

Rpn1 Cas9-CKO Strategy

Designer:

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Design Date:

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Project Overview

Project Name

Rpn1

Project type

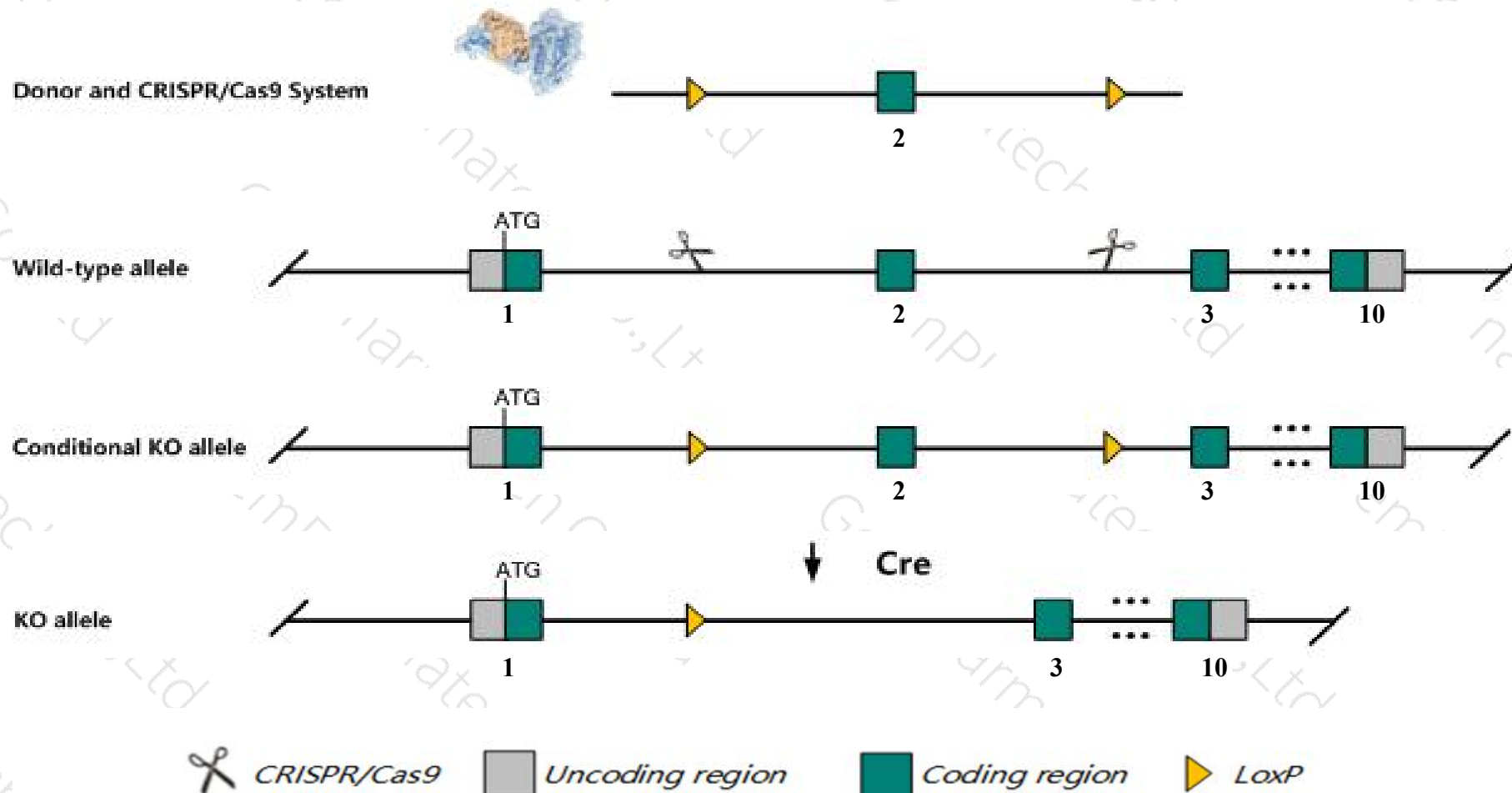
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rpn1* gene. The schematic diagram is as follows:



Technical routes

- The *Rpn1* gene has 5 transcripts. According to the structure of *Rpn1* gene, exon2 of *Rpn1-201* (ENSMUST00000032143.7) transcript is recommended as the knockout region. The region contains 65bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Rpn1* 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 *Rpn1* gene is located on the Chr6. 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)

