

Fmnl3 Cas9-CKO Strategy

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Project Overview

Project Name

Fmnl3

Project type

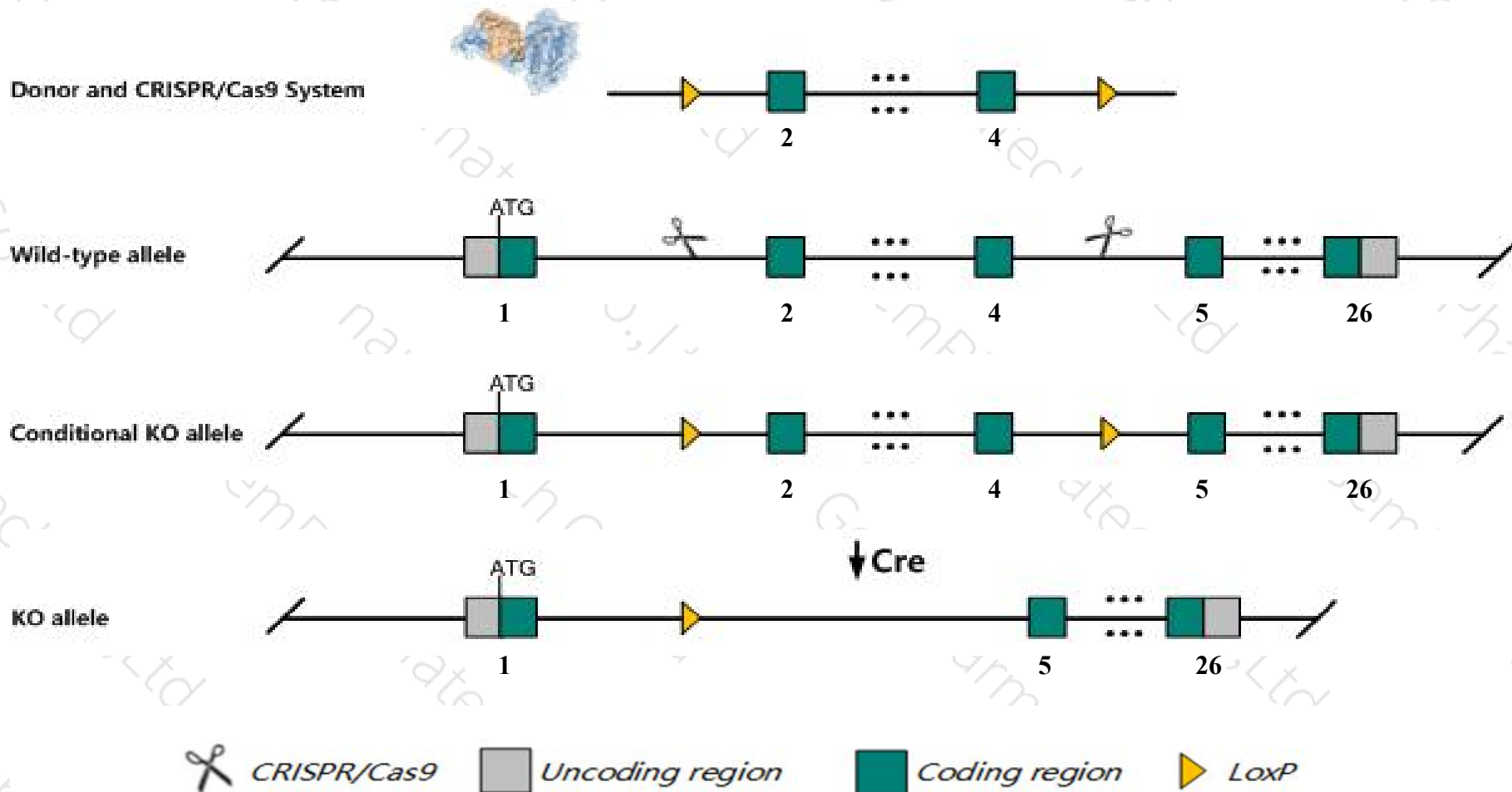
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fmn13* gene. The schematic diagram is as follows:



Technical routes

- The *Fmnl3* gene has 5 transcripts. According to the structure of *Fmnl3* gene, exon2-exon4 of *Fmnl3*-202 (ENSMUST00000088233.12) transcript is recommended as the knockout region. The region contains 242bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Fmnl3* 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.

