Rnf122 Cas9-CKO Strategy

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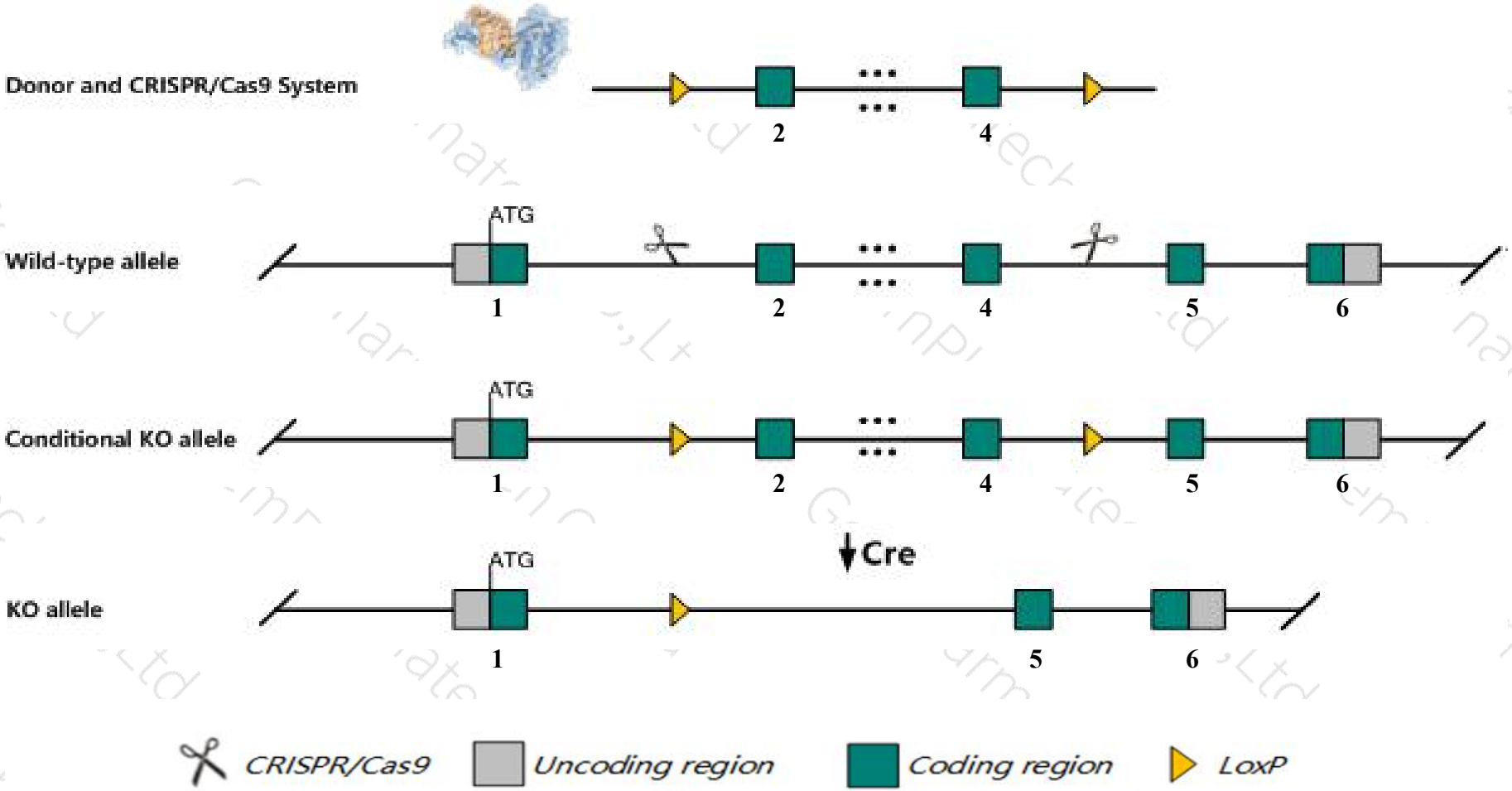
Project Overview

Project Name	***Rnf122***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rnf122* gene. The schematic diagram is as follows:



Technical routes

- The *Rnf122* gene has 5 transcripts. According to the structure of *Rnf122* gene, exon2-exon4 of *Rnf122-201* (ENSMUST00000046941.7) transcript is recommended as the knockout region.The region contains 245bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Rnf122* 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

➢ The *Rnf122* gene is located on the Chr8. 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）

