

***Fbxo4* Cas9-KO Strategy**

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Project Overview

Project Name

Fbxo4

Project type

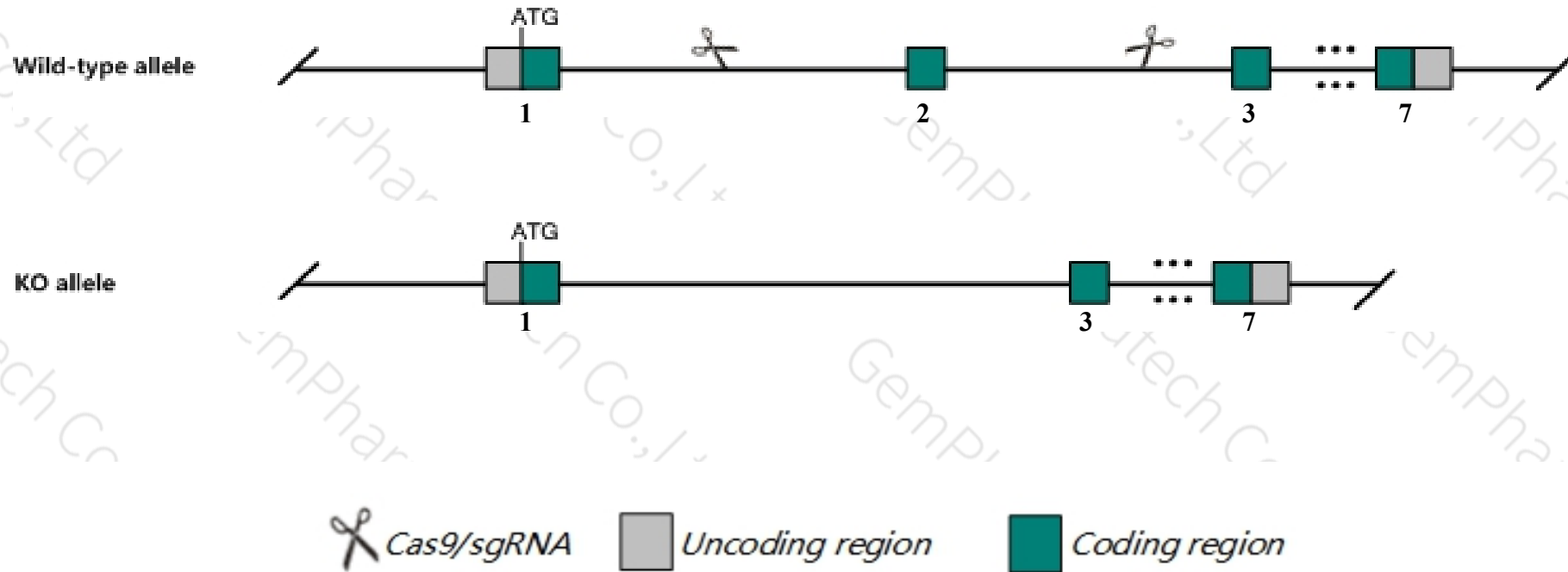
Cas9-KO

Strain background

C57BL/6J

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fbxo4* gene. The schematic diagram is as follows:



- The *Fbxo4* gene has 3 transcripts. According to the structure of *Fbxo4* gene, exon2 of *Fbxo4-201* (ENSMUST00000022791.8) transcript is recommended as the knockout region. The region contains 236bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Fbxo4* 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 or heterozygous for a knock-out allele exhibit increased tumor incidence of lymphoblastic lineage and premature death. Mice homozygous for a different knock-out allele are indistinguishable from wild-type mice.
- The *Fbxo4* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Fbxo4 F-box protein 4 [Mus musculus (house mouse)]

Gene ID: 106052, updated on 31-Jan-2019

Summary



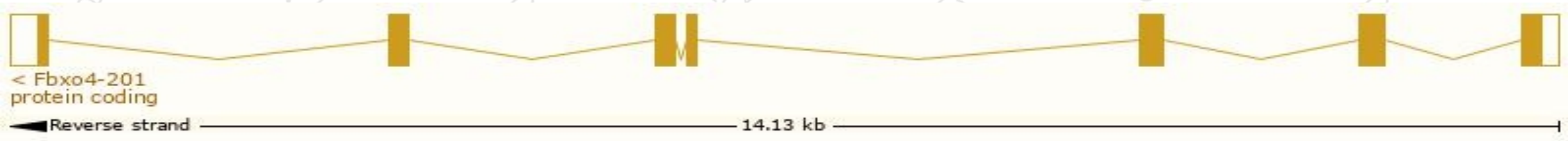
Official Symbol	Fbxo4 provided by MGI
Official Full Name	F-box protein 4 provided by MGI
Primary source	MGI:MGI:2146220
See related	Ensembl:ENSMUSG00000022184
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1700096C12Rik, AI851261, AW494535, Fbx4
Expression	Ubiquitous expression in genital fat pad adult (RPKM 4.2), bladder adult (RPKM 3.8) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