Notice

- The *Fmnl3* gene is located on the Chr15. 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)

Fmn13 formin-like 3 [*Mus musculus* (house mouse)]

Gene ID: 22379, updated on 27-Feb-2020

Summary

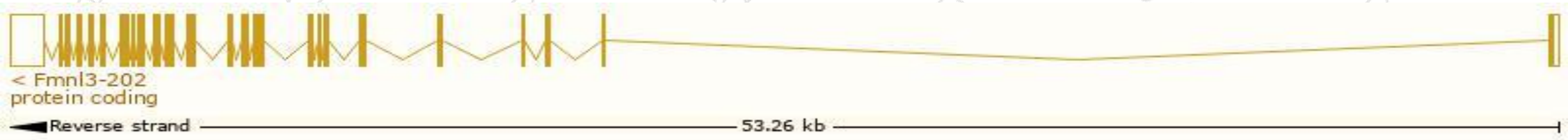
Official Symbol	Fmn13 provided by MGI
Official Full Name	formin-like 3 provided by MGI
Primary source	MGI:MGI:109569
See related	Ensembl:ENSMUSG00000023008
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Wbp3; FBP11; mKIAA2014; 2700073B04Rik
Expression	Ubiquitous expression in lung adult (RPKM 22.2), ovary adult (RPKM 18.2) and 27 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

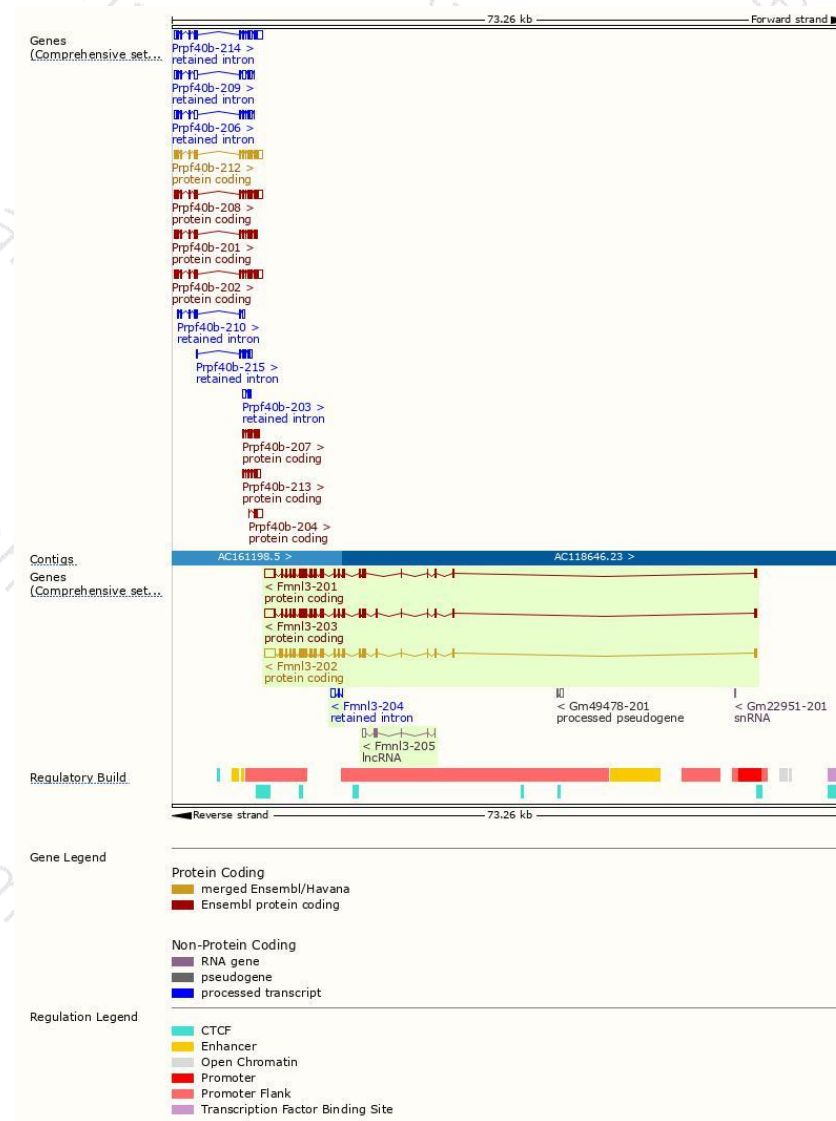
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Fmnl3-202	ENSMUST00000088233.12	4423	1028aa	Protein coding	CCDS27819	Q6ZPF4	TSL:1 GENCODE basic APPRIS P3
Fmnl3-203	ENSMUST00000120633.1	4290	1027aa	Protein coding	CCDS79409	D3Z7A7	TSL:5 GENCODE basic APPRIS ALT1
Fmnl3-201	ENSMUST00000081224.13	4137	976aa	Protein coding	CCDS79408	Q6ZPF4	TSL:1 GENCODE basic
Fmnl3-204	ENSMUST00000139767.1	618	No protein	Retained intron	-	-	TSL:3
Fmnl3-205	ENSMUST00000140368.1	760	No protein	lncRNA	-	-	TSL:3

