

Fbxl20 Cas9-KO Strategy

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Reviewer:

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Design Date:

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Project Overview

Project Name

Fbxl20

Project type

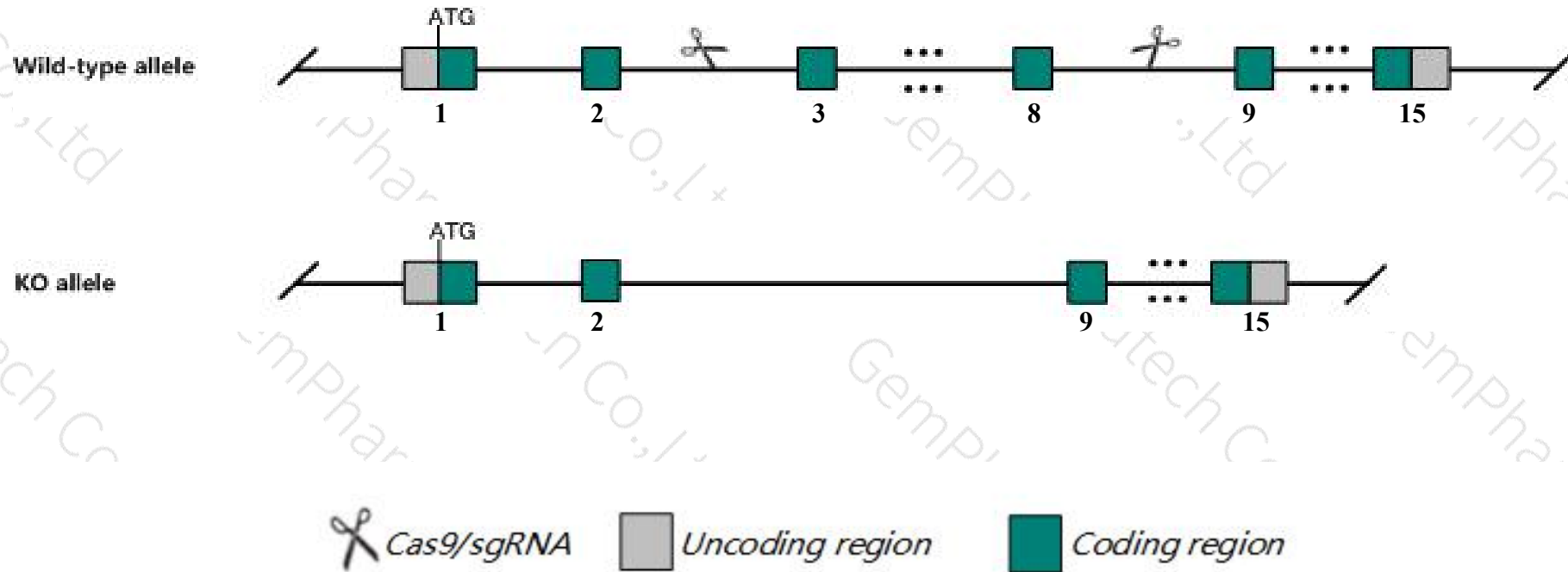
Cas9-KO

Strain background

C57BL/6J

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fbxl20* gene. The schematic diagram is as follows:



- The *Fbxl20* gene has 7 transcripts. According to the structure of *Fbxl20* gene, exon3-exon8 of *Fbxl20-201* (ENSMUST00000103143.9) transcript is recommended as the knockout region. The region contains 517bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Fbxl20* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6J 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/6J mice.

- According to the existing MGI data, Mice homozygous for a null allele exhibit some embryonic lethality, shortened lifespans, decreased body size and altered CNS synaptic transmission.
- Transcript *Fbxl20-205* may not be affected.
- The *Fbxl20* gene is located on the Chr11. 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Fbxl20 F-box and leucine-rich repeat protein 20 [*Mus musculus* (house mouse)]

Gene ID: 72194, updated on 12-Aug-2019

Summary



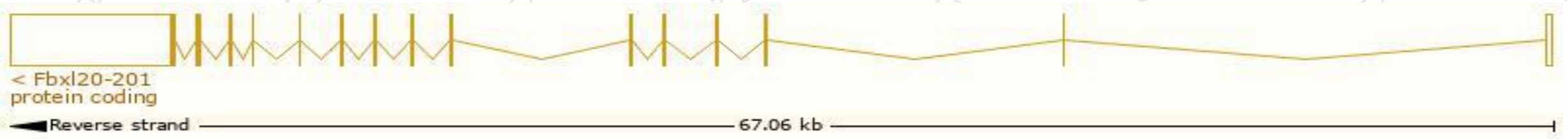
Official Symbol	Fbxl20 provided by MGI
Official Full Name	F-box and leucine-rich repeat protein 20 provided by MGI
Primary source	MGI:MGI:1919444
See related	Ensembl:ENSMUSG00000020883
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Scr; Fbl2; C86145; AI849362; AL117906; mKIAA4147; 2610511F20Rik; 4632423N09Rik
Expression	Ubiquitous expression in adrenal adult (RPKM 14.8), thymus adult (RPKM 11.5) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

