

Larp4b Cas9-CKO Strategy

Designer: Xiaojing Li

Reviewer: Jia Yu

Design Date: 2020-8-17

Project Overview

Project Name

Larp4b

Project type

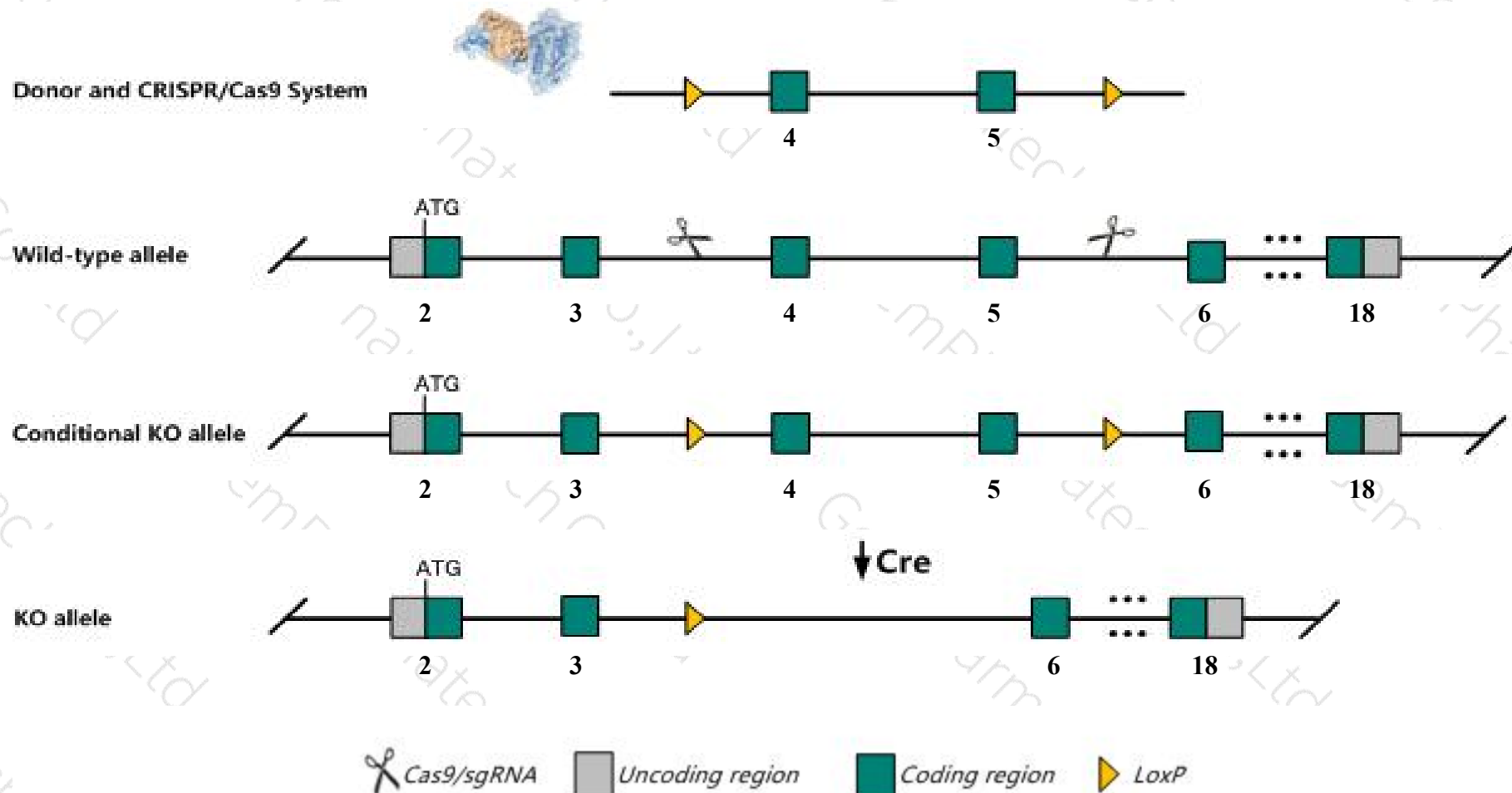
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Larp4b* gene. The schematic diagram is as follows:



- The *Larp4b* gene has 7 transcripts. According to the structure of *Larp4b* gene, exon4-exon5 of *Larp4b*-202(ENSMUST00000188211.7) transcript is recommended as the knockout region. The region contains 295bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Larp4b* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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 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 *Larp4b* gene is located on the Chr13. 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)

Larp4b La ribonucleoprotein domain family, member 4B [Mus musculus (house mouse)]

Gene ID: 217980, updated on 13-Mar-2020

Summary



Official Symbol Larp4b provided by [MGI](#)