Rpn1 ribophorin I [Mus musculus (house mouse)]

Gene ID: 103963, updated on 31-Jan-2019

Summary



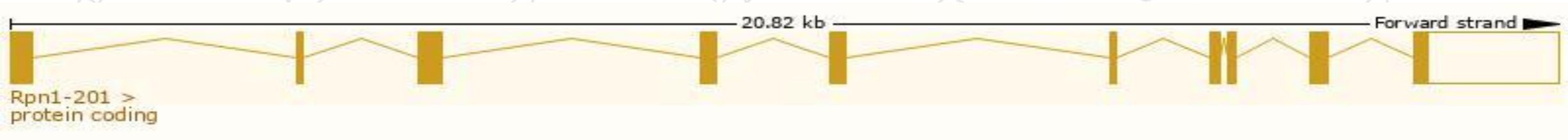
Official Symbol	Rpn1 provided by MGI
Official Full Name	ribophorin I provided by MGI
Primary source	MGI:MGI:98084
See related	Ensembl:ENSMUSG00000030062
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AU018702, D6Wsu137e, Rpn-1
Expression	Ubiquitous expression in placenta adult (RPKM 91.8), ovary adult (RPKM 79.9) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

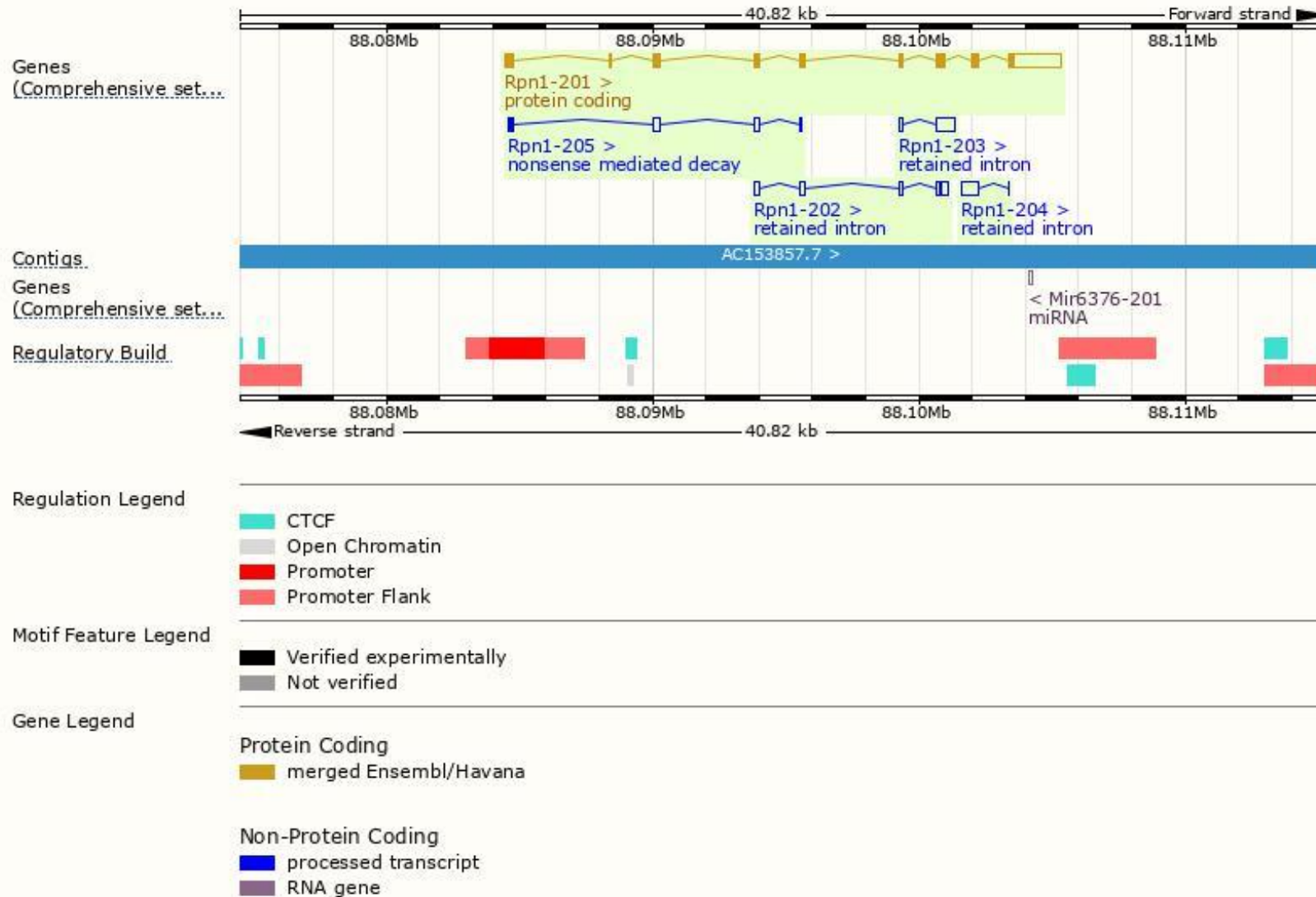
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rpn1-201	ENSMUST00000032143.7	3633	608aa	Protein coding	CCDS20332	Q91YQ5	TSL:1 GENCODE basic APPRIS P1
Rpn1-205	ENSMUST00000204838.1	789	90aa	Nonsense mediated decay	-	A0A0N4SUJ8	CDS 5' incomplete TSL:5
Rpn1-202	ENSMUST00000203813.1	855	No protein	Retained intron	-	-	TSL:2
Rpn1-203	ENSMUST00000204024.1	821	No protein	Retained intron	-	-	TSL:1
Rpn1-204	ENSMUST00000204164.1	673	No protein	Retained intron	-	-	TSL:1

