

Fbxo22 Cas9-CKO Strategy

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Project Overview

Project Name

Fbxo22

Project type

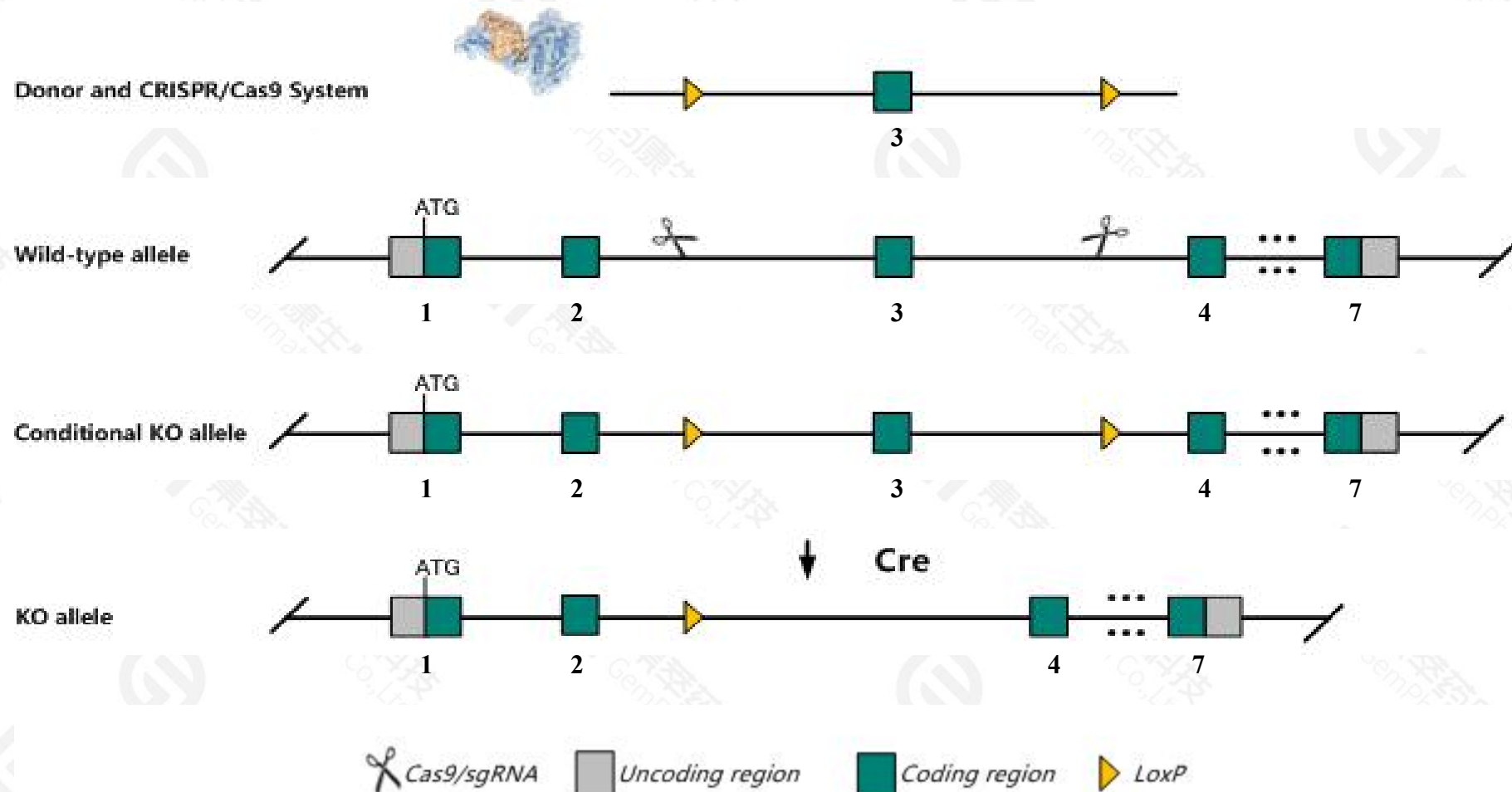
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fbxo22* gene. The schematic diagram is as follows:



