

Lrit1 Cas9-KO Strategy

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Project Overview

Project Name

Lrit1

Project type

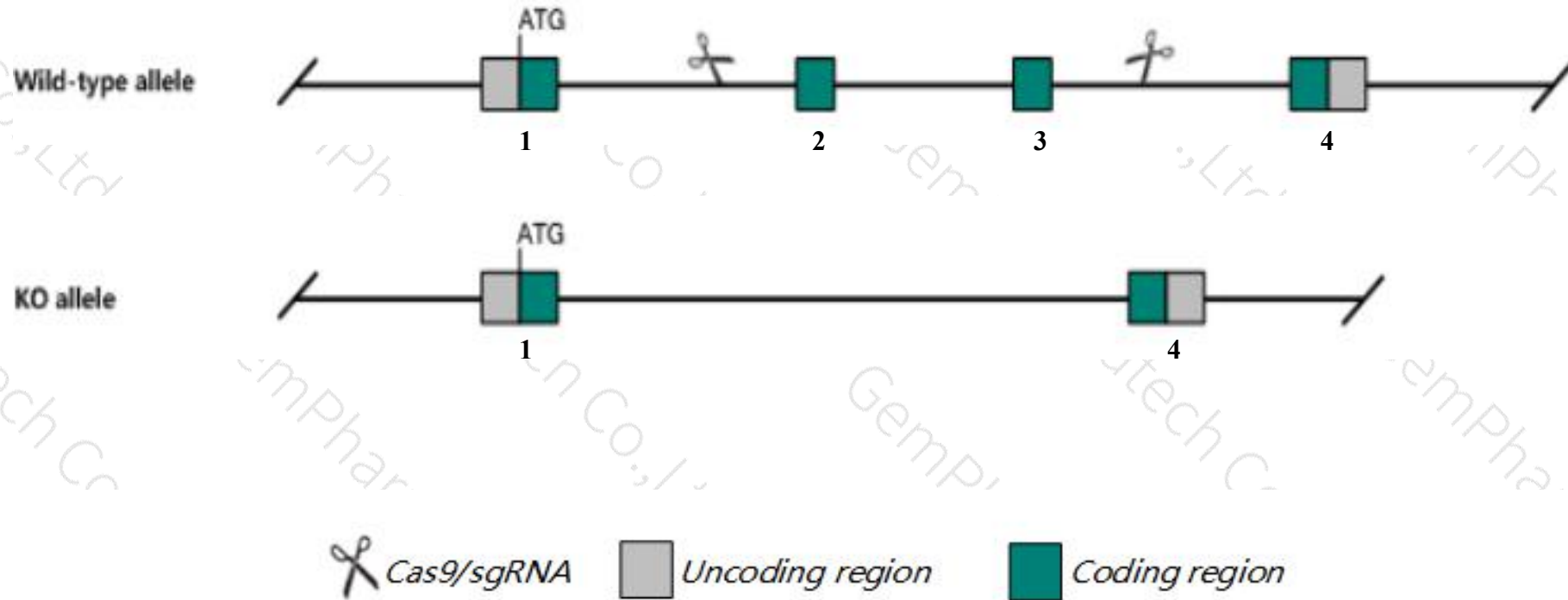
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Lrit1* gene. The schematic diagram is as follows:



- The *Lrit1* gene has 1 transcript. According to the structure of *Lrit1* gene, exon2-exon3 of *Lrit1*-201(ENSMUST00000120052.1) transcript is recommended as the knockout region. The region contains 776bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Lrit1* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA 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.

