

***Lrp10* Cas9-CKO Strategy**

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Project Overview

Project Name

Lrp10

Project type

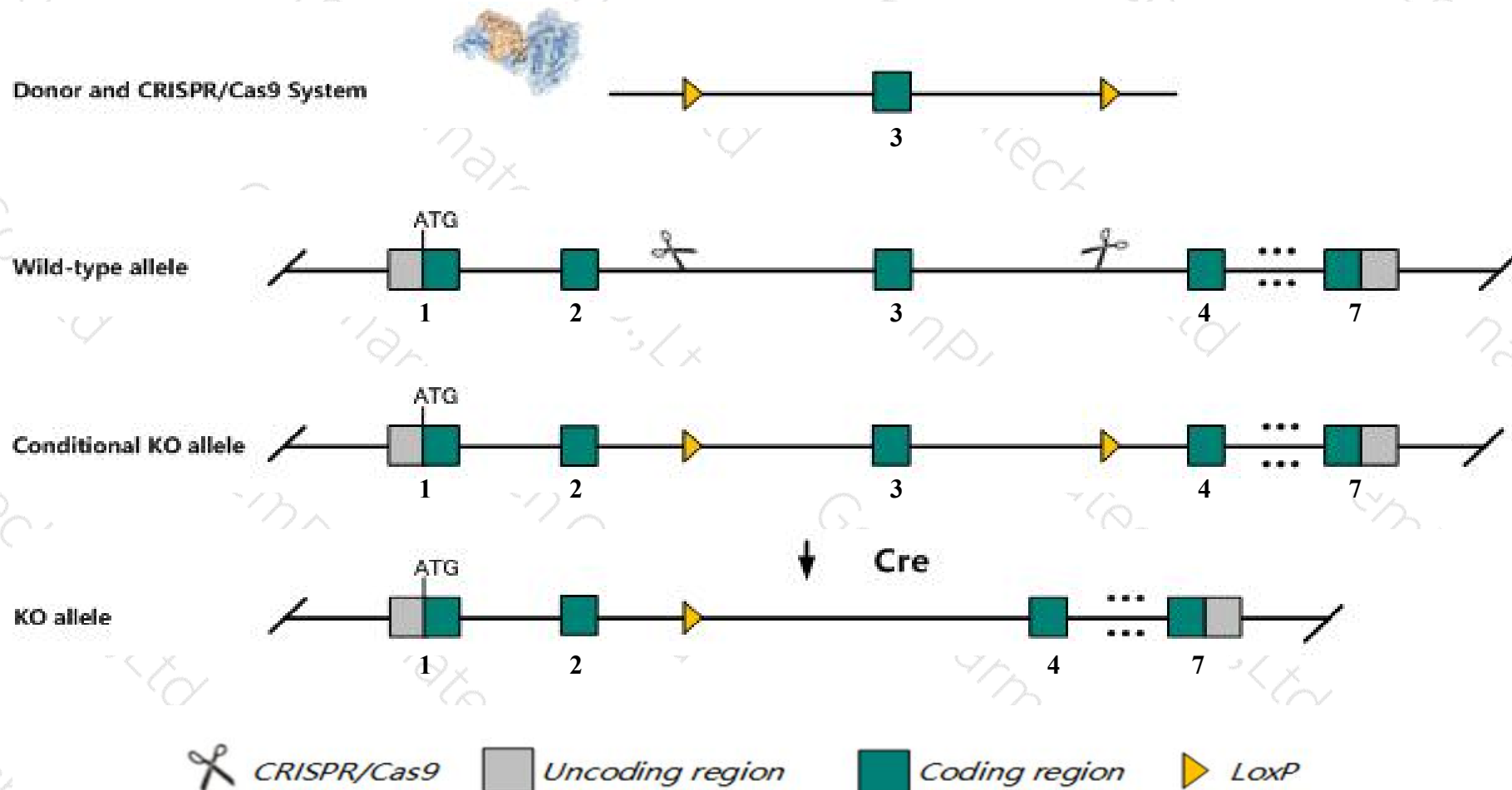
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Lrp10* gene. The schematic diagram is as follows:



Technical routes

- The *Lrp10* gene has 4 transcripts. According to the structure of *Lrp10* gene, exon3 of *Lrp10-201* (ENSMUST00000022782.9) transcript is recommended as the knockout region. The region contains 136bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Lrp10* 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 effect on transcript *Lrp10*-204 is unknown.
- Transcript *Lrp10*-202 may not be affected.
- The floxed region is near to the N-terminal of *Gm10366* gene, this strategy may influence the regulatory function of the N-terminal of *Gm10366* gene.
- The *Lrp10* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Lrp10 low-density lipoprotein receptor-related protein 10 [*Mus musculus* (house mouse)]

Gene ID: 65107, updated on 12-Aug-2019

Summary

- Official Symbol

Lrp10 provided by [MGI](#)
- Official Full Name

low-density lipoprotein receptor-related protein 10 provided by [MGI](#)
- Primary source

