

Lrp12 Cas9-CKO Strategy

Designer:

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Reviewer

Design Date:

2019-8-19

Project Overview



Project Name

Lrp12

Project type

Cas9-CKO

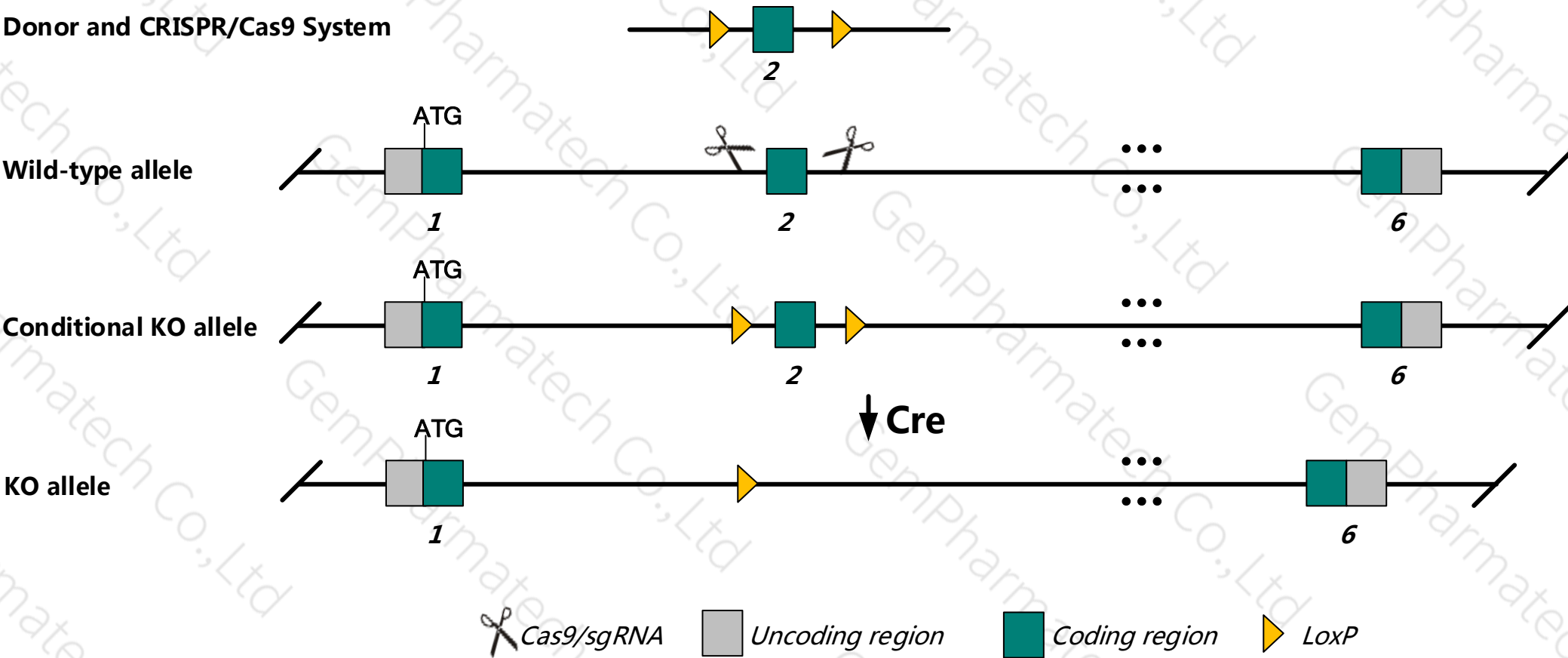
Animal background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Lrp12* gene. The schematic diagram is as follows:

Donor and CRISPR/Cas9 System



Technical routes

- The *Lrp12* gene has 4 transcripts, According to the structure of *Lrp12* gene, exon2 of *Lrp12*-202 transcript is recommended as the knockout region. The region contains the 136bp coding sequence. Knock out the region, result in destruction of protein.
- This project uses CRISPR/Cas9 technology to modify *Lrp12* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed, Cas9, sgRNA and donor were microinjected into fertilized eggs of C57BL/6JGpt mice and homologous recombination was carried out to obtain F0 mice. A stable and hereditary F1 generation mouse model was obtained by mating F0 generation mice with C57BL/6JGpt mice which were confirmed positive by PCR-sequencing.
- 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 and cell types.

- The *Lrp12* gene is located in the Chr15. If the knockout mice are mixed with other mice, two target genes are avoided on the same chromosome as possible, otherwise the offspring of mice with double gene positive and homozygous gene knockout can not be obtained.
- This Strategy is designed based on genetic information in existing databases. Due to the complexity of gene transcription and translation processes, all risks cannot be predicted under existing information.