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Rnf122 ring finger protein 122 [*Mus musculus* (house mouse)]

Gene ID: 68867, updated on 15-Aug-2019

Summary

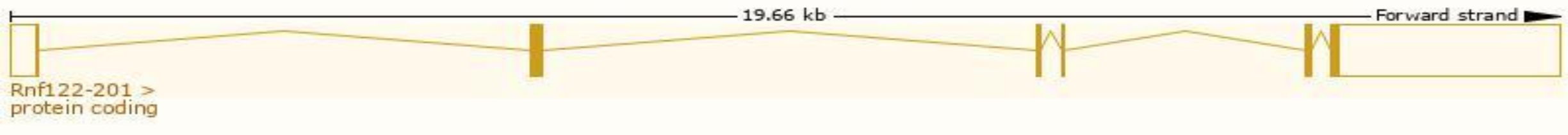
Official Symbol	Rnf122 provided by MGI
Official Full Name	ring finger protein 122 provided by MGI
Primary source	MGI:MGI:1916117
See related	Ensembl:ENSMUSG00000039328
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1110063C11Rik
Expression	Broad expression in limb E14.5 (RPKM 11.2), CNS E11.5 (RPKM 10.1) and 23 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

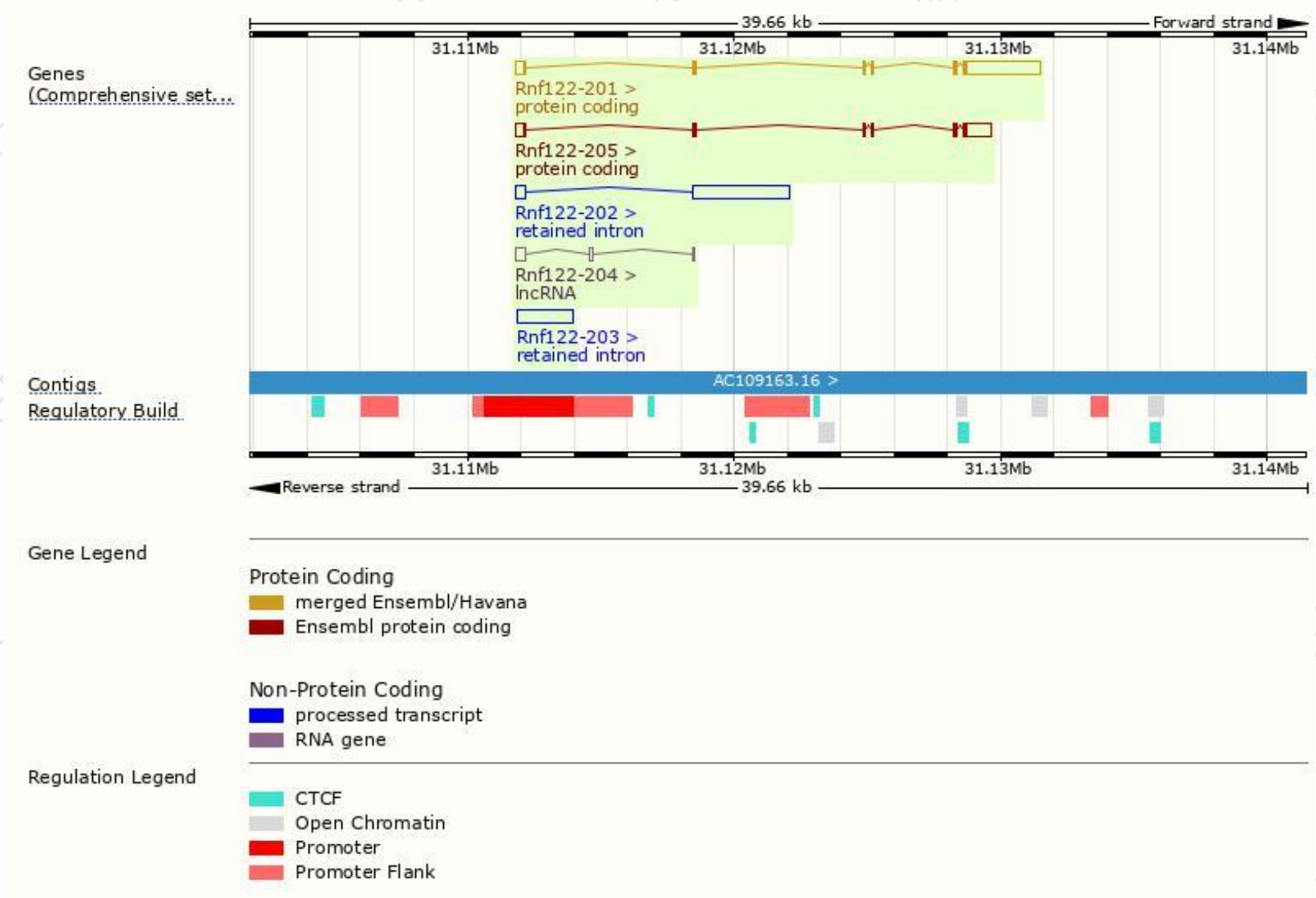
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rnf122-201	ENSMUST00000046941.7	3582	154aa	Protein coding	CCDS22220	A0A0R4J0G8	TSL:1 GENCODE basic APPRIS P2
Rnf122-205	ENSMUST00000217278.1	1726	155aa	Protein coding	-	Q8BP31	TSL:1 GENCODE basic APPRIS ALT1
Rnf122-202	ENSMUST00000162640.1	3998	No protein	Retained intron	-	-	TSL:1
Rnf122-203	ENSMUST00000209547.1	2114	No protein	Retained intron	-	-	TSL:NA
Rnf122-204	ENSMUST00000216520.1	567	No protein	lncRNA	-	-	TSL:3