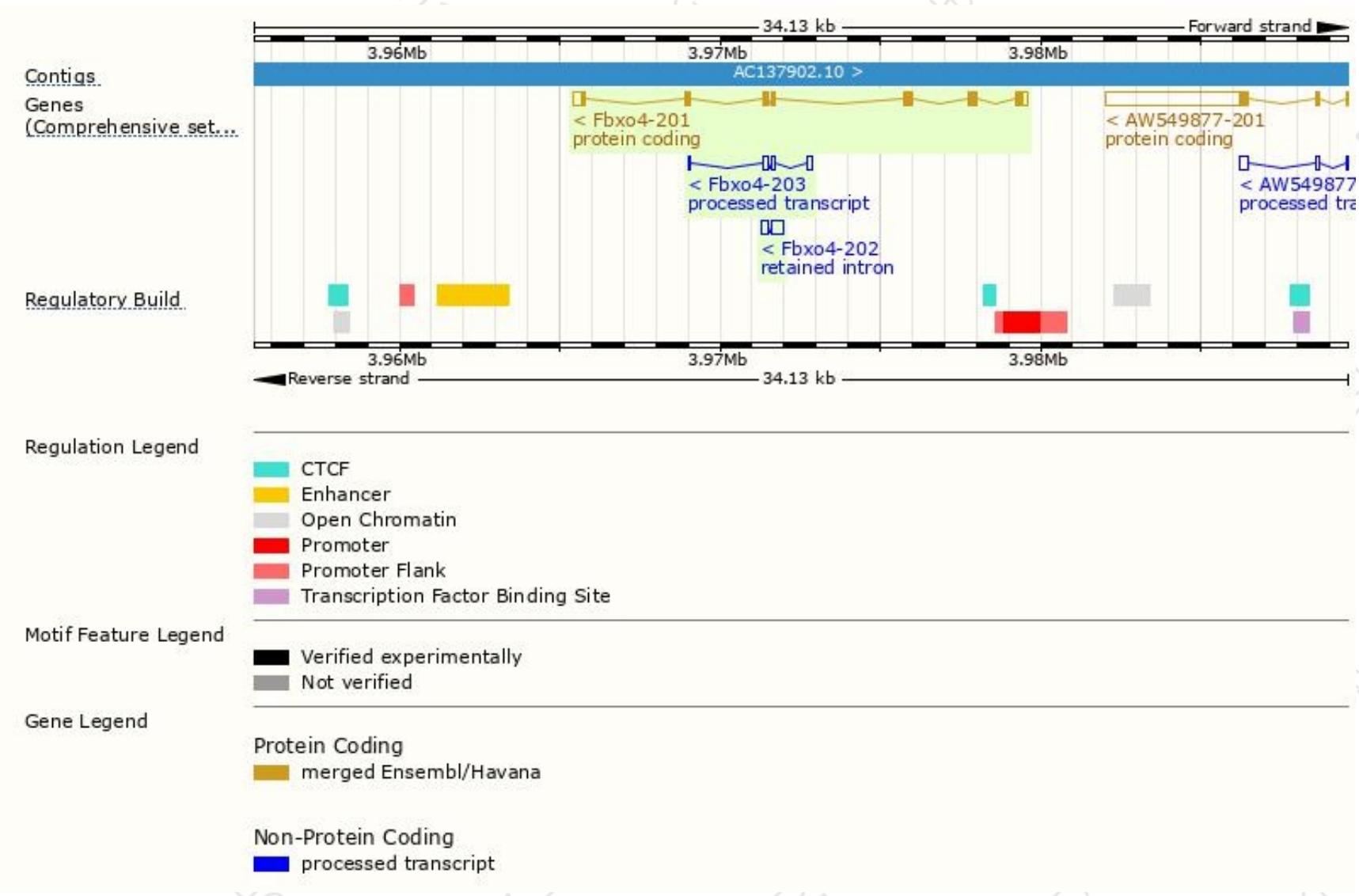
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Fbxo4-201	ENSMUST00000022791.8	1565	385aa	Protein coding	CCDS27359	Q8CHQ0	TSL:1 GENCODE basic APPRIS P1
Fbxo4-203	ENSMUST00000148817.1	448	No protein	Processed transcript	-	-	TSL:3
Fbxo4-202	ENSMUST00000148169.1	583	No protein	Retained intron	-	-	TSL:2

