

Lrfn5 Cas9-CKO Strategy

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Project Overview

Project Name

Lrfn5

Project type

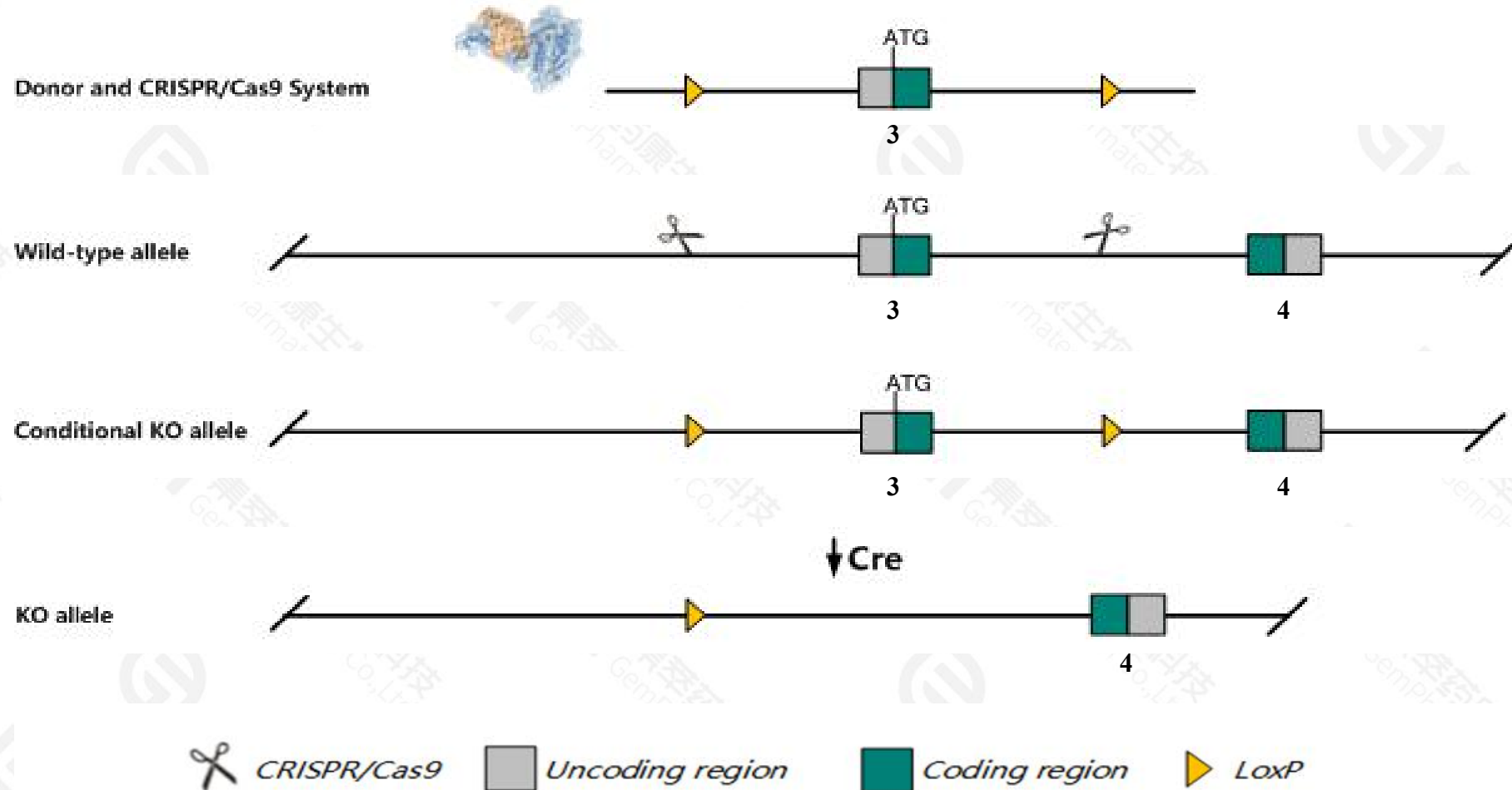
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Lrfn5* gene. The schematic diagram is as follows:



Technical routes

- The *Lrfn5* gene has 5 transcripts. According to the structure of *Lrfn5* gene, exon3 of *Lrfn5-201*(ENSMUST00000055815.13) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Lrfn5* 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.

- The *Lrfn5* gene is located on the Chr12. 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)

Lrfr5 leucine rich repeat and fibronectin type III domain containing 5 [Mus musculus (house mouse)]

Gene ID: 238205, updated on 13-Mar-2020

Summary



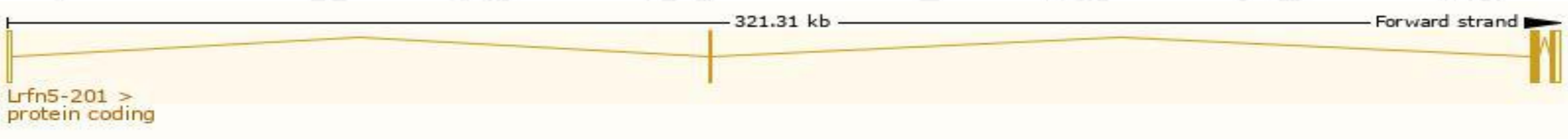
Official Symbol	Lrfr5 provided by MGI
Official Full Name	leucine rich repeat and fibronectin type III domain containing 5 provided by MGI
Primary source	MGI:MGI:2144814
See related	Ensembl:ENSMUSG00000035653
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI427653, AI604817, C130061B21, Salm5, mKIAA4208
Expression	Biased expression in CNS E18 (RPKM 10.2), cortex adult (RPKM 6.3) and 5 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