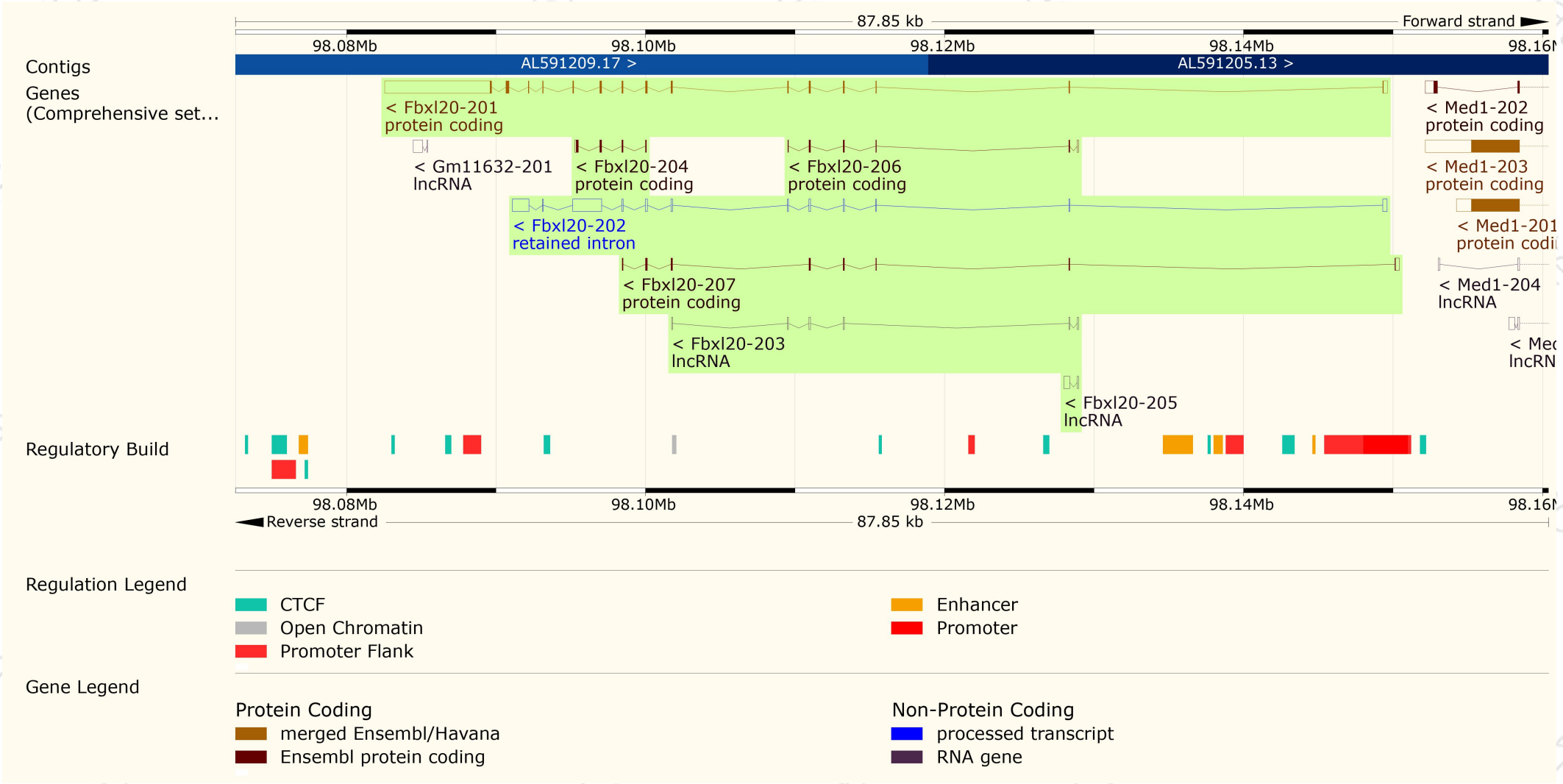
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Fbxl20-201	ENSMUST00000103143.9	8601	436aa	Protein coding	CCDS25339	Q9CZV8	TSL:1 GENCODE basic APPRIS P1
Fbxl20-207	ENSMUST00000150378.7	871	210aa	Protein coding	-	A2A536	CDS 3' incomplete TSL:5
Fbxl20-204	ENSMUST00000147971.1	522	142aa	Protein coding	-	A2A550	CDS 5' incomplete TSL:2
Fbxl20-206	ENSMUST00000149327.2	428	110aa	Protein coding	-	A2A533	CDS 3' incomplete TSL:2
Fbxl20-205	ENSMUST00000148473.1	474	No protein	Processed transcript	-	-	TSL:2
Fbxl20-203	ENSMUST00000146399.7	455	No protein	Processed transcript	-	-	TSL:3
Fbxl20-202	ENSMUST00000135969.7	4028	No protein	Retained intron	-	-	TSL:2