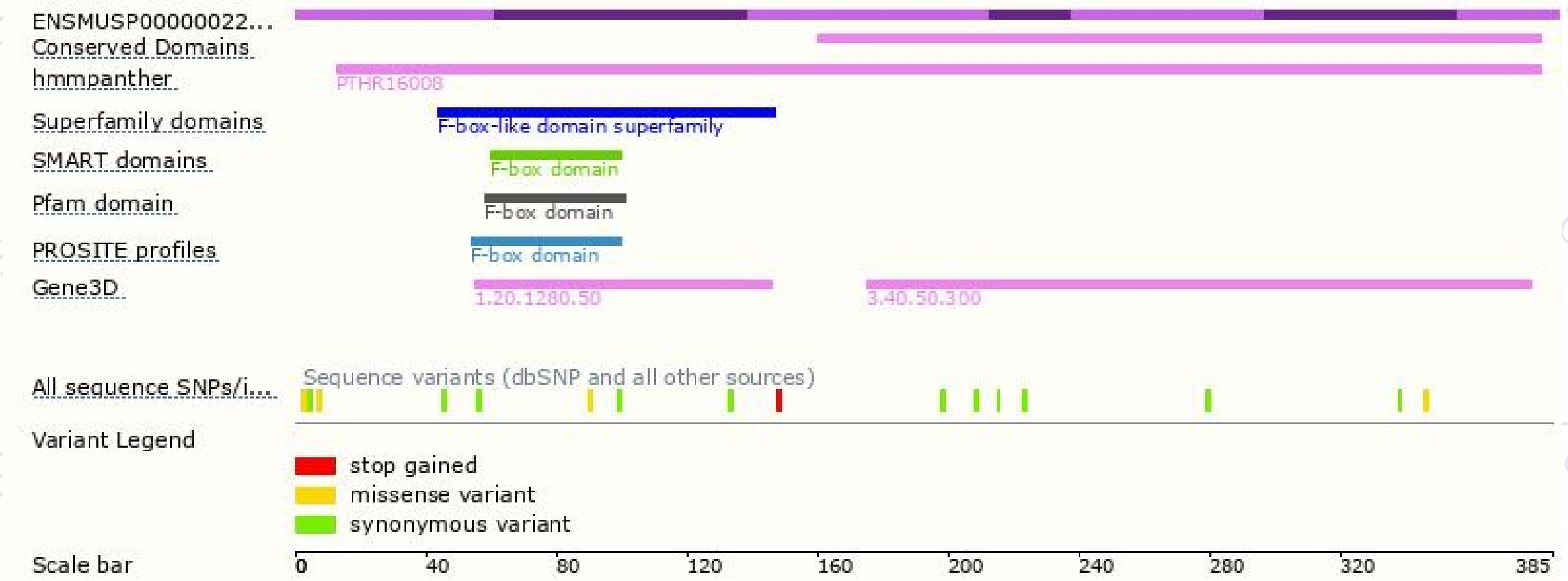
The strategy is based on the design of *Fbxo4-201* transcript,The transcription is shown below



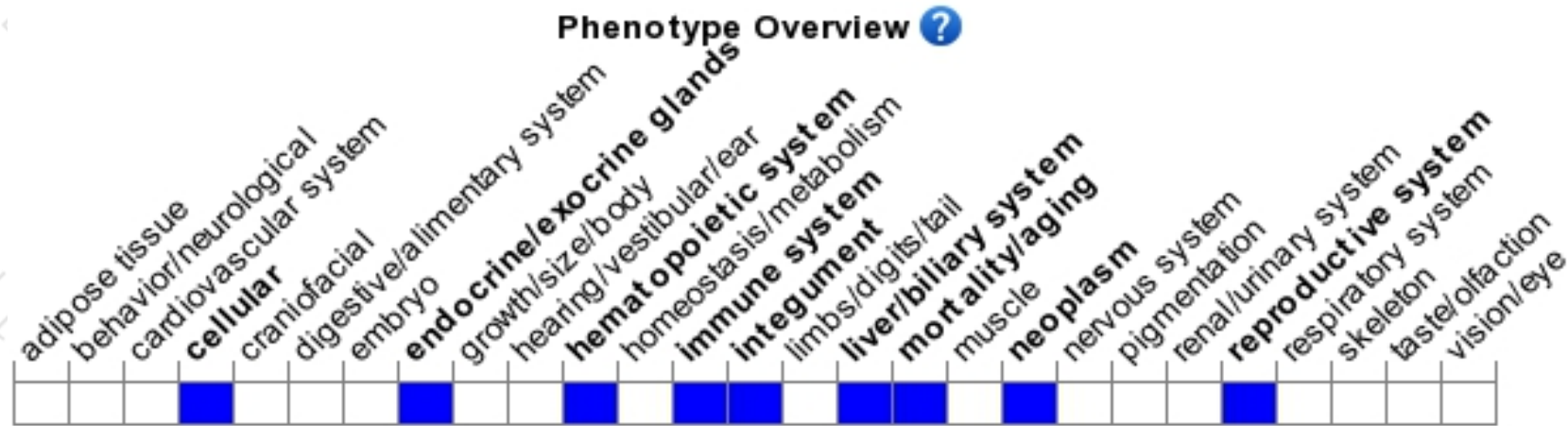
Genomic location distribution



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/>).

According to the existing MGI data, Mice homozygous or heterozygous for a knock-out allele exhibit increased tumor incidence of lymphoblastic lineage and premature death. Mice homozygous for a different knock-out allele are indistinguishable from wild-type mice.

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

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