Technical routes

- The *Fbxo22* gene has 5 transcripts. According to the structure of *Fbxo22* gene, exon3 of *Fbxo22-201*(ENSMUST00000034859.15) transcript is recommended as the knockout region. The region contains 88bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Fbxo22* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor 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 *Fbxo22* gene is located on the Chr9. 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)

Fbxo22 F-box protein 22 [Mus musculus (house mouse)]

Gene ID: 71999, updated on 3-Oct-2020

Summary



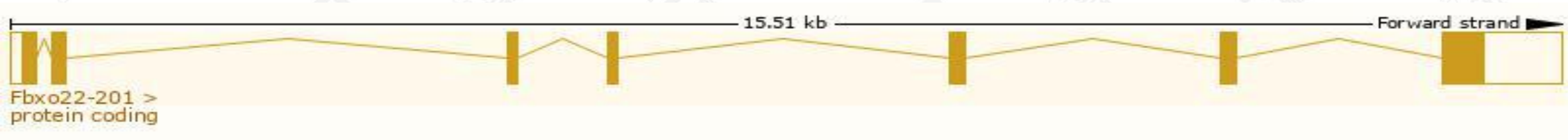
Official Symbol	Fbxo22 provided by MGI
Official Full Name	F-box protein 22 provided by MGI
Primary source	MGI:MGI:1926014
See related	Ensembl:ENSMUSG00000032309
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	0610033L19Rik, 1600016C16Rik
Expression	Ubiquitous expression in placenta adult (RPKM 12.5), CNS E11.5 (RPKM 7.6) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

