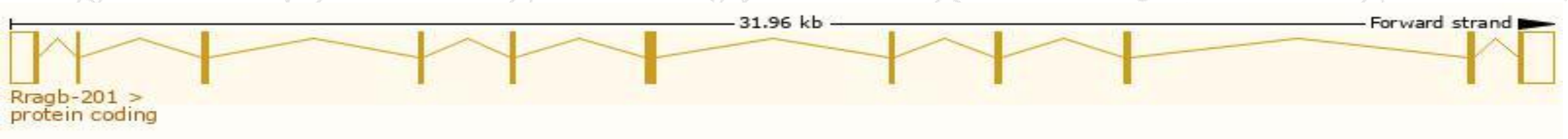
Genomic location distribution

Protein domain

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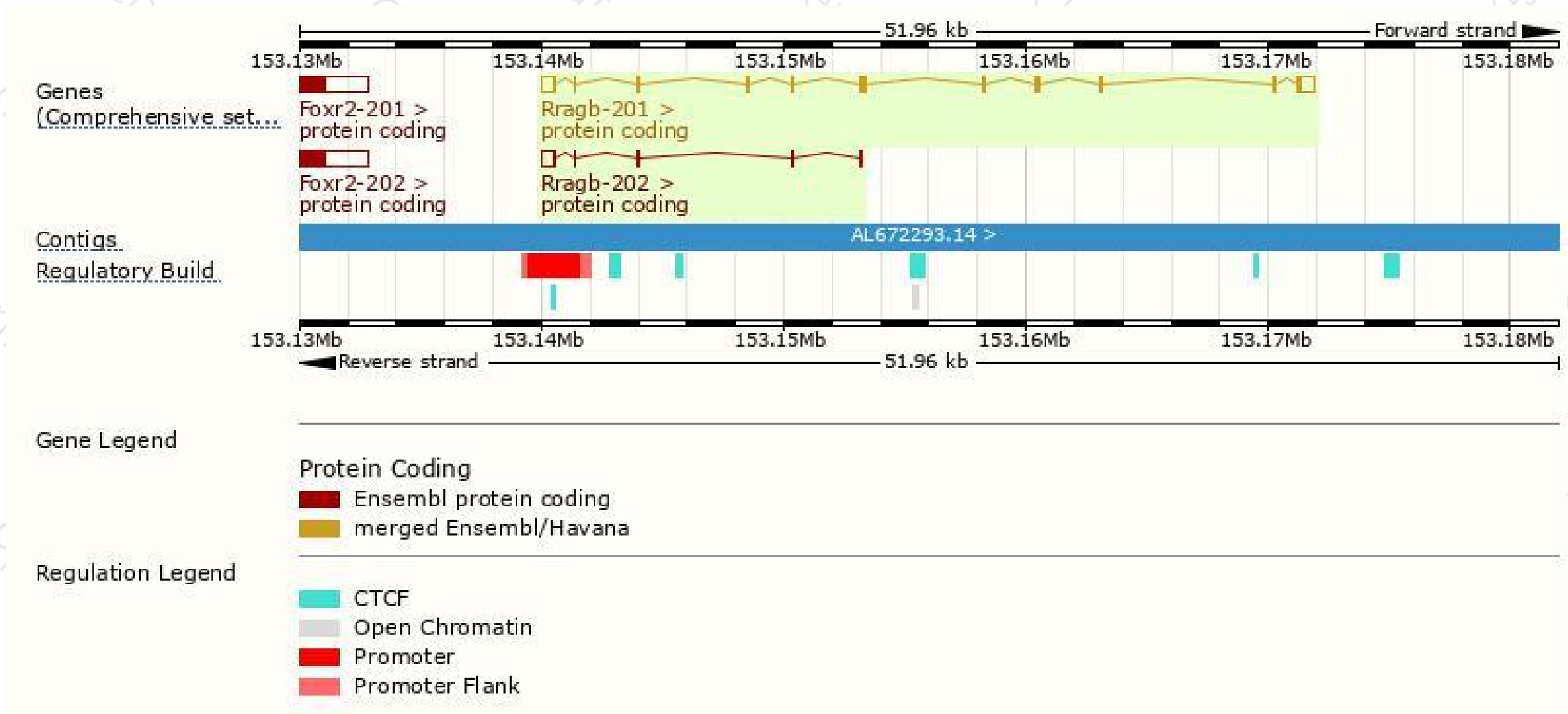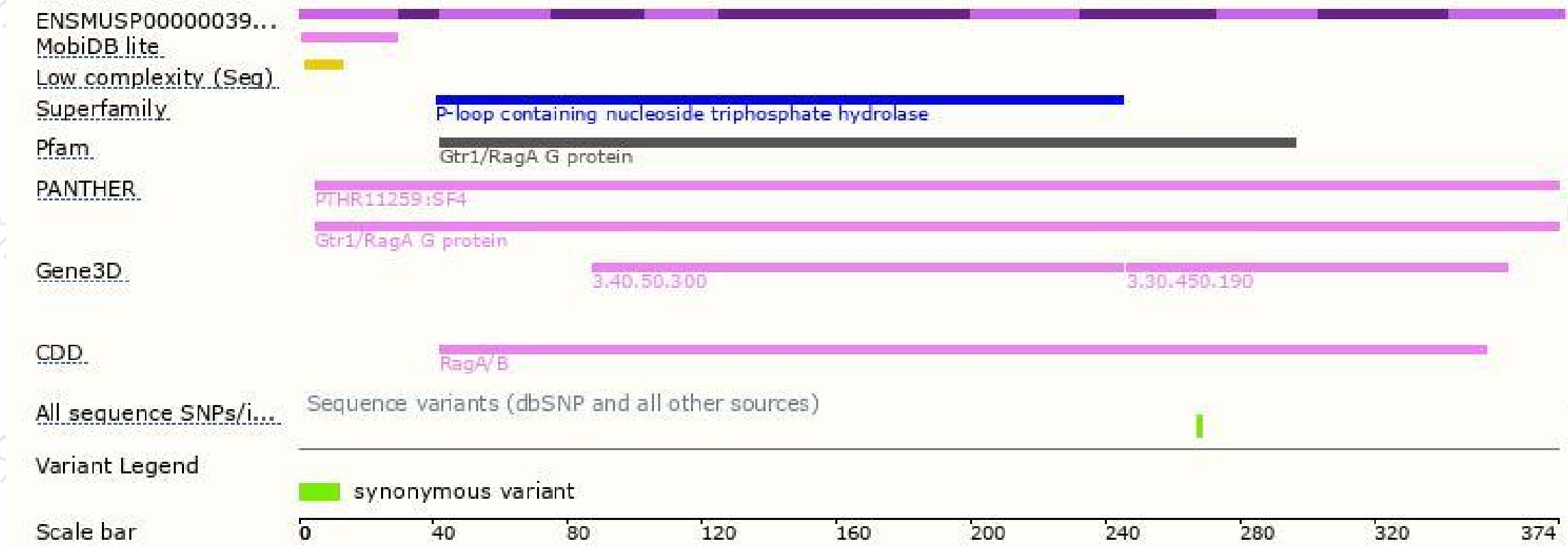
If you have any questions, you are welcome to inquire.
Tel: 400-9660890

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GemPharmatech Co.,Ltd