- According to the existing MGI data, mice homozygous for a knock-out allele exhibit impaired synaptic communication of cone photoreceptors.
- The *Lrit1* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Lrit1 leucine-rich repeat, immunoglobulin-like and transmembrane domains 1 [Mus musculus (house mouse)]

Gene ID: 239037, updated on 13-Mar-2020

Summary



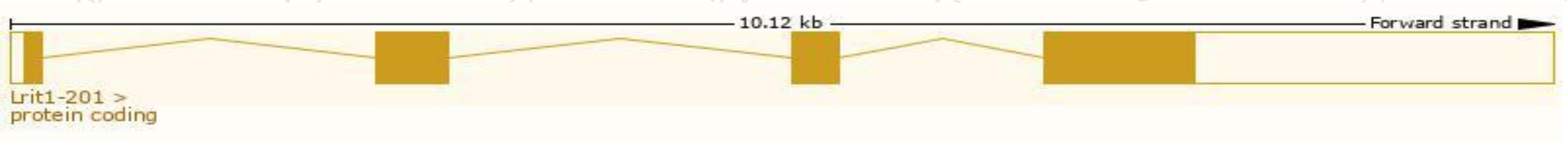
Official Symbol	Lrit1 provided by MGI
Official Full Name	leucine-rich repeat, immunoglobulin-like and transmembrane domains 1 provided by MGI
Primary source	MGI:MGI:2385320
See related	Ensembl:ENSMUSG00000041044
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	BC032270, Lrrc21
Expression	Restricted expression toward liver adult (RPKM 2.3) See more
Orthologs	human all

Transcript information (Ensembl)

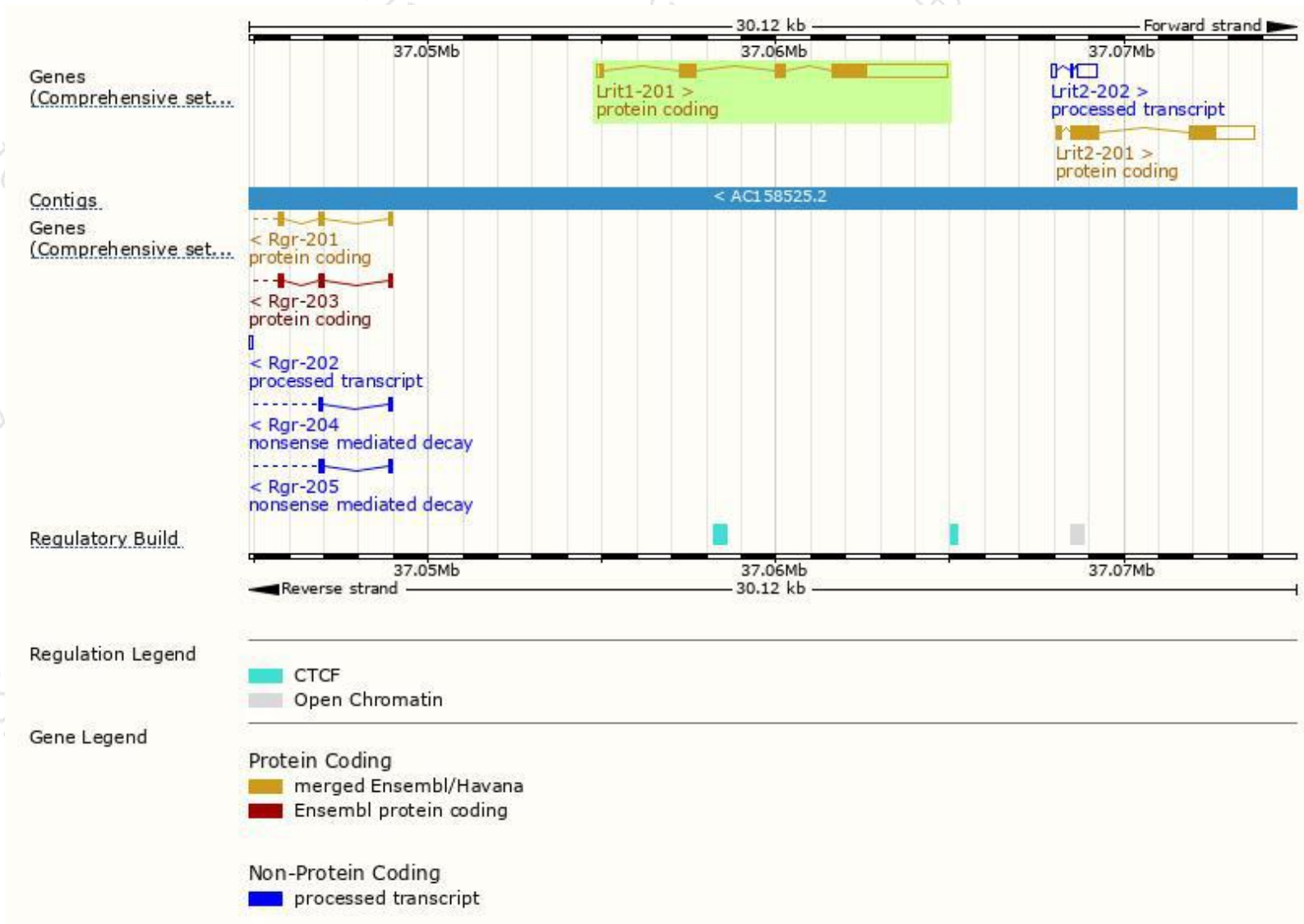
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Lrit1-201	ENSMUST00000120052.1	4325	624aa	Protein coding	CCDS26950	Q8K099	TSL:1 GENCODE basic APPRIS P1

