Fbxo9 Cas9-CKO Strategy

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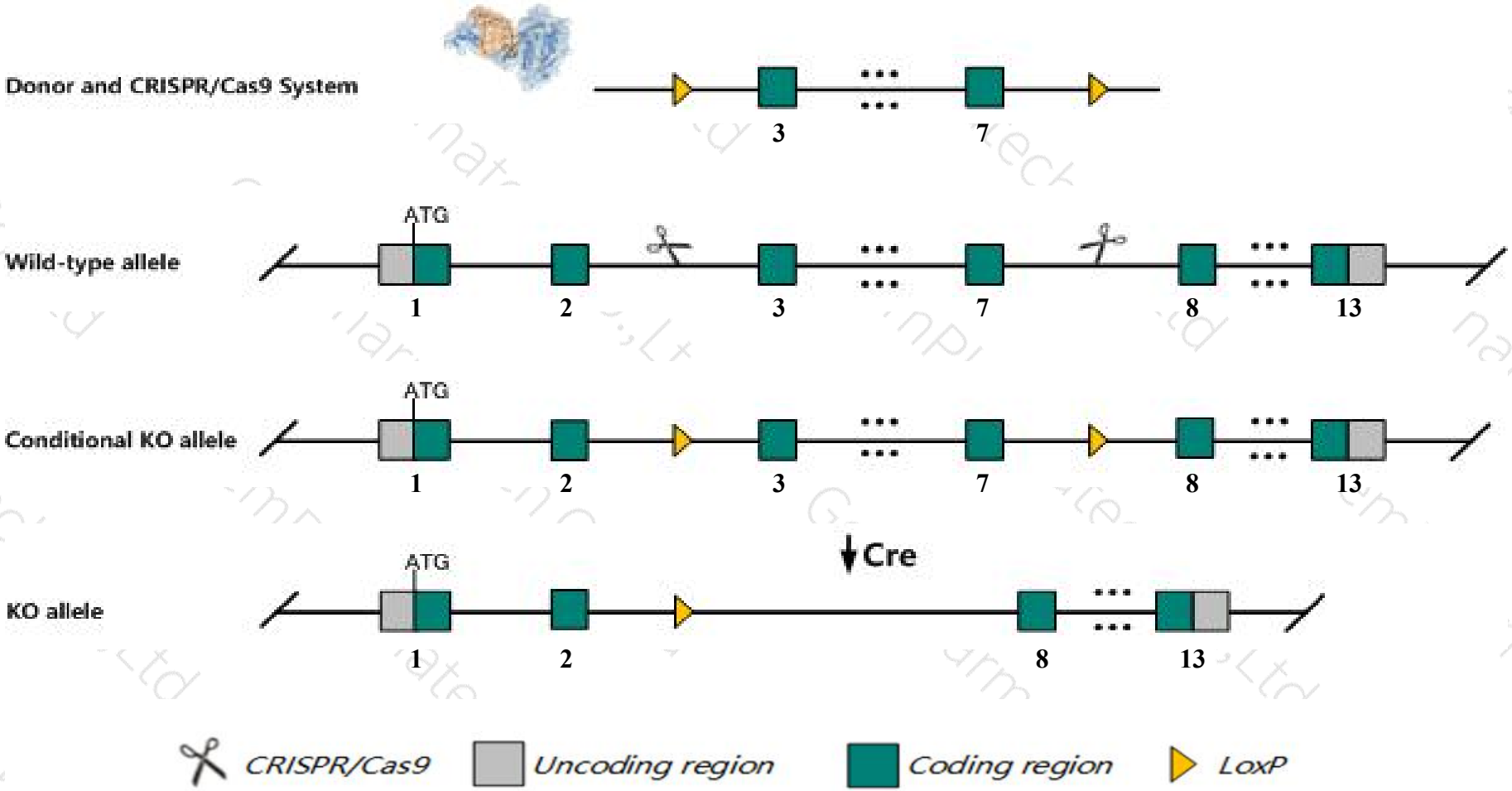
Project Overview

Project Name	***Fbxo9***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fbxo9* gene. The schematic diagram is as follows:



Technical routes

- The *Fbxo9* gene has 7 transcripts. According to the structure of *Fbxo9* gene, exon3-exon7 of *Fbxo9-201* (ENSMUST00000001402.13) transcript is recommended as the knockout region.The region contains 563bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Fbxo9* gene. The brief process is as follows:gRNA was transcribed in vitro, donor was constructed.Cas9, gRNA 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 *Fbxo9* 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）

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Fbxo9 f-box protein 9 [Mus musculus (house mouse)]

Gene ID: 71538, updated on 3-Feb-2019

Summary

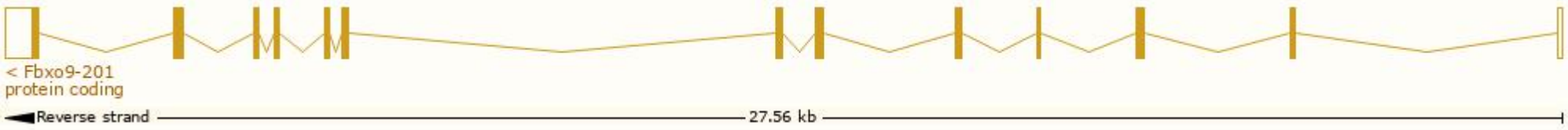
Official Symbol	Fbxo9 provided by MGI
Official Full Name	f-box protein 9 provided by MGI
Primary source	MGI:MGI:1918788
See related	Ensembl:ENSMUSG00000001366
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	9030401P18Rik, AA986398
Expression	Ubiquitous expression in cerebellum adult (RPKM 35.4), adrenal adult (RPKM 26.9) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

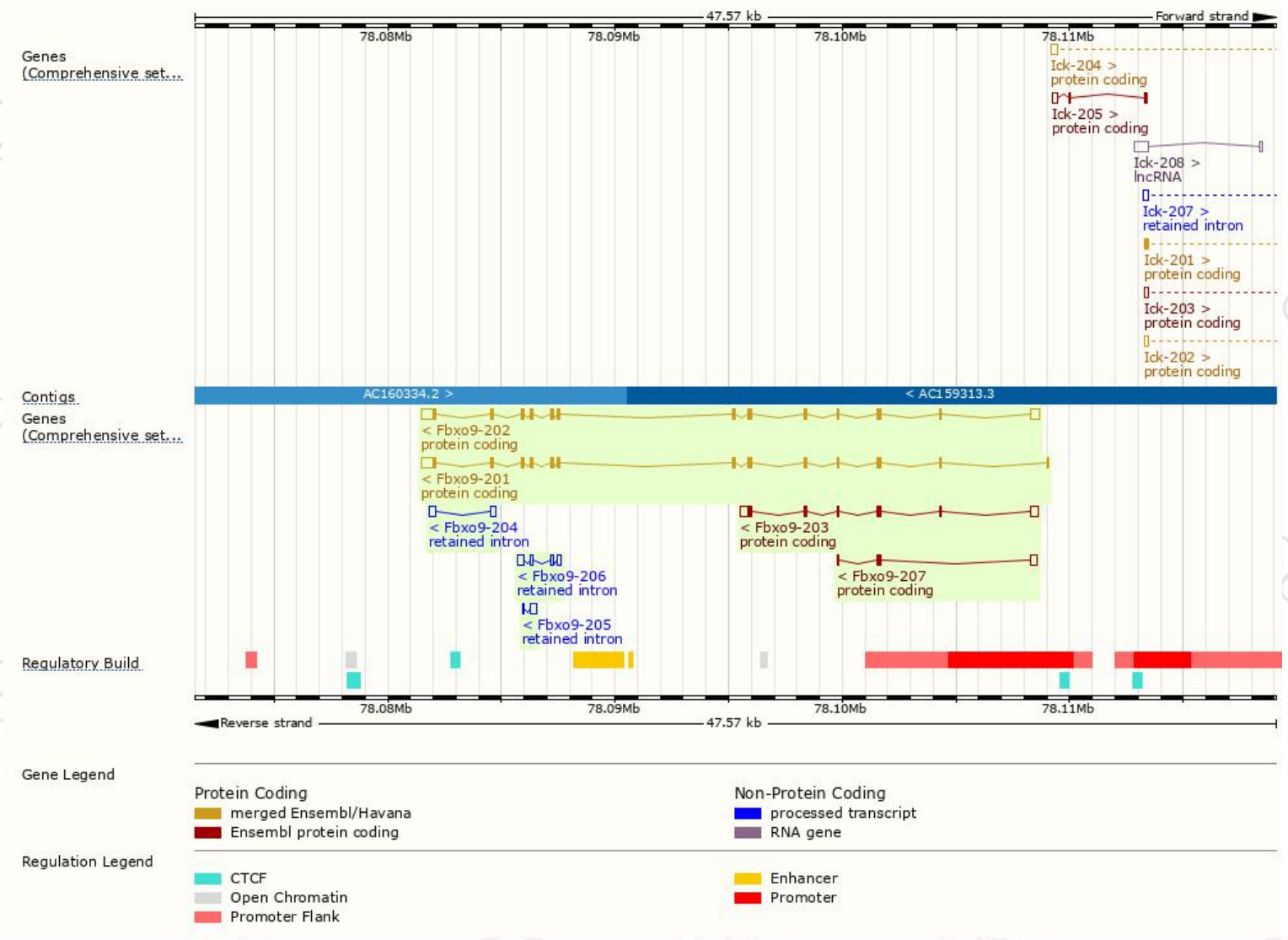
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Fbxo9-202	ENSMUST00000085311.12	2155	436aa	Protein coding	CCDS52863	Q8BK06	TSL:1 GENCODE basic APPRIS ALT1
Fbxo9-201	ENSMUST00000001402.13	1850	437aa	Protein coding	CCDS52864	Q8BK06	TSL:1 GENCODE basic APPRIS P4
Fbxo9-203	ENSMUST00000159099.7	1201	194aa	Protein coding	-	Q8BK06	TSL:1 GENCODE basic
Fbxo9-207	ENSMUST00000162625.1	499	68aa	Protein coding	-	E0CYX8	CDS 3' incomplete TSL:5
Fbxo9-206	ENSMUST00000162451.1	657	No protein	Retained intron	-	-	TSL:2
Fbxo9-204	ENSMUST00000159453.1	477	No protein	Retained intron	-	-	TSL:2
Fbxo9-205	ENSMUST00000162310.1	370	No protein	Retained intron	-	-	TSL:2

