Larp1 Cas9-KO Strategy

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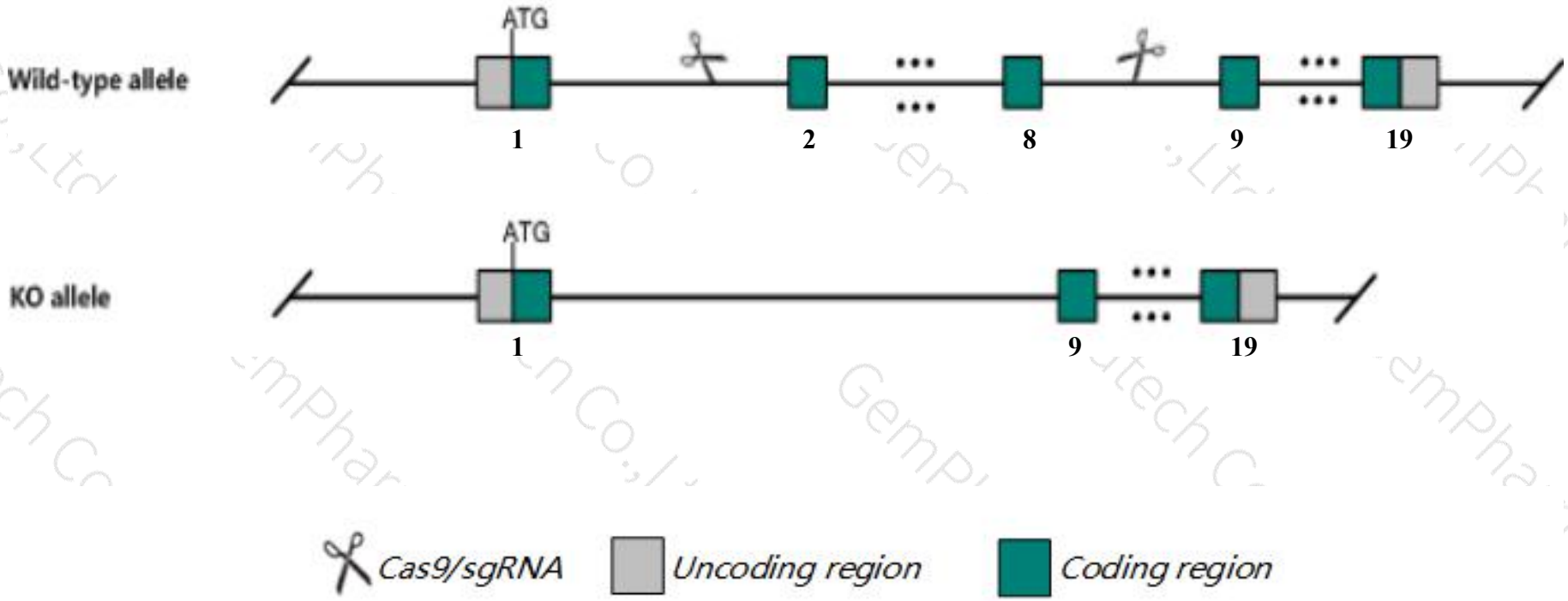
Project Overview

Project Name	***Larp1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Larp1* gene. The schematic diagram is as follows:



Technical routes

➢ The *Larp1* gene has 3 transcripts. According to the structure of *Larp1* gene, exon2-exon8 of *Larp1-203*(ENSMUST00000178636.1) transcript is recommended as the knockout region.The region contains 947bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Larp1* 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.

Notice

➢ The *Larp1* gene is located on the Chr11. 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）

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Larp1 La ribonucleoprotein domain family, member 1 [Mus musculus (house mouse)]

Gene ID: 73158, updated on 13-Mar-2020

Summary

Official Symbol	Larp1 provided by MGI
Official Full Name	La ribonucleoprotein domain family, member 1 provided by MGI
Primary source	MGI:MGI:1890165
See related	Ensembl:ENSMUSG00000037331
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	1810024J12Rik, 3110040D16Rik, Larp, mKIAA0731
Expression	Ubiquitous expression in testis adult (RPKM 51.6), genital fat pad adult (RPKM 17.5) and 28 other tissues See more
Orthologs	human all