Official Full Name La ribonucleoprotein domain family, member 4B provided by [MGI](#)

Primary source [MGI:MGI:106330](#)

See related [Ensembl:ENSMUSG00000033499](#)

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 A630096F19, AI256361, D13Wsu64e, Larp5

Expression Ubiquitous expression in placenta adult (RPKM 5.9), liver E14 (RPKM 5.1) and 28 other tissues [See more](#)

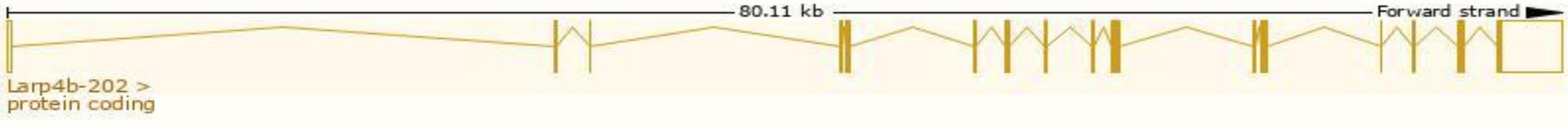
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

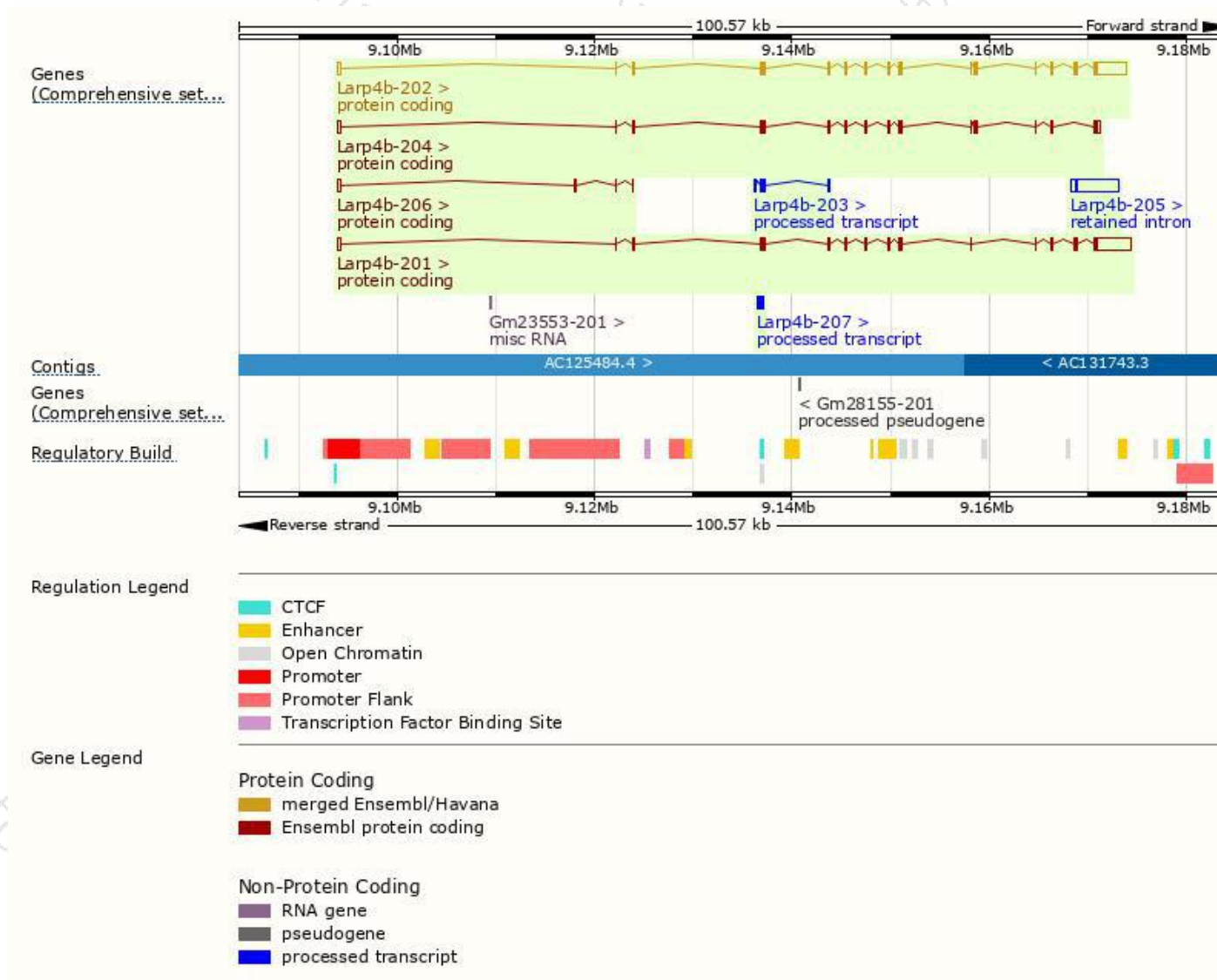
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Larp4b-201	ENSMUST00000091829.3	5720	657aa	Protein coding	CCDS79162	Q6A0A2	TSL:1 GENCODE basic
Larp4b-202	ENSMUST00000188211.7	5610	741aa	Protein coding	CCDS36588	Q6A0A2	TSL:1 GENCODE basic APPRIS P1
Larp4b-204	ENSMUST00000188939.6	2658	663aa	Protein coding	-	Q6A0A2	TSL:1 GENCODE basic
Larp4b-206	ENSMUST00000190041.6	557	36aa	Protein coding	-	A0A087WPU9	CDS 3' incomplete TSL:3
Larp4b-207	ENSMUST00000190331.1	405	No protein	Processed transcript	-	-	TSL:5
Larp4b-203	ENSMUST00000188523.6	385	No protein	Processed transcript	-	-	TSL:5
Larp4b-205	ENSMUST00000189330.1	4666	No protein	Retained intron	-	-	TSL:1