Gene information (NCBI)

Lrp12 low density lipoprotein-related protein 12 [*Mus musculus* (house mouse)]

Gene ID: 239393, updated on 31-Jan-2019

Summary

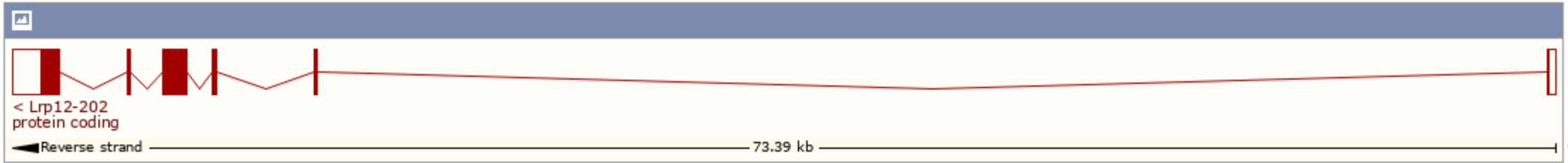
Official Symbol Lrp12 provided by [MGI](#)
Official Full Name low density lipoprotein-related protein 12 provided by [MGI](#)
Primary source [MGI:MGI:2443132](#)
See related [Ensembl:ENSMUSG000000022305](#)
Gene type protein coding
RefSeq status VALIDATED
Organism [Mus musculus](#)
Lineage Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as LRP-12; AI848829; C820005L12Rik
Expression Broad expression in CNS E14 (RPKM 8.6), whole brain E14.5 (RPKM 7.7) and 25 other tissues [See more](#)
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

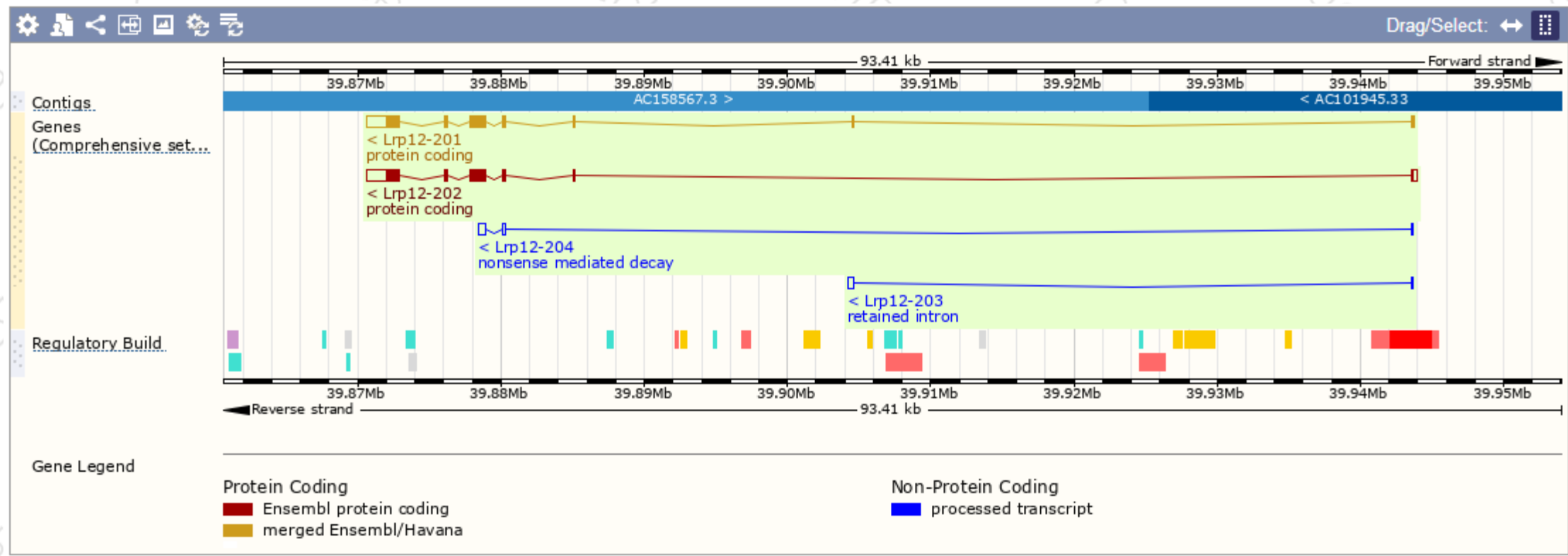
The gene has 4 transcripts, and all transcripts are shown below :

Show/hide columns (1 hidden)							Filter	
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags	
Lrp12-202	ENSMUST00000110305.2	4244	839aa	Protein coding	CCDS84168	Q8BUJ9	TSL:1	GENCODE basic APPRIS ALT1
Lrp12-201	ENSMUST00000022916.12	4109	858aa	Protein coding	CCDS27446	Q8BUJ9	TSL:1	GENCODE basic APPRIS P3
Lrp12-204	ENSMUST00000228575.1	806	43aa	Nonsense mediated decay	-	A0A2I3BQR2	-	
Lrp12-203	ENSMUST00000146714.1	433	No protein	Retained intron	-	-	TSL:3	

The strategy is based on the design of *Lrp12-202* 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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