[MGI:MGI:1929480](#)
- See related

[Ensembl:ENSMUSG00000022175](#)
- 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

Lrp9
- Expression

Broad expression in colon adult (RPKM 199.5), adrenal adult (RPKM 148.5) and 22 other tissues [See more](#)
- Orthologs

[human](#) [all](#)

Genomic context

Location:

14; 14 C2

See Lrp10 in [Genome Data Viewer](#)

Exon count:

7

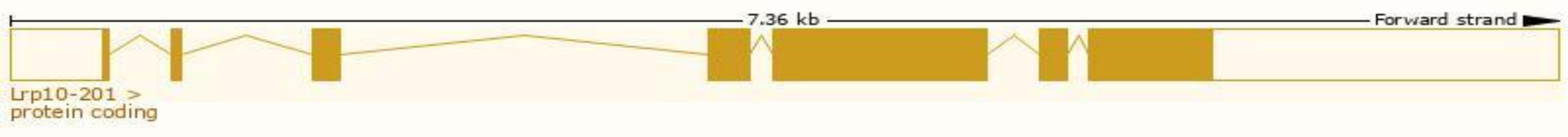
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	14	NC_000080.6 (54464137..54470292)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	14	NC_000080.5 (55082984..55089129)

Transcript information (Ensembl)

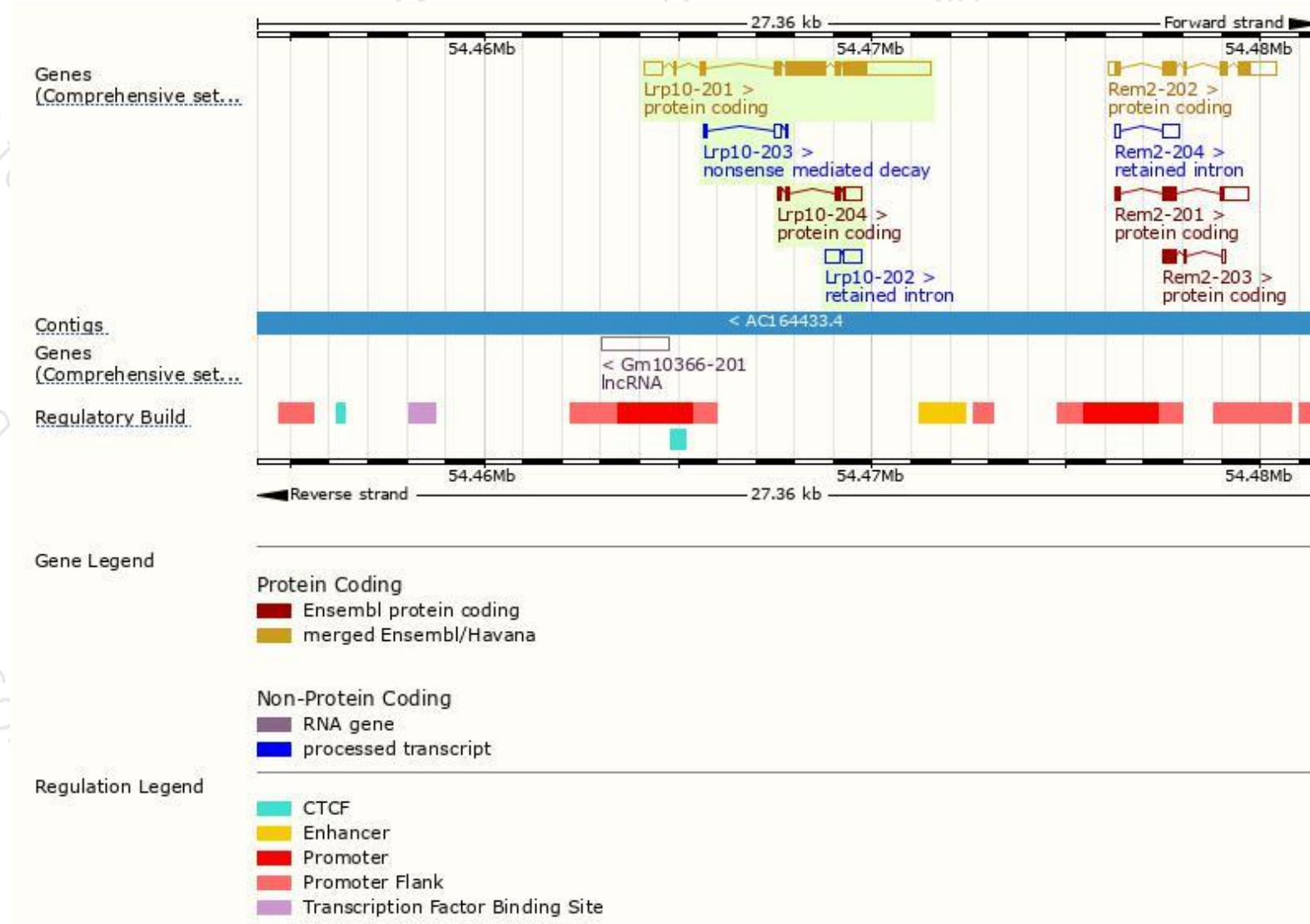
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Lrp10-201	ENSMUST00000022782.9	4228	713aa	Protein coding	CCDS27089	Q7TQH7	TSL:1 GENCODE basic APPRIS P1
Lrp10-204	ENSMUST00000228407.1	818	131aa	Protein coding	-	A0A2I3BQ24	CDS 5' incomplete
Lrp10-203	ENSMUST00000227760.1	323	25aa	Nonsense mediated decay	-	A0A2I3BRF1	CDS 5' incomplete
Lrp10-202	ENSMUST00000226472.1	823	No protein	Retained intron	-	-	