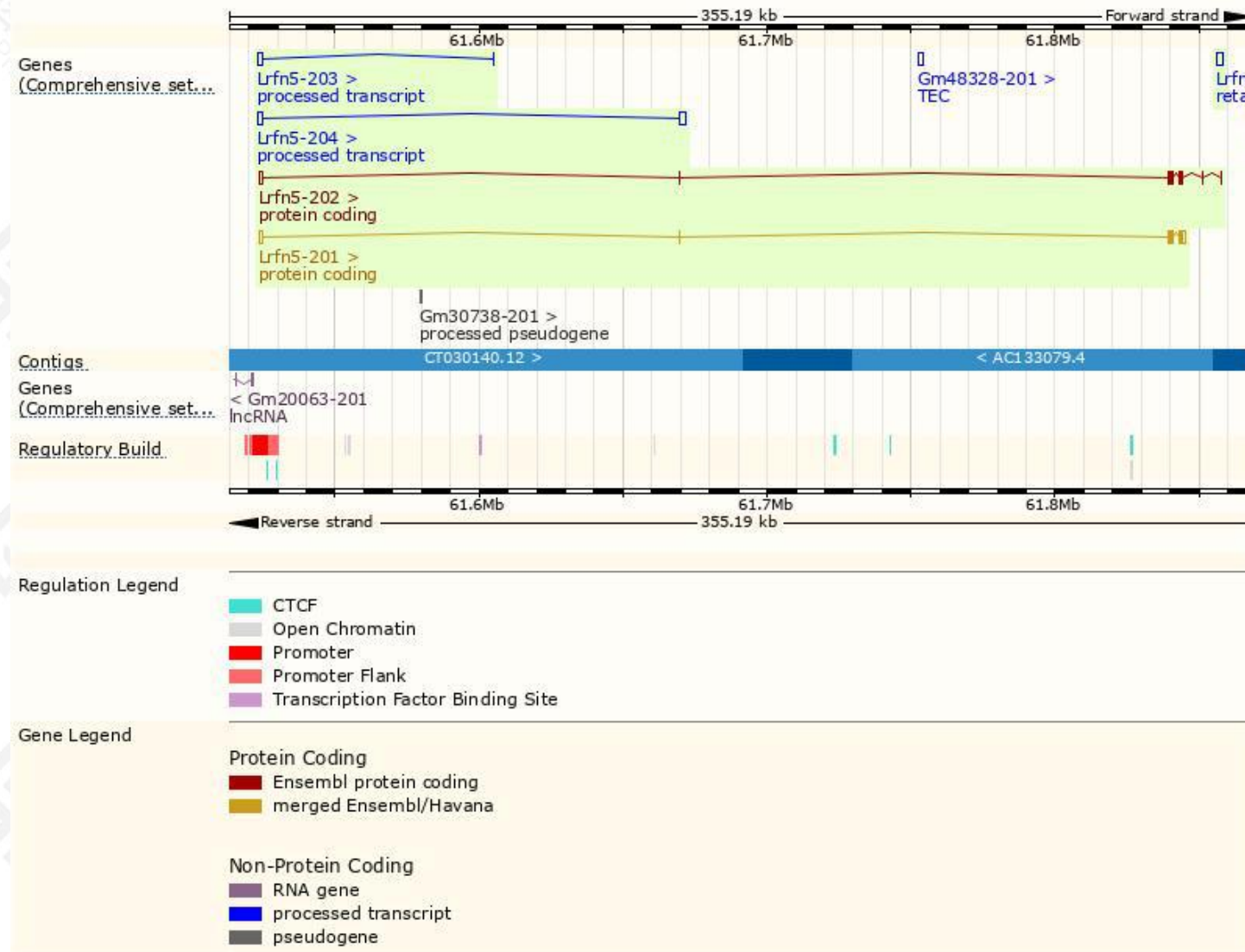
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Lrfn5-201	ENSMUST00000055815.13	4410	746aa	Protein coding	CCDS25936	Q8BXA0	TSL:1 GENCODE basic
Lrfn5-202	ENSMUST00000119481.1	3615	719aa	Protein coding	CCDS79117	Q8BXA0	TSL:1 GENCODE basic APPRIS P1
Lrfn5-204	ENSMUST00000138980.1	4009	No protein	Processed transcript	-	-	TSL:1
Lrfn5-203	ENSMUST00000130887.1	1724	No protein	Processed transcript	-	-	TSL:1
Lrfn5-205	ENSMUST00000189933.1	2075	No protein	Retained intron	-	-	TSL:NA

The strategy is based on the design of *Lrfn5-201* 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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