

Fbxl4 Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Fbxl4

Project type

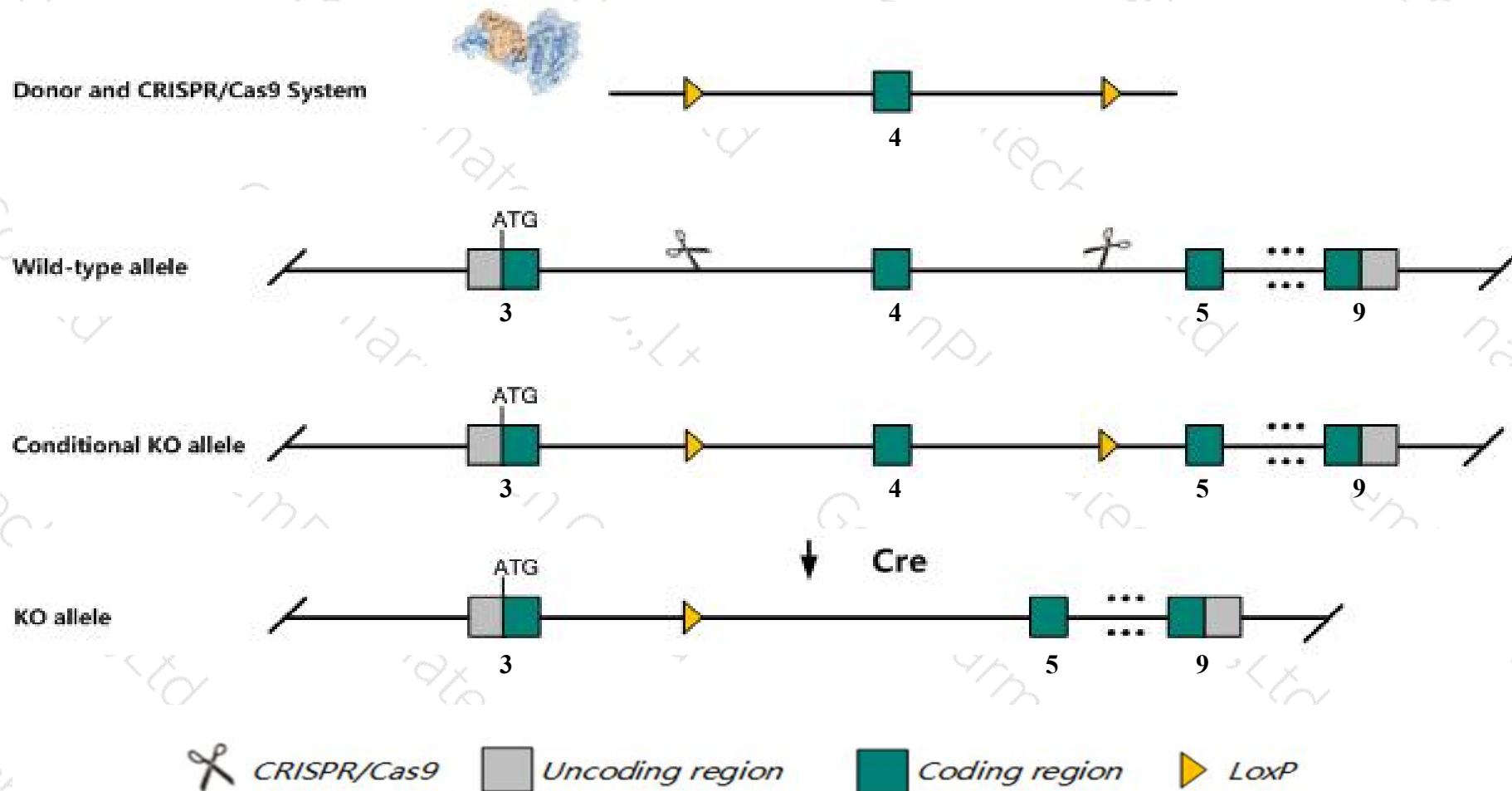
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fbxl4* gene. The schematic diagram is as follows:



Technical routes

- The *Fbxl4* gene has 5 transcripts. According to the structure of *Fbxl4* gene, exon4 of *Fbxl4-201* (ENSMUST00000039234.9) transcript is recommended as the knockout region. The region contains 346bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Fbxl4* 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.

