Rnf212b Cas9-CKO *Strategy*

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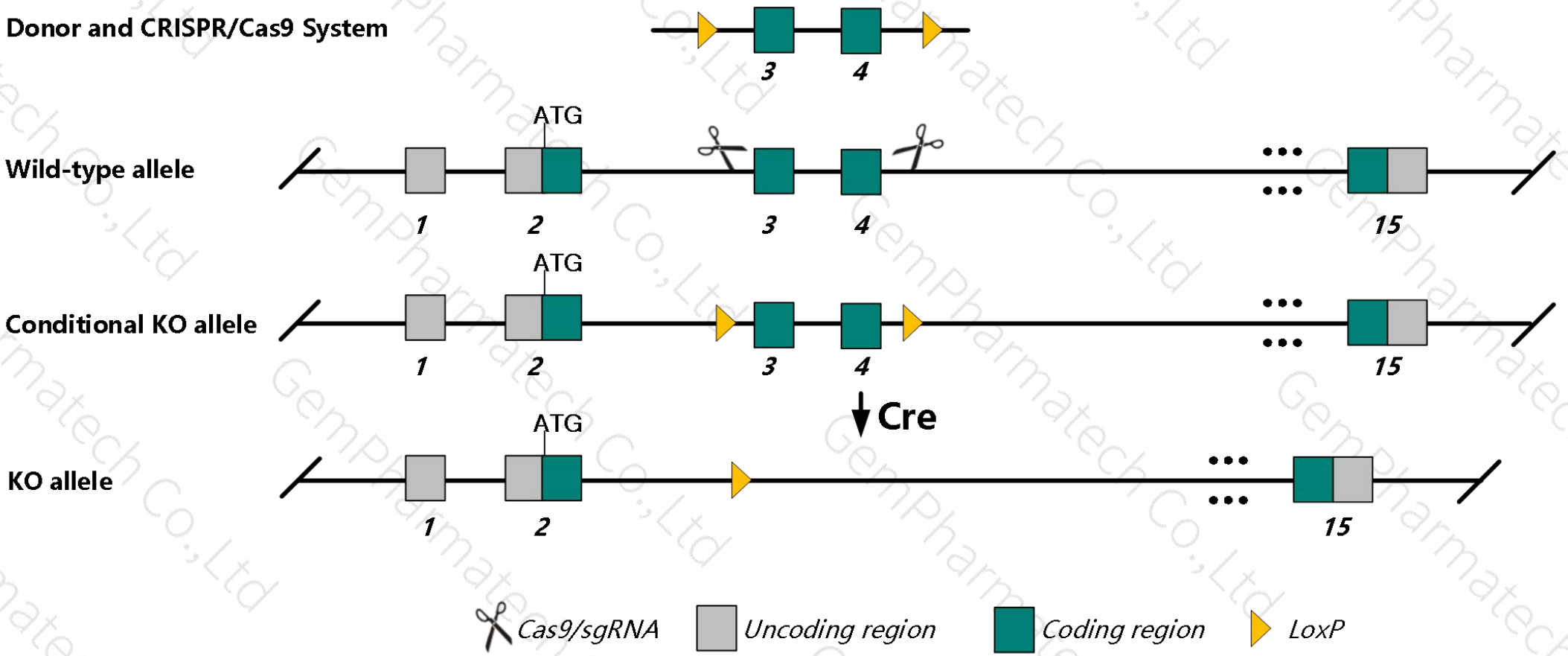
Project Overview

Project Name	***Rnf212b***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rnf212b* gene. The schematic diagram is as follows:



Technical routes

- The *Rnf212b* gene has 7 transcripts.According to the structure of *Rnf212b* gene, exon3-exon4 of *Rnf212b*-201 (ENSMUST00000218311.1) transcript is recommended as the knockout region.The region contains 128bp coding sequence.Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Rnf212b* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed.Cas9, sgRNA 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 was knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues or cell types.

Notice

- The *Rnf212b* gene is located on the Chr14. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information （NCBI)

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Rnf212b ring finger protein 212B [*Mus musculus* (house mouse)]

Gene ID: 102632837, updated on 26-Jun-2020

Summary

Official Symbol	Rnf212b provided by MGI
Official Full Name	ring finger protein 212B provided by MGI
Primary source	MGI:MGI:5589964
See related	Ensembl:ENSMUSG00000112858
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	Gm10332; Gm30805
Expression	Biased expression in kidney adult (RPKM 2.1), testis adult (RPKM 2.0) and 2 other tissues See more
Orthologs	human all