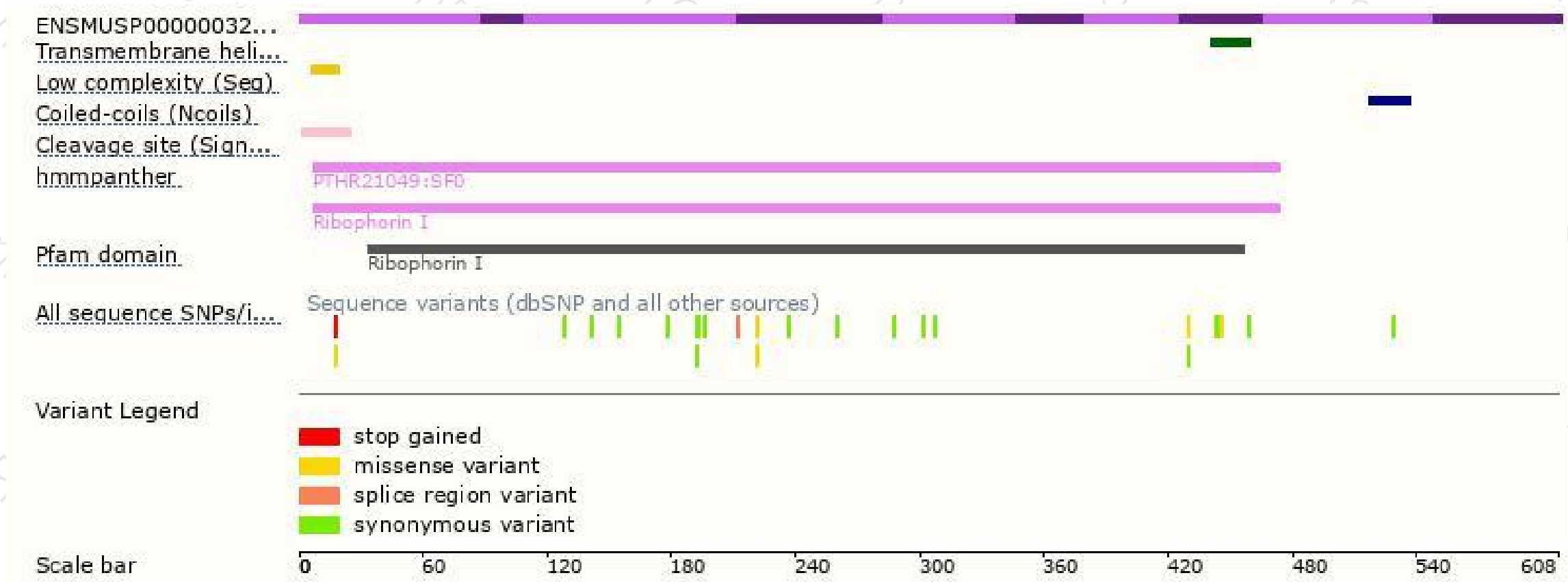
The strategy is based on the design of *Rpn1-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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