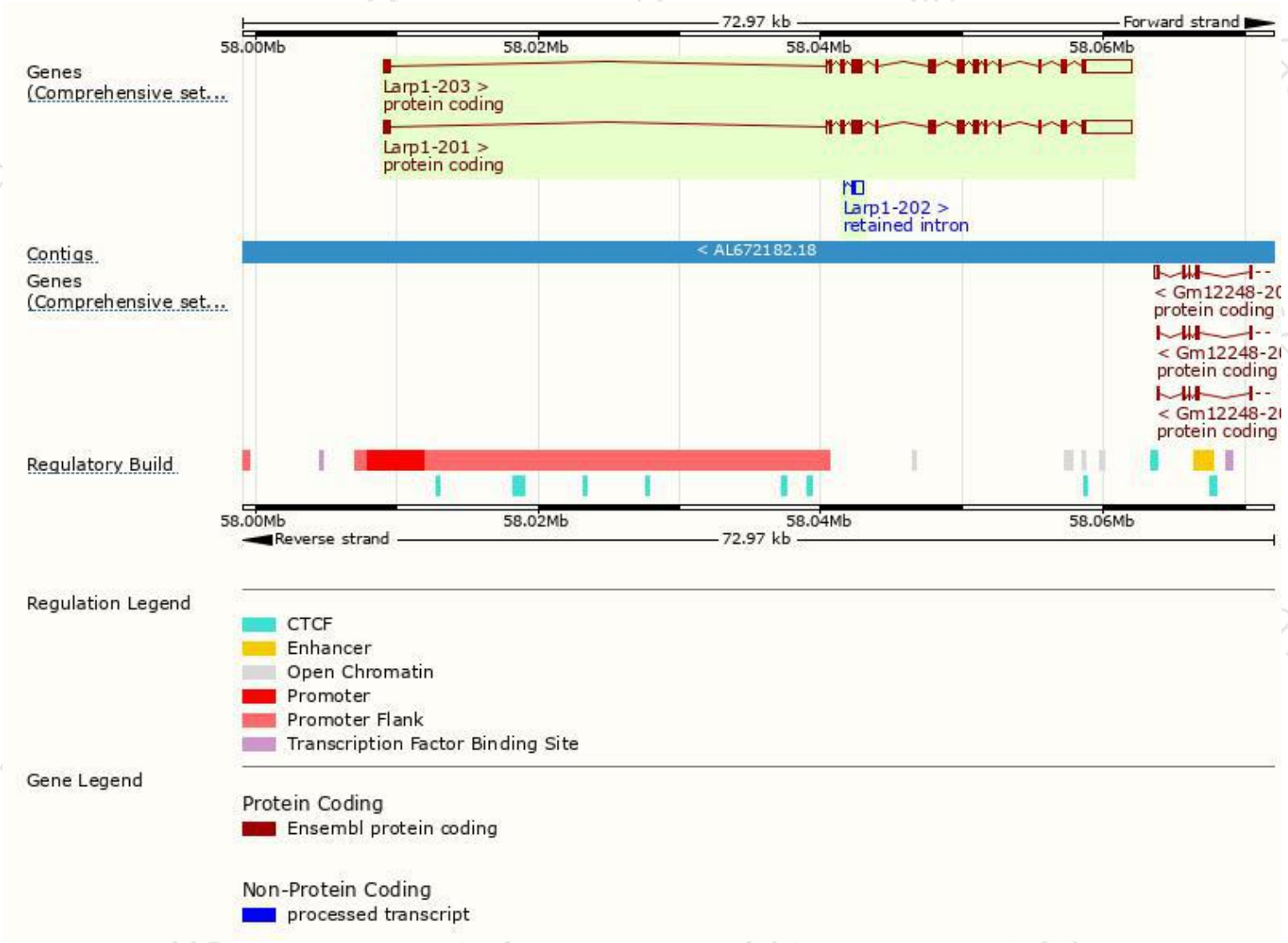
Transcript information（Ensembl）

The gene has 3 transcripts,all transcripts are shown below:

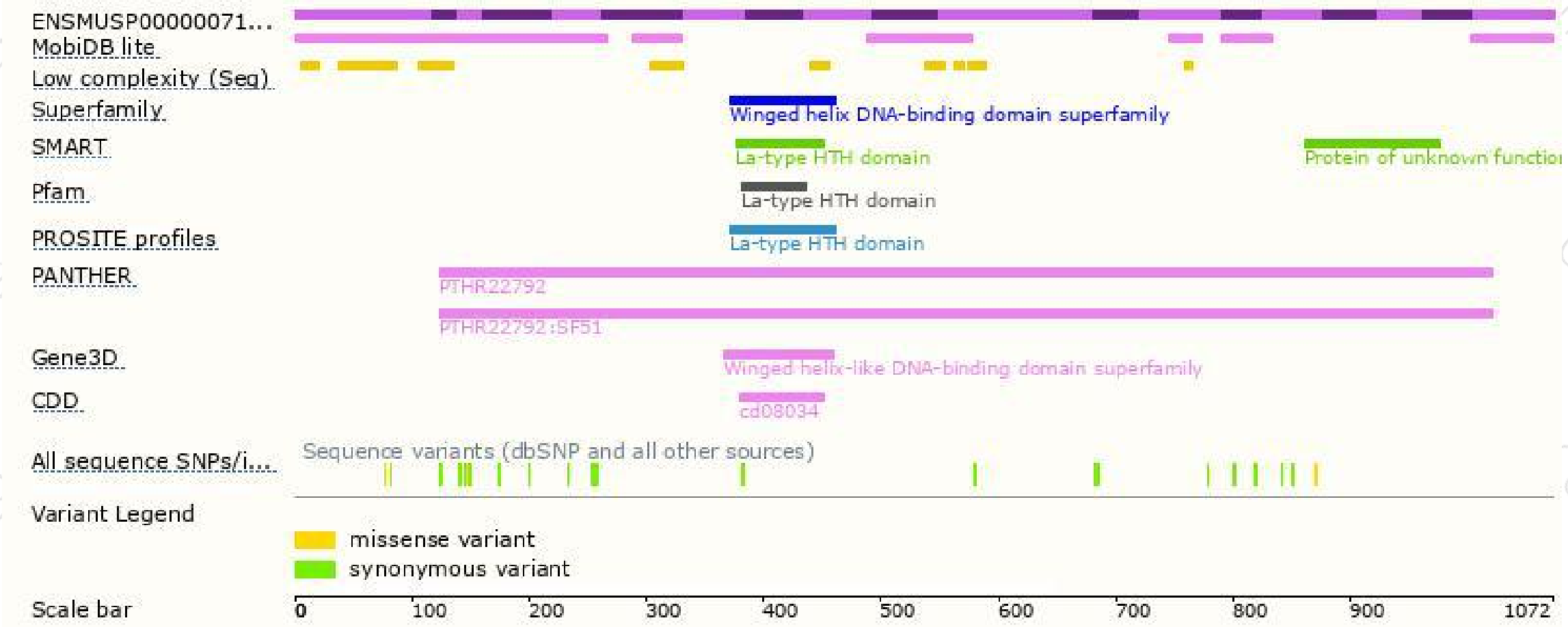
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Larp1-203	ENSMUST00000178636.1	6617	1072aa	Protein coding	CCDS56771	Q6ZQ58	TSL:5 GENCODE basic APPRIS P2
Larp1-201	ENSMUST00000071487.12	6614	1072aa	Protein coding	-	Z4YJT3	TSL:5 GENCODE basic APPRIS ALT2
Larp1-202	ENSMUST00000140500.1	747	No protein	Retained intron	-	-	TSL:3

The strategy is based on the design of *Larp1-203* transcript,the transcription is shown below:

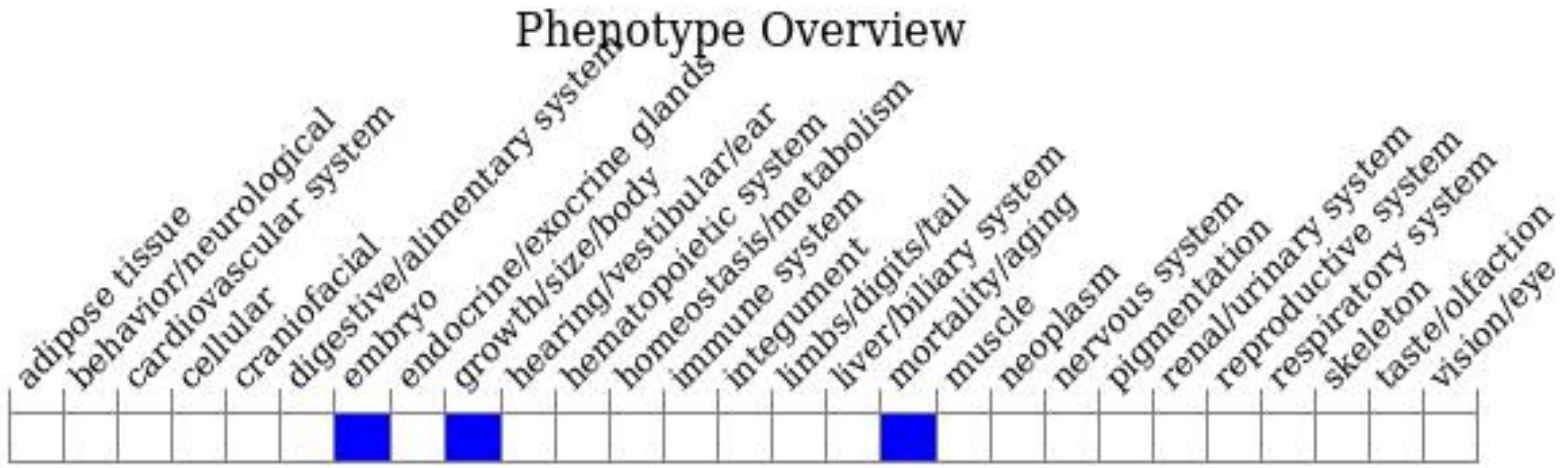
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



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

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

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