- Transcript *Fbxl4-202* may not be affected. The KO region is close to 5'UTR region of the *Gm24607* gene.
Knockout the region may affect the regulation of *Gm24607* gene.
- The *Fbxl4* gene is located on the Chr4. 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)

Fbxl4 F-box and leucine-rich repeat protein 4 [*Mus musculus* (house mouse)]

Gene ID: 269514, updated on 12-Aug-2019

Summary

Official Symbol	Fbxl4 provided by MGI
Official Full Name	F-box and leucine-rich repeat protein 4 provided by MGI
Primary source	MGI:MGI:2140367
See related	Ensembl:ENSMUSG00000040410
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	FBL4; FBL5; AI836810
Expression	Ubiquitous expression in subcutaneous fat pad adult (RPKM 7.6), genital fat pad adult (RPKM 6.8) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

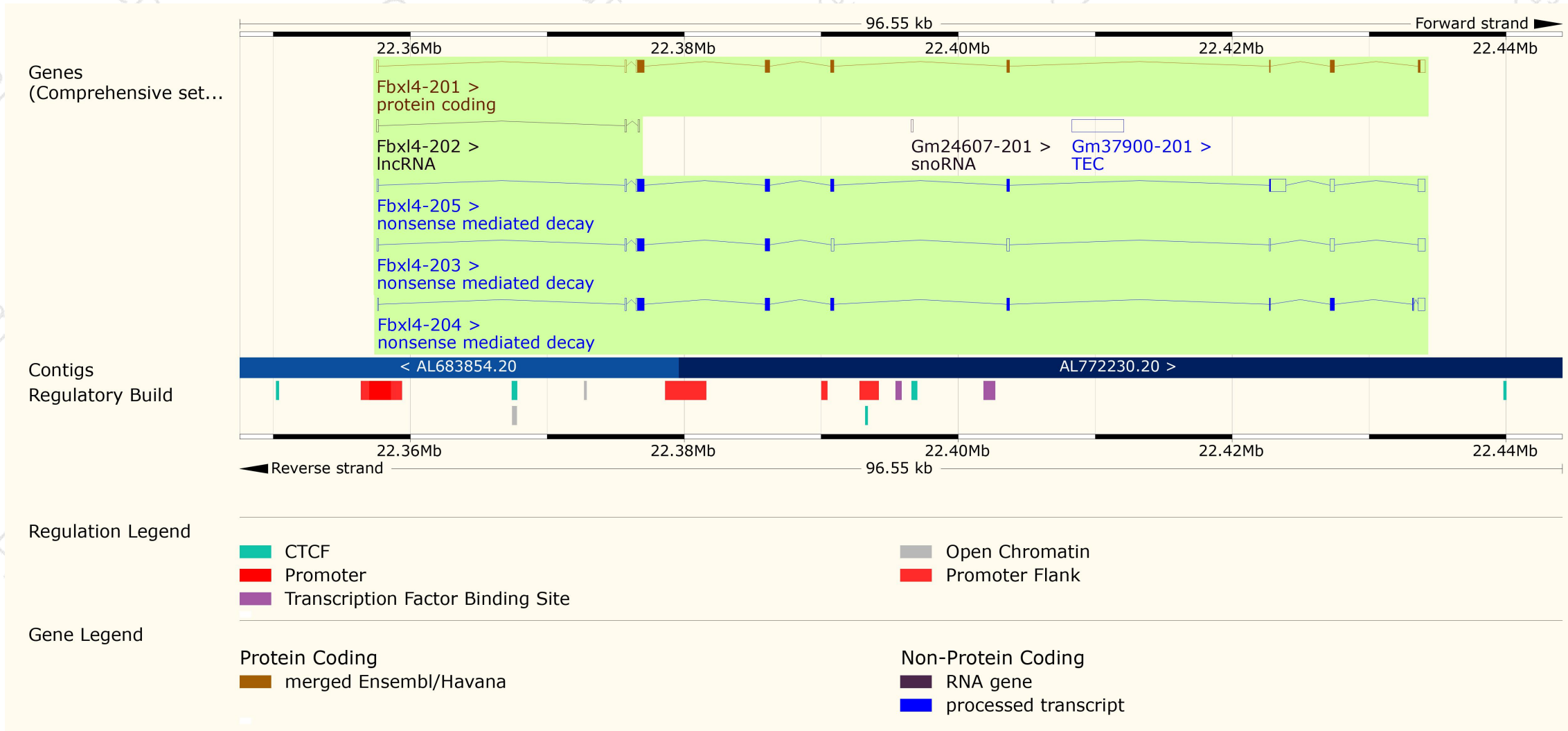
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Fbxl4-201	ENSMUST00000039234.9	2546	621aa	Protein coding	CCDS18004	Q8BH70	TSL:1 GENCODE basic APPRIS P1
Fbxl4-205	ENSMUST00000185029.7	3641	466aa	Nonsense mediated decay	-	V9GWT8	TSL:1
Fbxl4-204	ENSMUST00000184582.1	2570	582aa	Nonsense mediated decay	-	V9GXH8	TSL:1
Fbxl4-203	ENSMUST00000184455.7	2478	290aa	Nonsense mediated decay	-	V9GWU9	TSL:1
Fbxl4-202	ENSMUST00000131972.7	342	No protein	Processed transcript	-	-	TSL:2