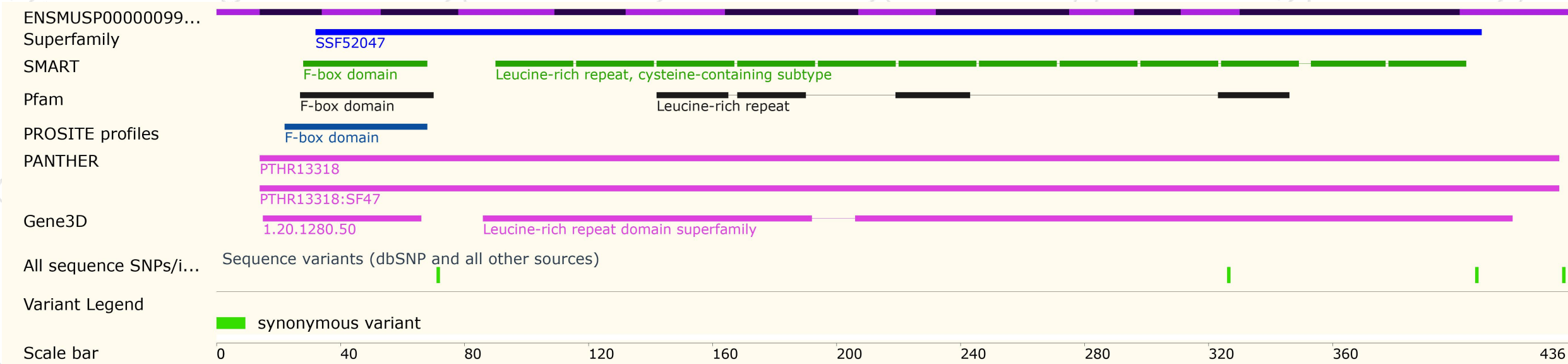
The strategy is based on the design of *Fbxl20-201* transcript,The transcription is shown below



Genomic location distribution

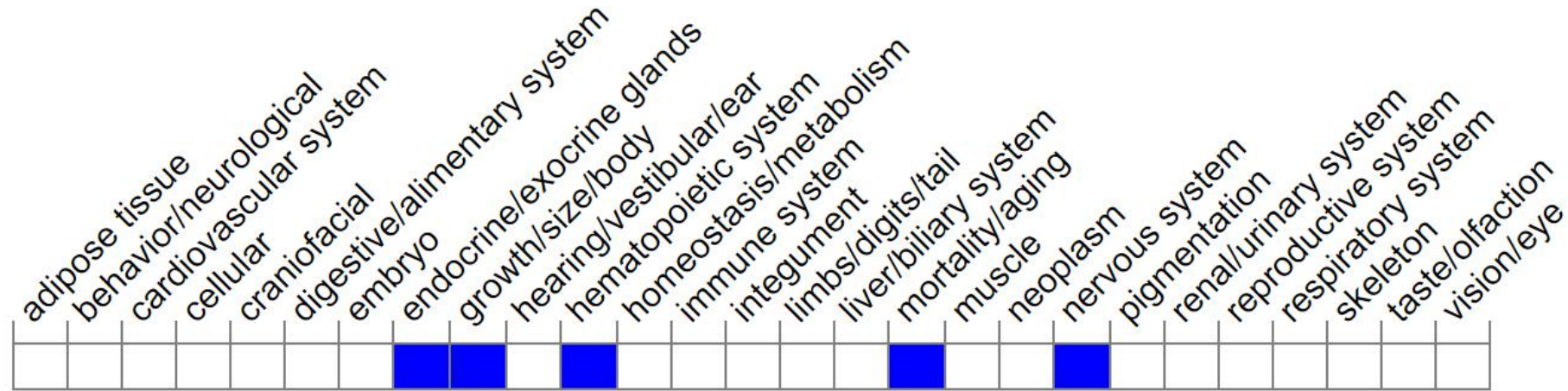


Protein domain



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/>).

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

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