Reep3 Cas9-CKO Strategy

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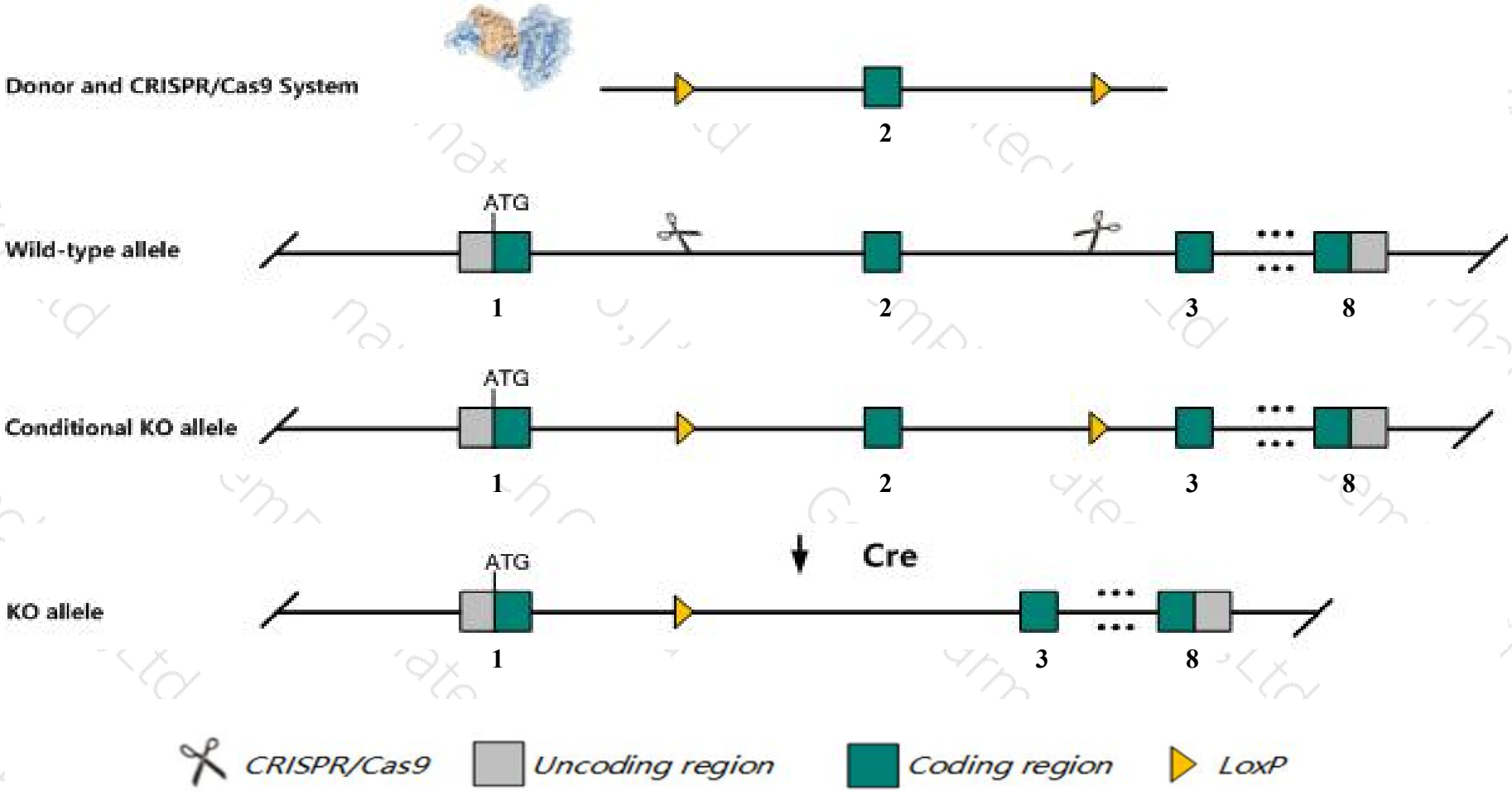
Project Overview

Project Name	***Reep3***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Reep3* gene. The schematic diagram is as follows:



Technical routes

- The *Reep3* gene has 4 transcripts. According to the structure of *Reep3* gene, exon2 of *Reep3-201* (ENSMUST00000020023.8) transcript is recommended as the knockout region.The region contains 73bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Reep3* 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 *Reep3* gene is located on the Chr10. 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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Reep3 receptor accessory protein 3 [Mus musculus (house mouse)]

Gene ID: 28193, updated on 13-Mar-2020

Summary

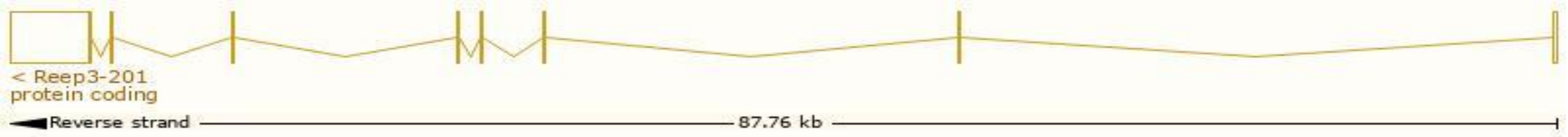
Official Symbol	Reep3 provided by MGI
Official Full Name	receptor accessory protein 3 provided byMGI
Primary source	MGI:MGI:88930
See related	Ensembl:ENSMUSG00000019873
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	D10Ucla1
Expression	Ubiquitous expression in bladder adult (RPKM 16.4), subcutaneous fat pad adult (RPKM 9.6) and 27 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

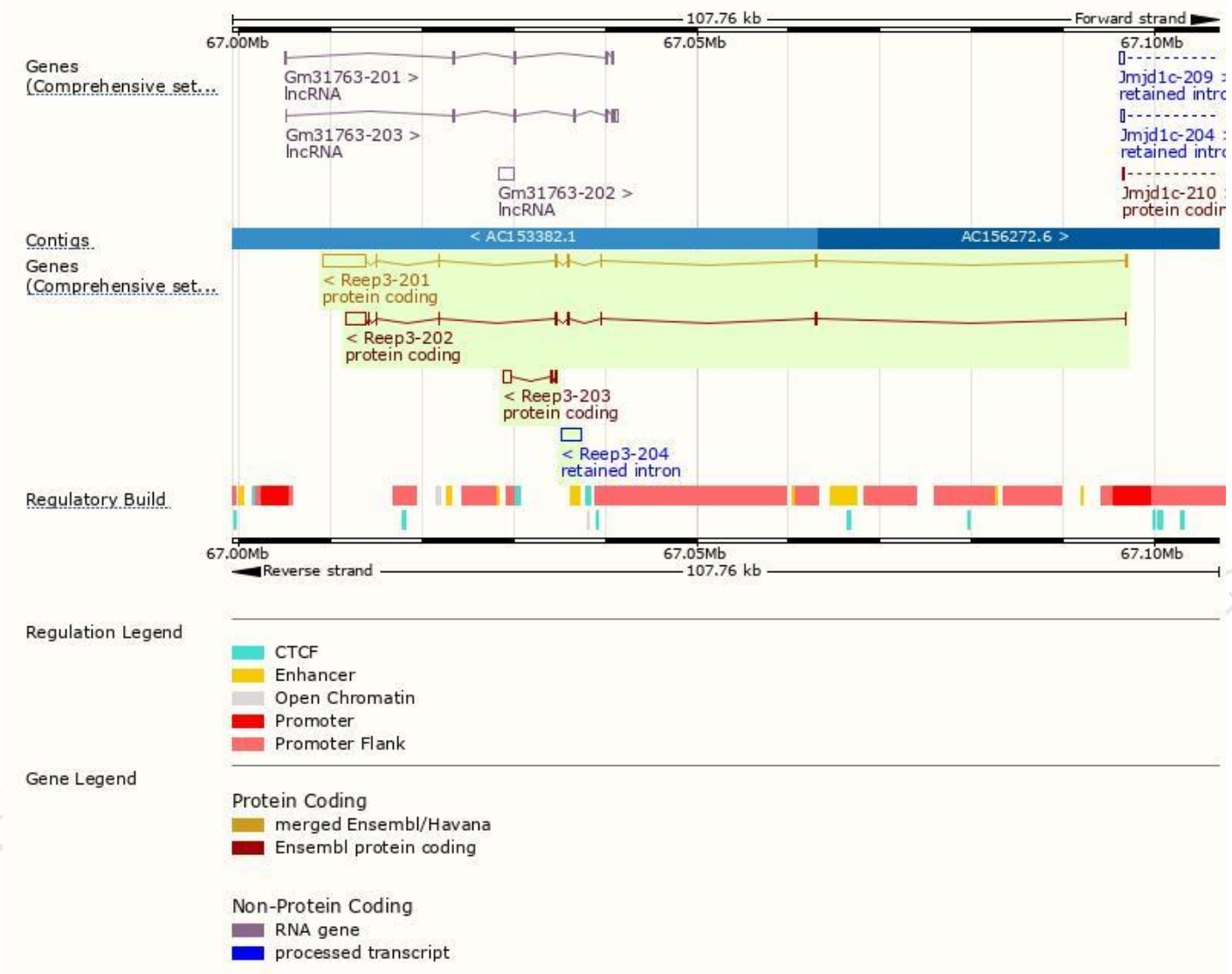
The gene has 4 transcripts,all transcripts are shown below:

Name ▲	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Reep3-201	ENSMUST00000020023.8	5430	254aa	Protein coding	CCDS35926	Q99KK1	TSL:1 GENCODE basic APPRIS P1
Reep3-202	ENSMUST00000217841.1	2925	267aa	Protein coding	-	A0A1W2P8A8	TSL:1 GENCODE basic
Reep3-203	ENSMUST00000218920.1	838	25aa	Protein coding	-	A0A1W2P723	CDS 5' incomplete TSL:3
Reep3-204	ENSMUST00000219431.1	2104	No protein	Retained intron	-	-	TSL:NA

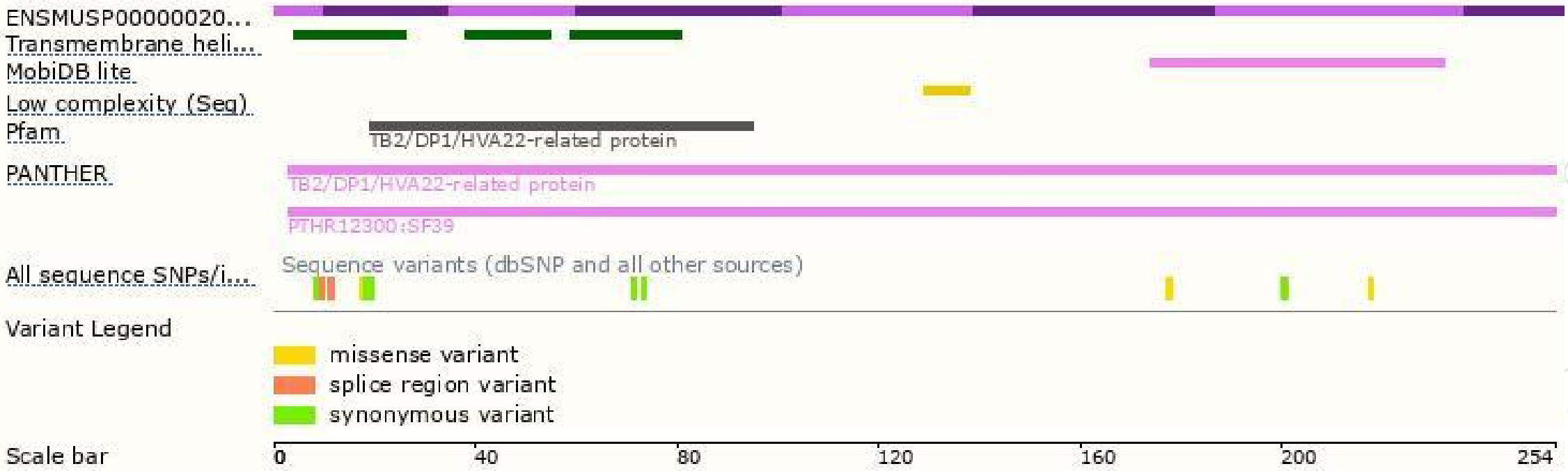
The strategy is based on the design of *Reep3-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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