

Lhfpl3 Cas9-CKO Strategy

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Project Overview

Project Name

Lhfpl3

Project type

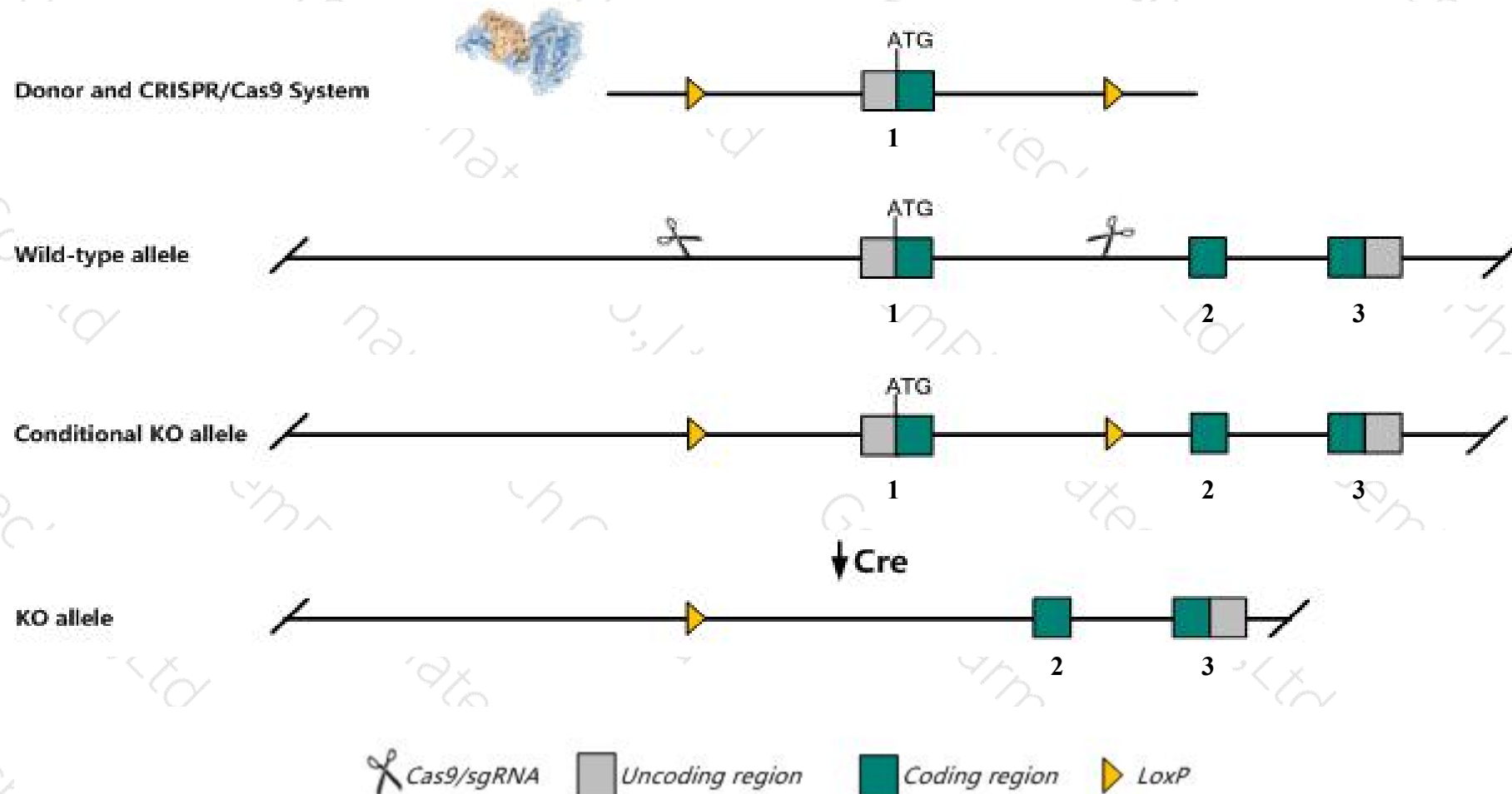
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Lhfpl3* gene. The schematic diagram is as follows:



- The *Lhfpl3* gene has 2 transcripts. According to the structure of *Lhfpl3* gene, exon1 of *Lhfpl3*-202(ENSMUST00000197992.1) 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 *Lhfpl3* 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 *Lhfpl3* gene is located on the Chr5. 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.
- Transcript *Lhfpl3*-201 will not be affected.
- The KO region contains functional region of the *A930003O13Rik* gene. Knockout the region may affect the function of *A930003O13Rik* gene.
- The flox region is in the intron of the *6030443J06Rik* gene, which may affect the regulation of this gene.
- 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)

Lhfpl3 lipoma HMGIC fusion partner-like 3 [Mus musculus (house mouse)]

Gene ID: 269629, updated on 13-Mar-2020

Summary



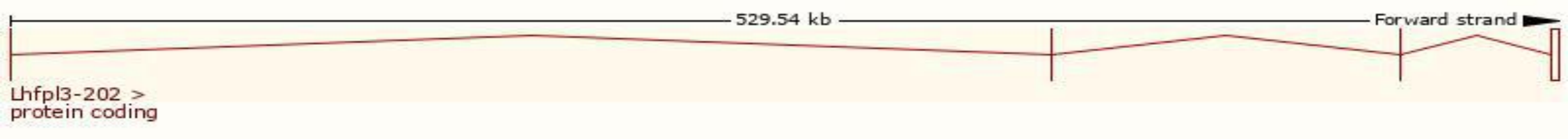
Official Symbol	Lhfpl3 provided by MGI
Official Full Name	lipoma HMGIC fusion partner-like 3 provided by MGI
Primary source	MGI:MGI:1925076
See related	Ensembl:ENSMUSG00000106379
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	A930031L14Rik
Expression	Biased expression in frontal lobe adult (RPKM 9.6), cerebellum adult (RPKM 7.7) and 5 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

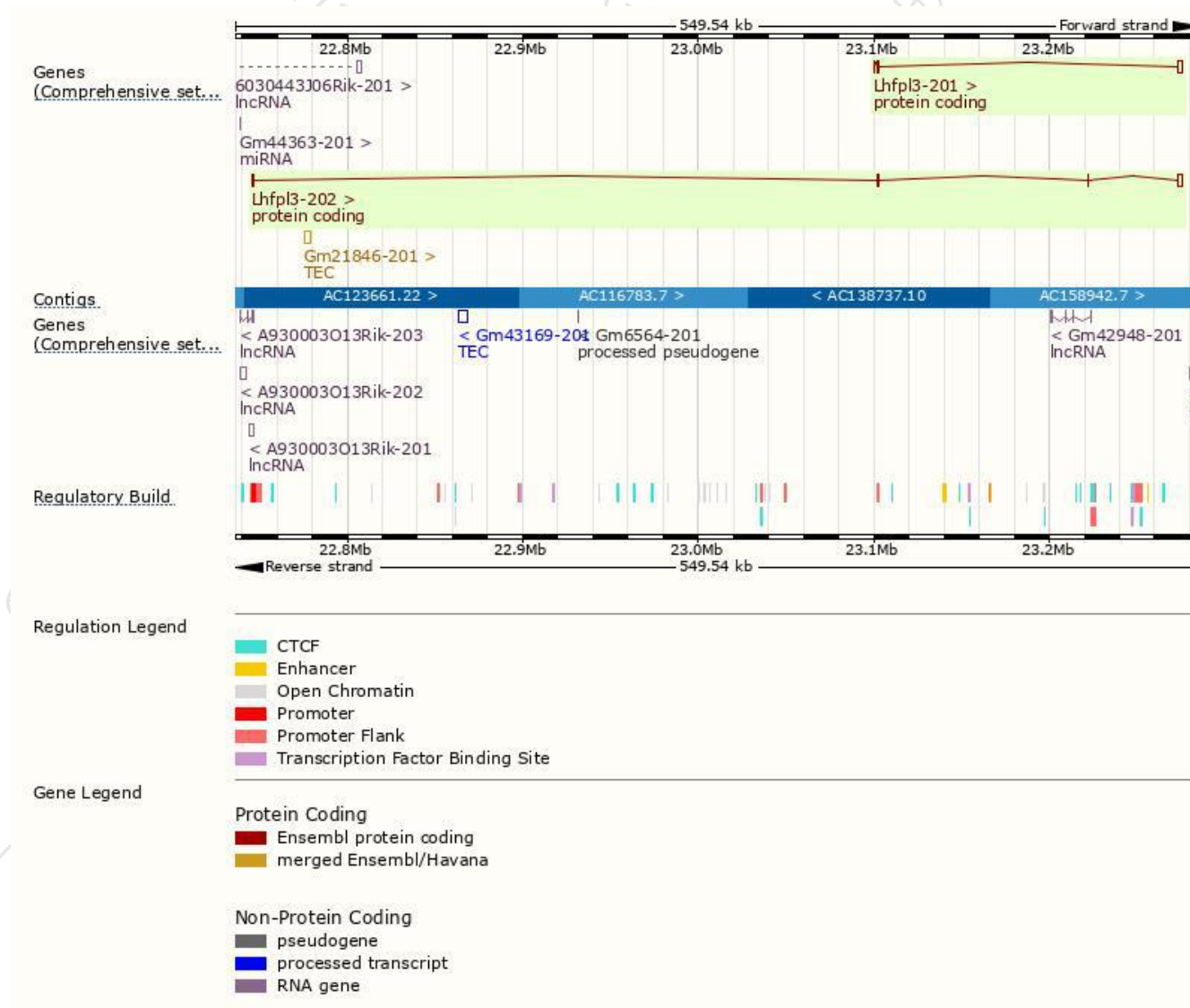
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Lhfpl3-202	ENSMUST00000197992.1	3115	228aa	Protein coding	CCDS80218	A0A0G2JGI3	TSL:1 GENCODE basic APPRIS P1
Lhfpl3-201	ENSMUST00000196406.1	2589	80aa	Protein coding	-	A0A0G2JEN1	TSL:1 GENCODE basic