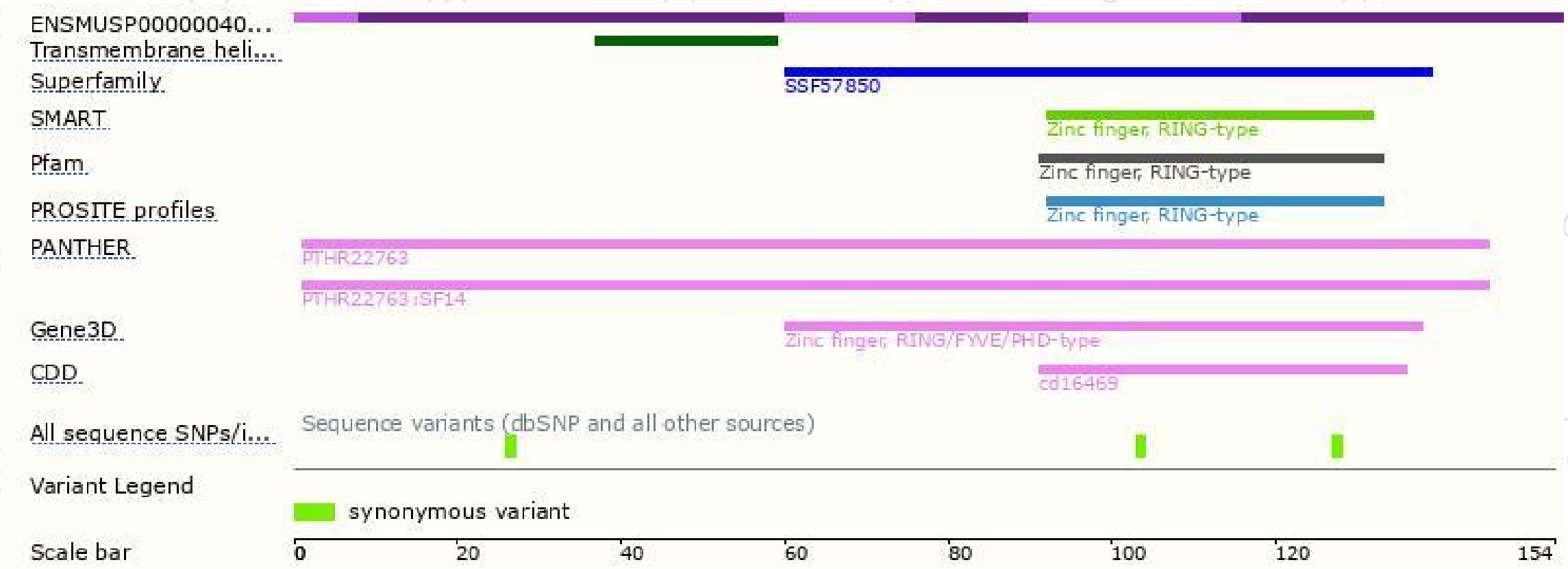
The strategy is based on the design of *Rnf122-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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