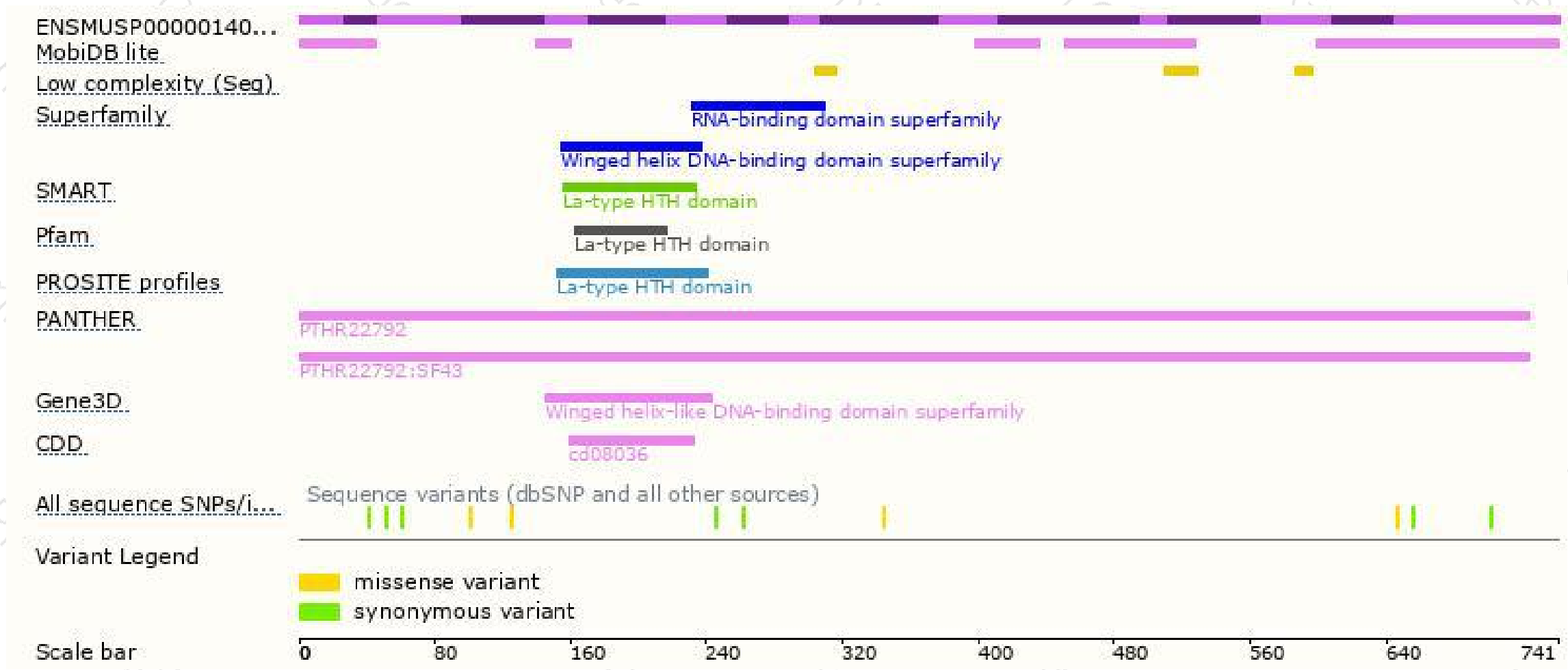
The strategy is based on the design of *Larp4b-202* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

Tel: 025-5864 1534