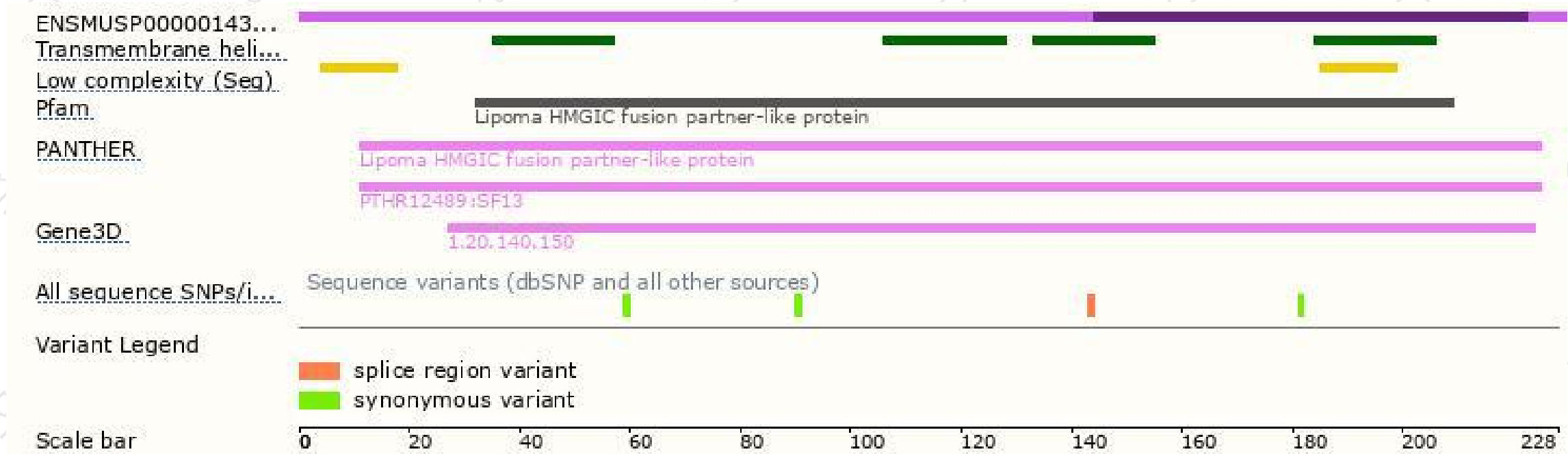
The strategy is based on the design of *Lhfpl3-202* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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