The strategy is based on the design of *Fmnl3-202* transcript,The transcription is shown below



Genomic location distribution

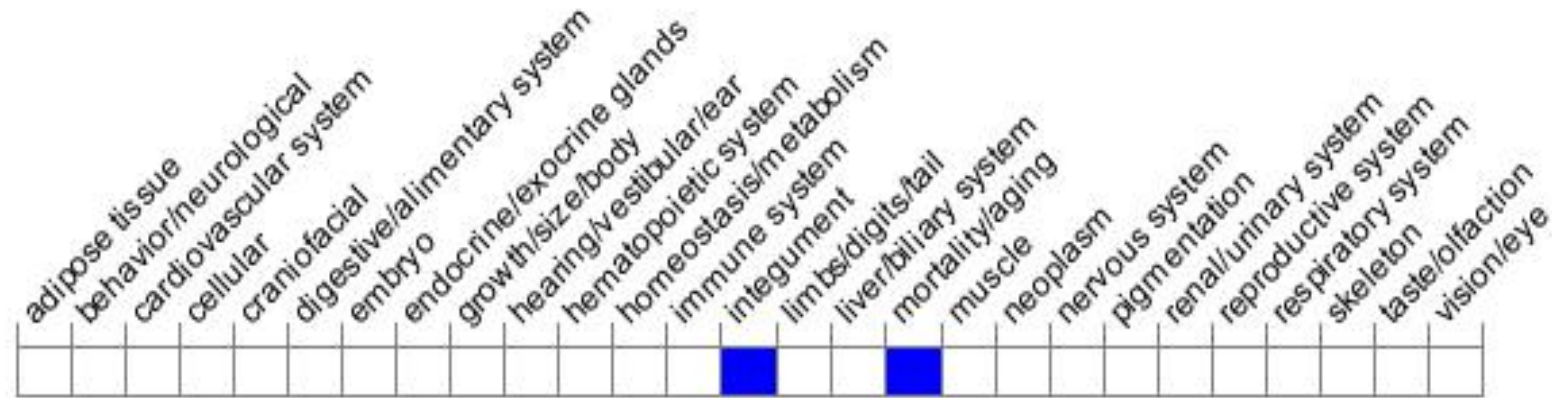


Protein domain



Mouse phenotype description(MGI)

Phenotype Overview



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

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

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