

Larp7 Cas9-CKO Strategy

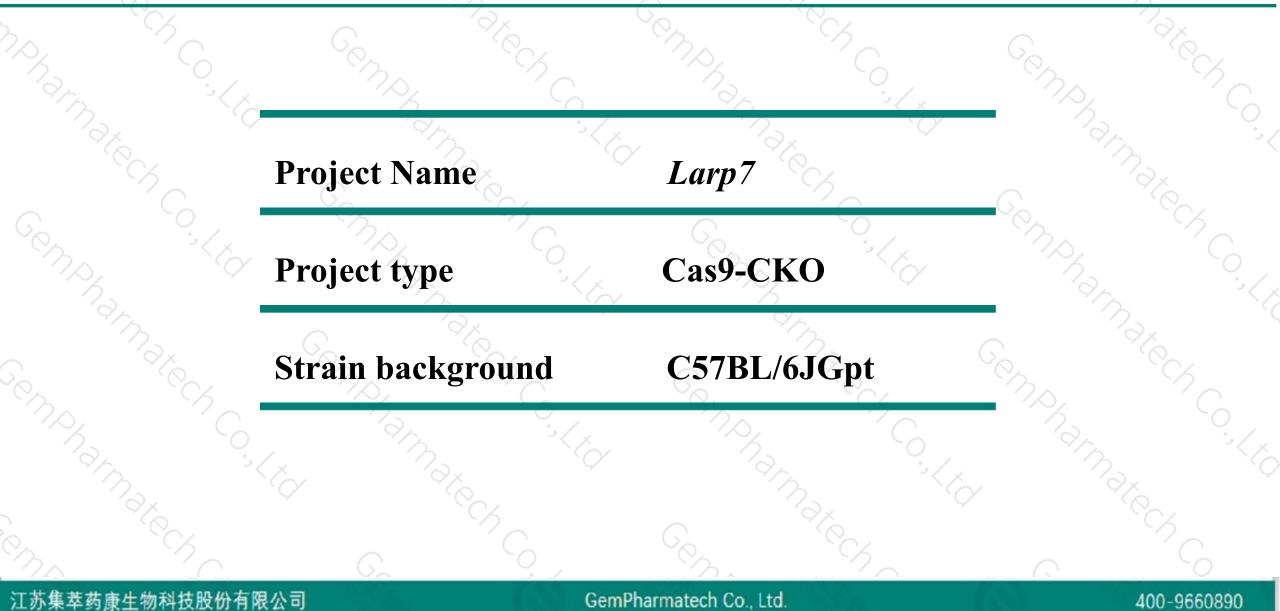
Designer: Reviewer:

Design Date:

Huan Fan Huan Wang 2020-2-28

Project Overview

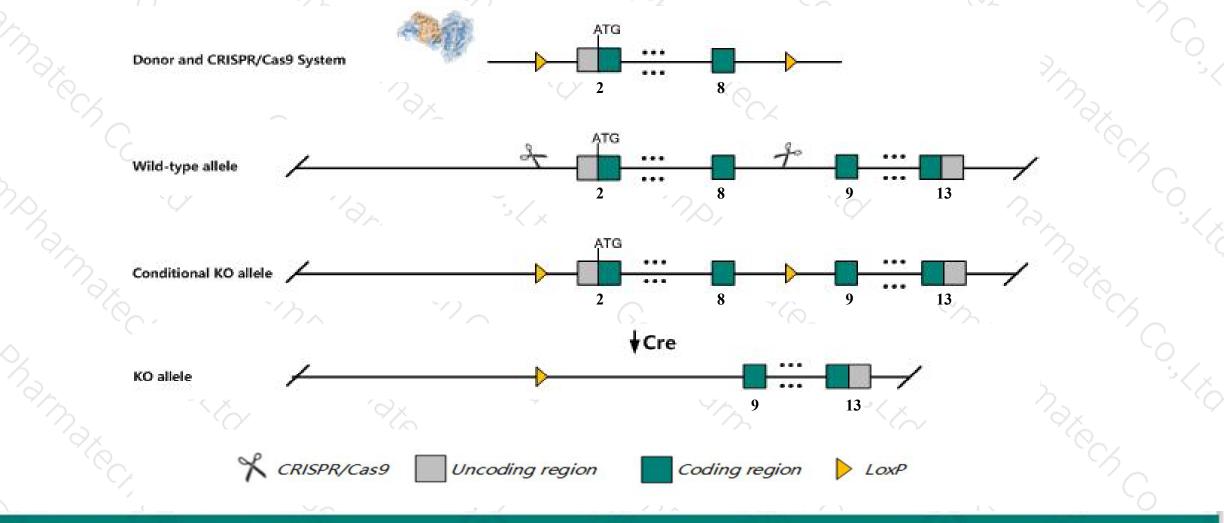




Conditional Knockout strategy



This model will use CRISPR/Cas9 technology to edit the Larp7 gene. The schematic diagram is as follows:



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The Larp7 gene has 4 transcripts. According to the structure of Larp7 gene, exon2-exon8 of Larp7-201 (ENSMUST00000029588.9) 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 *Larp7* 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.



According to the existing MGI data, Mice homozygous for a null mutation display complete perinatal lethality and a decrease in primordial germ cell number and proliferation.