The strategy is based on the design of *Lrit1-201* transcript, the transcription is shown below:



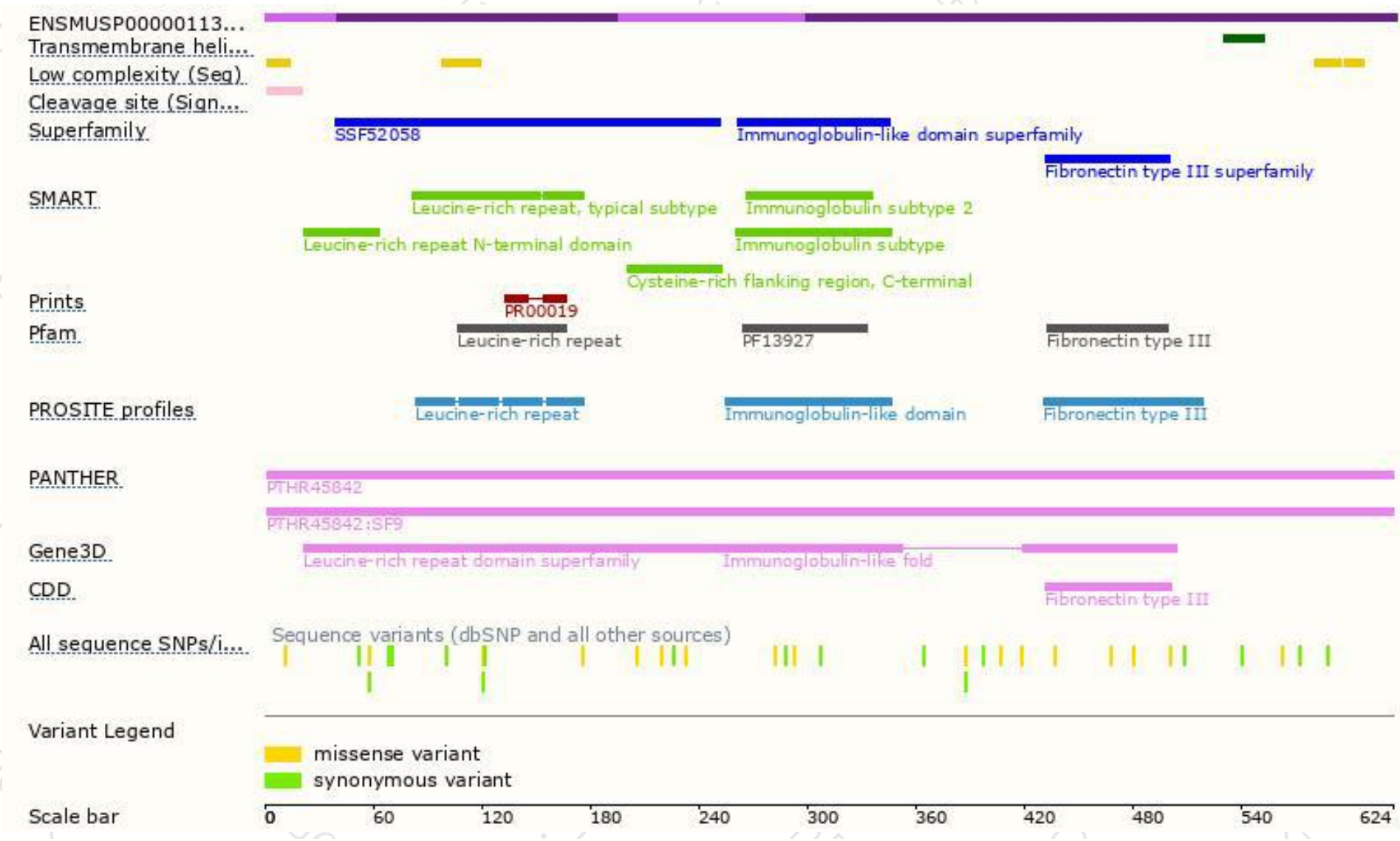
Genomic location distribution



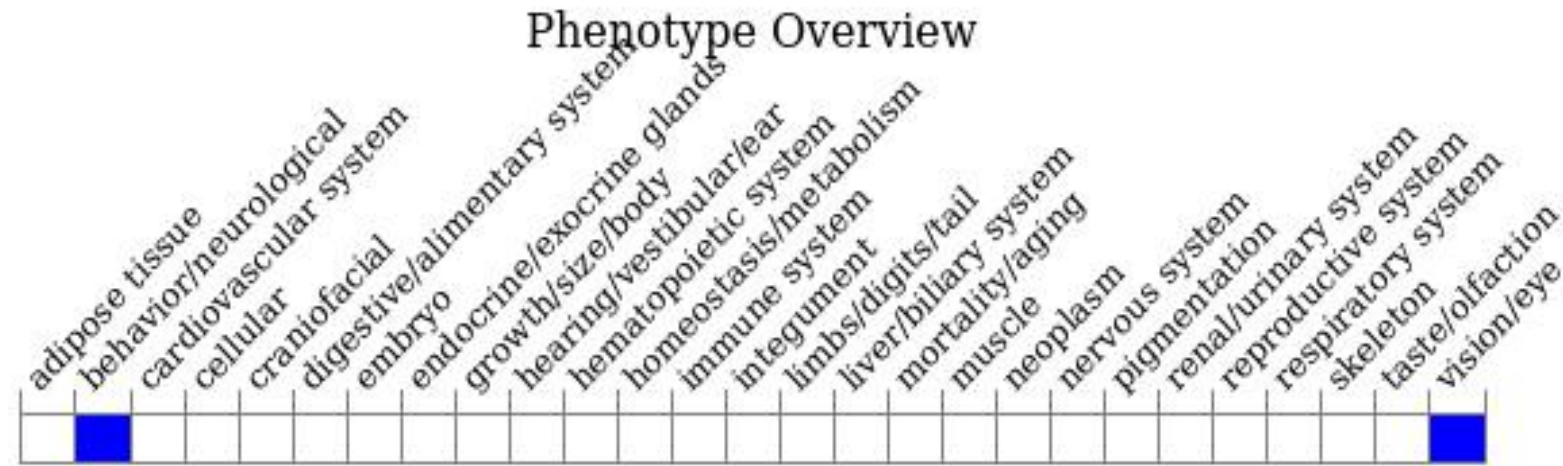
Protein domain



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Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

According to the existing MGI data, mice homozygous for a knock-out allele exhibit impaired synaptic communication of cone photoreceptors.

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

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