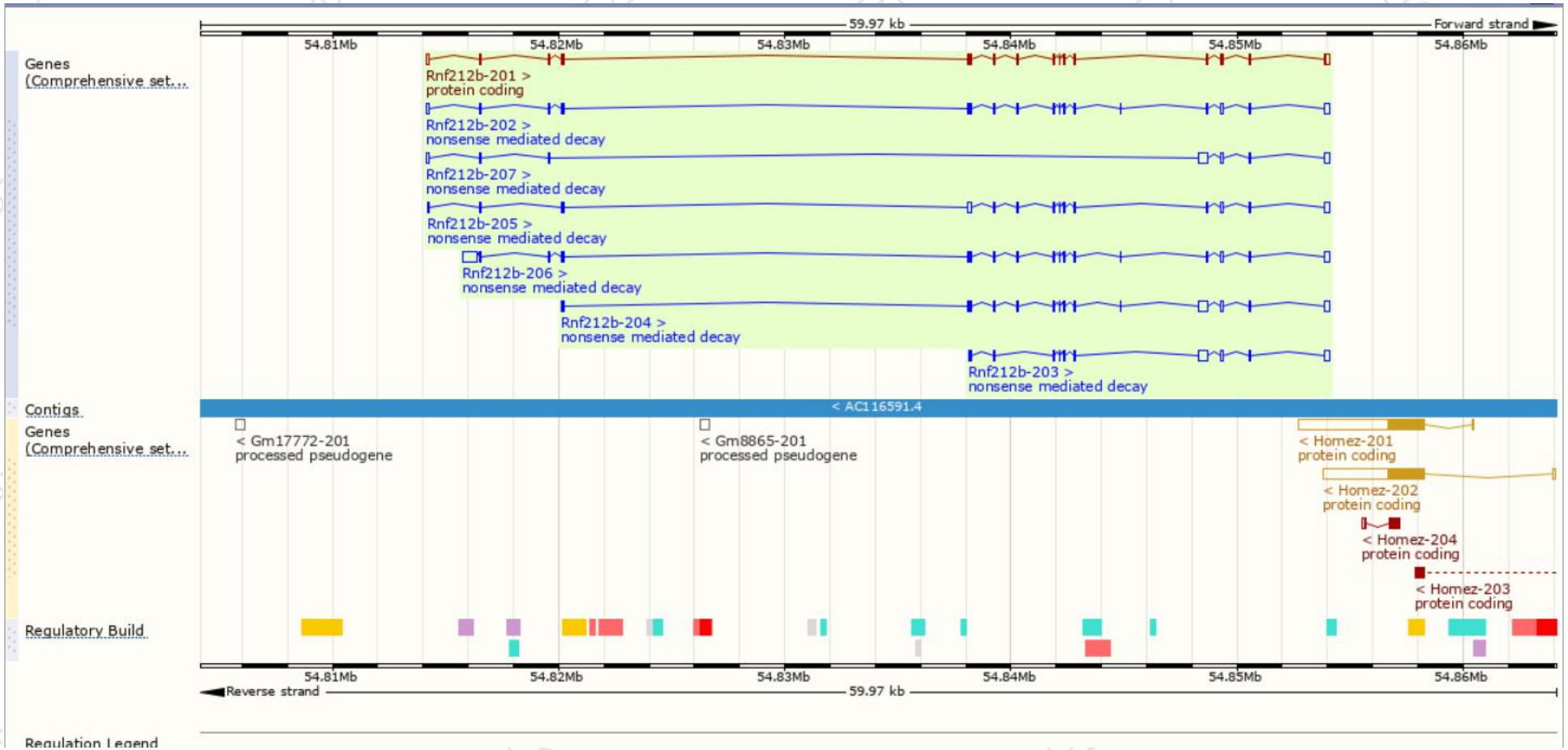
Transcript information （Ensembl）

The gene has 7 transcripts, and all transcripts are shown below:

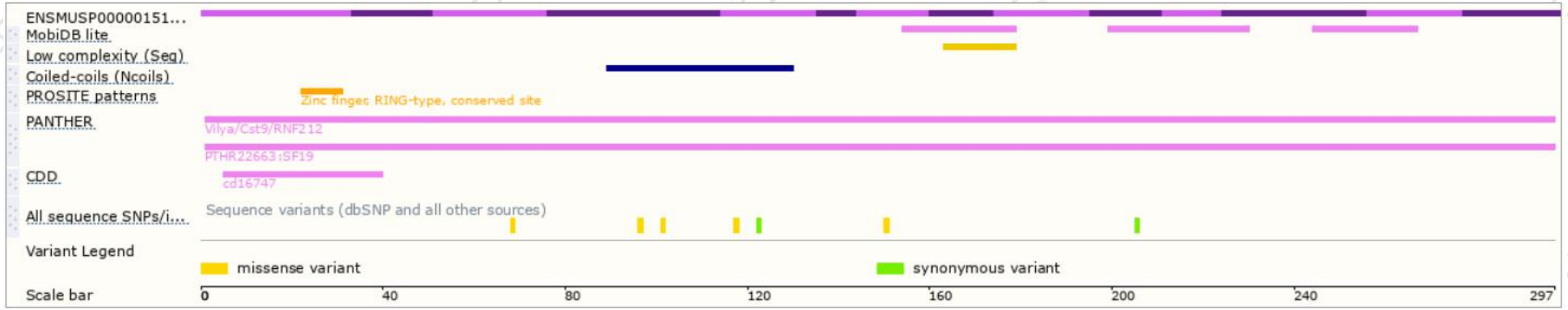
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rnf212b-201	ENSMUST00000218311.1	1201	297aa	Protein coding	-	D3Z423	TSL:5 GENCODE basic APPRIS P1
Rnf212b-206	ENSMUST00000220208.1	1719	212aa	Nonsense mediated decay	-	A0A1W2P6W2	TSL:5
Rnf212b-204	ENSMUST00000219519.2	1317	161aa	Nonsense mediated decay	-	A0A1W2P826	CDS 5' incomplete TSL:5
Rnf212b-202	ENSMUST00000219350.1	1233	212aa	Nonsense mediated decay	-	A0A1W2P6W2	TSL:5
Rnf212b-203	ENSMUST00000219496.1	1143	79aa	Nonsense mediated decay	-	A0A1W2P7V7	CDS 5' incomplete TSL:5
Rnf212b-205	ENSMUST00000220122.1	1095	53aa	Nonsense mediated decay	-	A0A1W2P7N9	TSL:5
Rnf212b-207	ENSMUST00000220403.1	1092	57aa	Nonsense mediated decay	-	A0A1W2P7Z7	TSL:5

The strategy is based on the design of *Rnf212b*-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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