➤ Mir302a, Mir302b, Mir302c, Mir302d, Mir367 will be deleted.

- The Larp7 gene is located on the Chr3. 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.

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Gene information (NCBI)



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Larp7 La ribonucleoprotein domain family, member 7 [Mus musculus (house mouse)]

Gene ID: 28036, updated on 31-Jan-2019

Summary

Official Symbol	Larp7 provided by MGI
Official Full Name	La ribonucleoprotein domain family, member 7 provided by MGI
Primary source	MGI:MGI:107634
See related	Ensembl:ENSMUSG00000027968
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	C330027G06Rik, D3Wsu161e
Expression	Biased expression in CNS E11.5 (RPKM 27.9), testis adult (RPKM 22.9) and 12 other tissues See more
Orthologs	human all

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Transcript information (Ensembl)



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

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Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags	
Larp7-201	ENSMUST00000029588.9	2121	<u>570aa</u>	Protein coding	CCDS38626	<u>Q05CL8</u>	TSL:5 GENCODE basic APPRIS P	
Larp7-203	ENSMUST00000197668.1	411	<u>80aa</u>	Protein coding	÷	A0A0G2JFW4	CDS 3' incomplete TSL:3	
Larp7-202	ENSMUST00000195976.1	1391	No protein	Retained intron	0	22	TSL:5	
Larp7-204	ENSMUST00000197698.1	733	No protein	Retained intron	-	20	TSL:1	

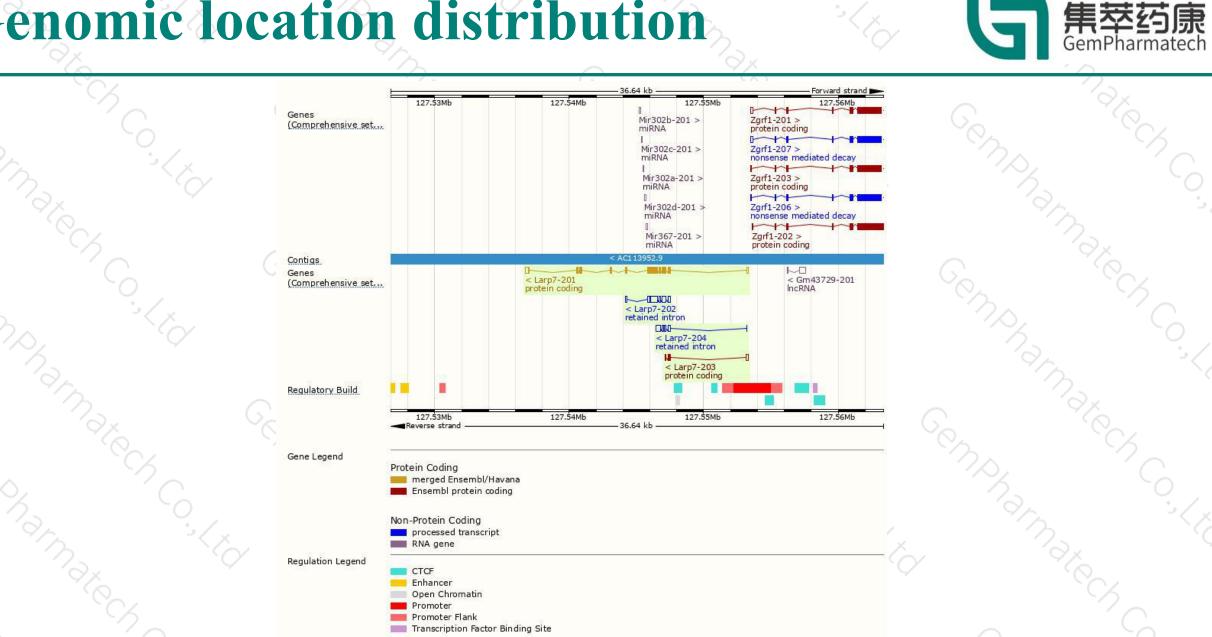
The strategy is based on the design of Larp7-201 transcript, The transcription is shown below

< Larp7-201 protein coding

Reverse strand

- 16.64 kb -

Genomic location distribution



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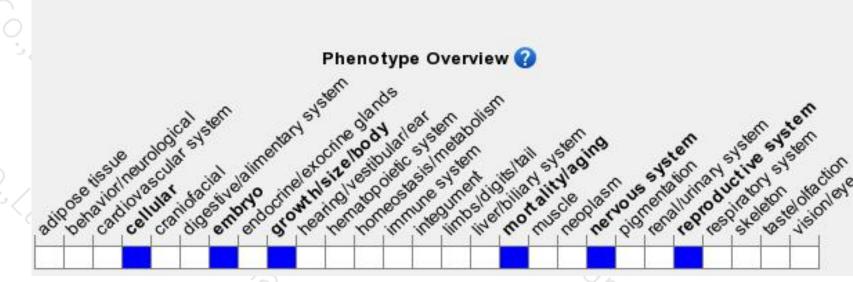
Protein domain



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non Ch	ENSMUSP00000029 MobiDB lite Low complexity (Seg) Superfamily	and the second se	ng domain superfamily	-	-1	_	
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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 null mutation display complete perinatal lethality and a decrease in primordial germ cell number and proliferation.



If you have any questions, you are welcome to inquire. Tel: 400-9660890