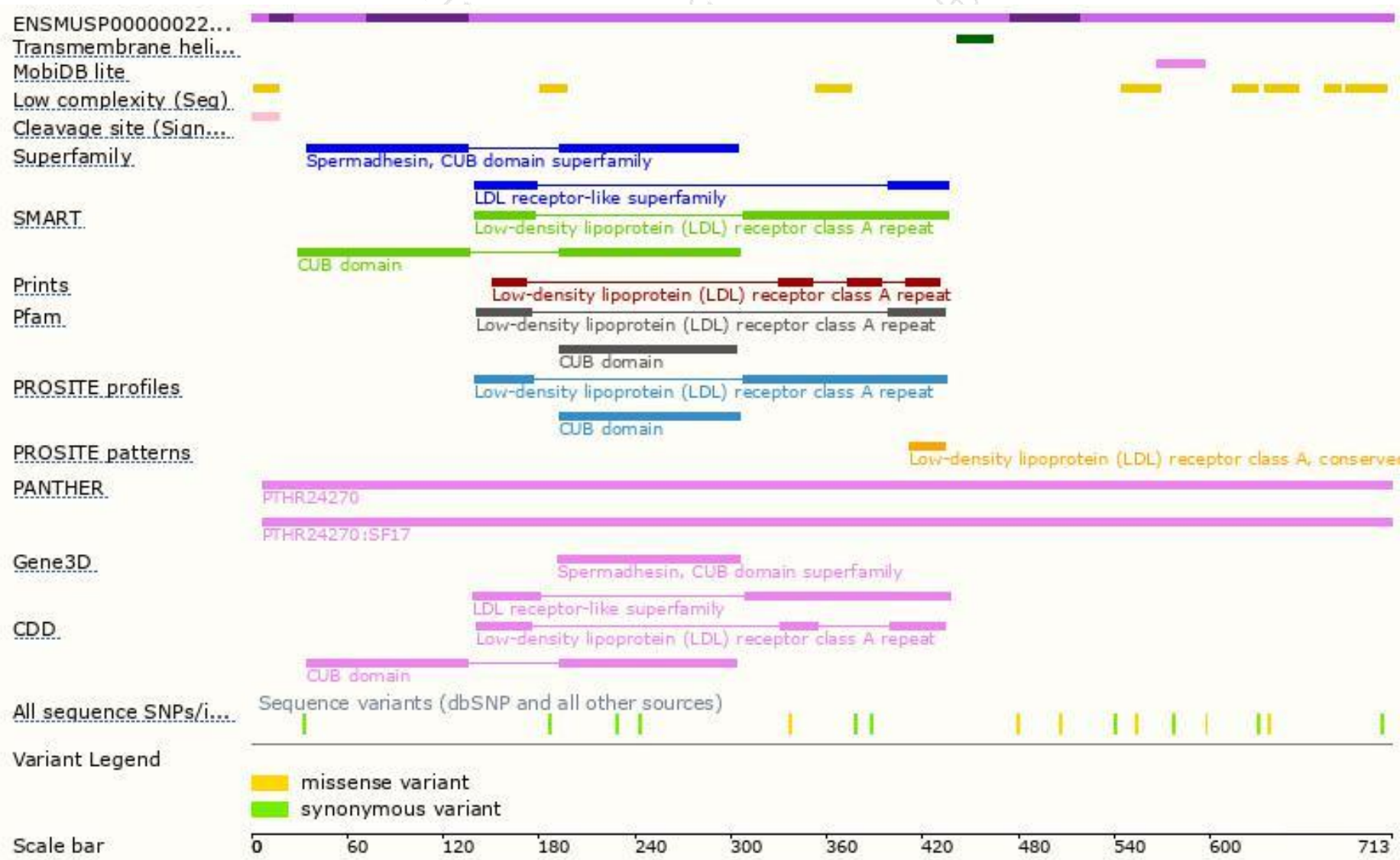
The strategy is based on the design of *Lrp10-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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