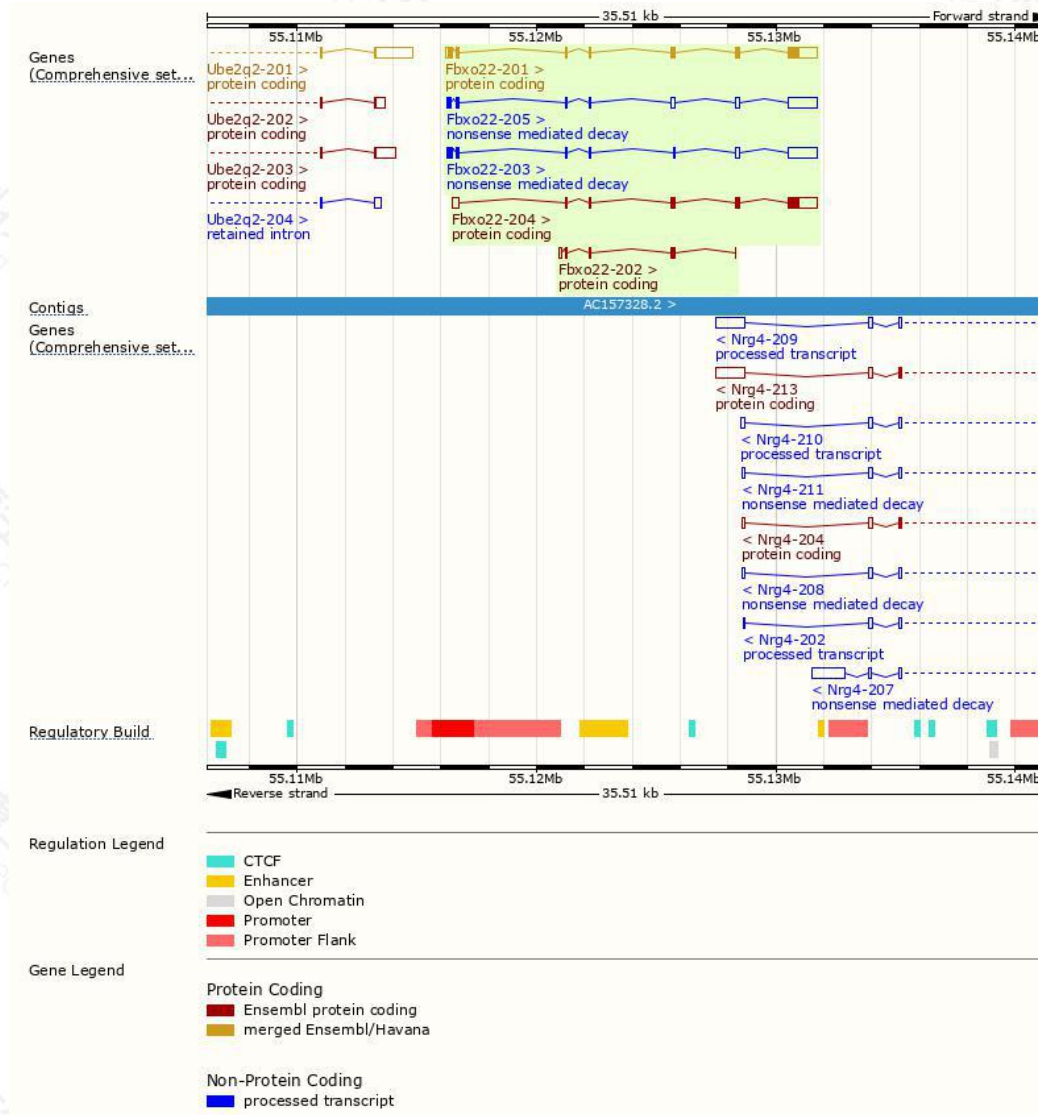
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Fbxo22-201	ENSMUST00000034859.15	2112	402aa	Protein coding	CCDS23202		TSL:1 , GENCODE basic , APPRIS P1 ,
Fbxo22-204	ENSMUST00000146201.8	2009	299aa	Protein coding	-		TSL:1 , GENCODE basic ,
Fbxo22-202	ENSMUST00000133795.2	476	108aa	Protein coding	-		CDS 3' incomplete , TSL:5 ,
Fbxo22-205	ENSMUST00000153970.8	1979	41aa	Nonsense mediated decay	-		TSL:1 ,
Fbxo22-203	ENSMUST00000140375.8	1921	166aa	Nonsense mediated decay	-		TSL:5 ,

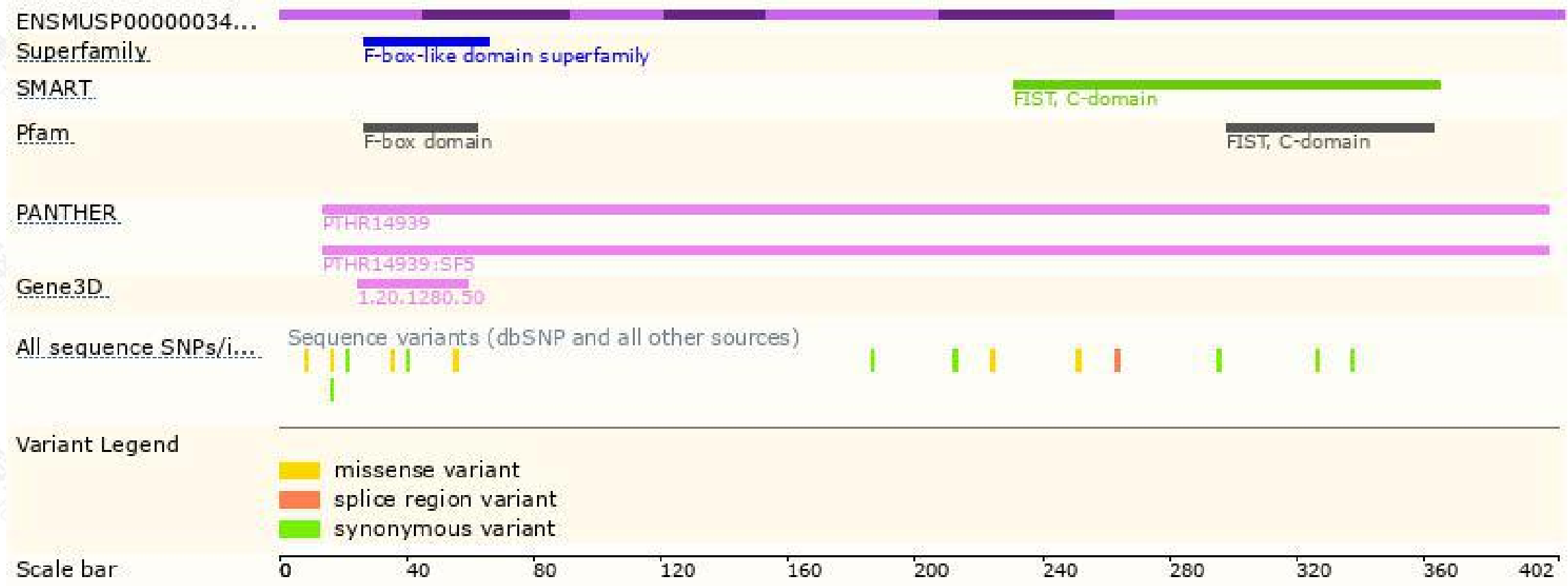
The strategy is based on the design of *Fbxo22-201* transcript,the transcription is shown below:



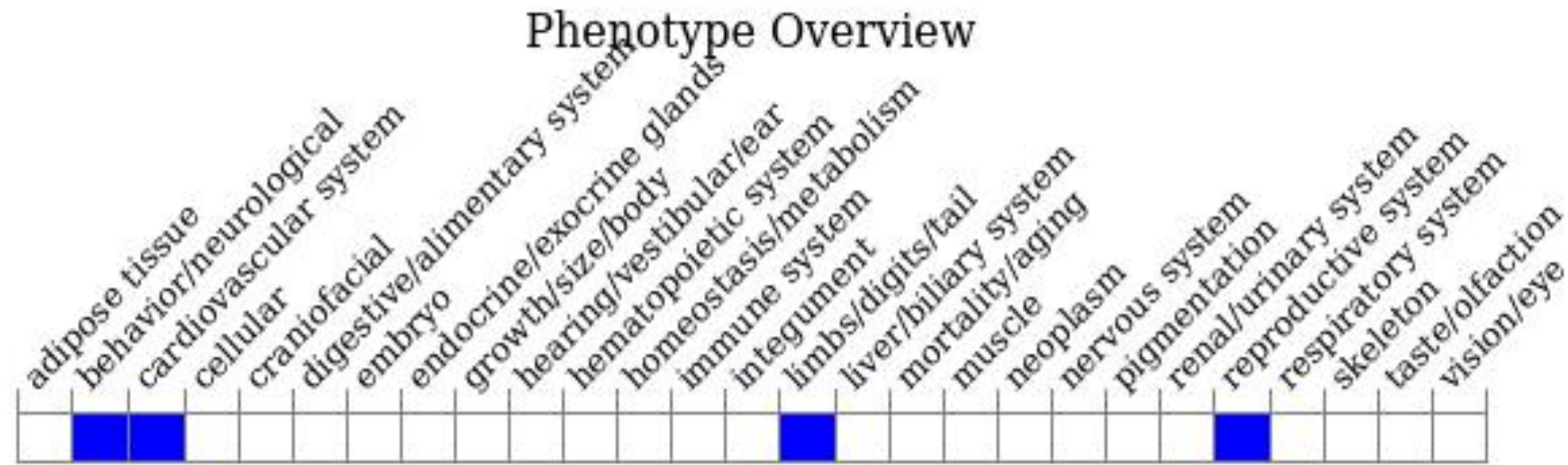
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



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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