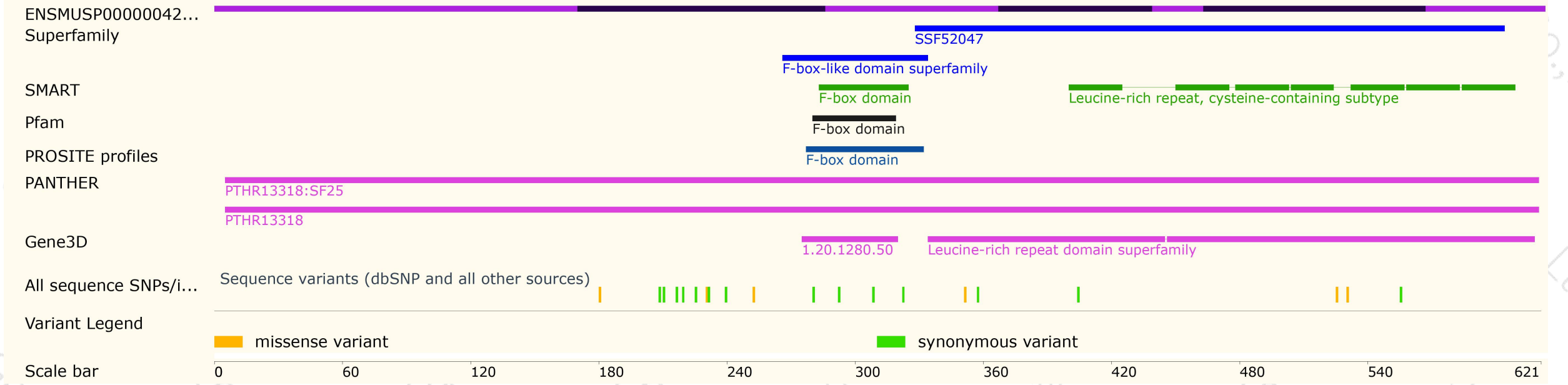
The strategy is based on the design of *Fbxl4-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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