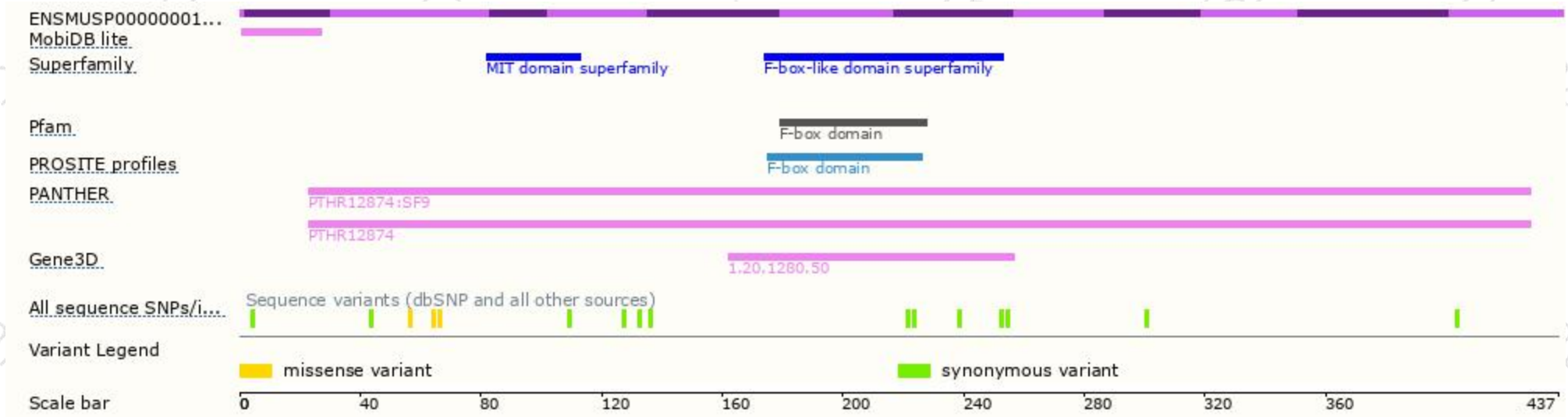
The strategy is based on the design of *Fbxo9-201* transcript,The transcription is shown below



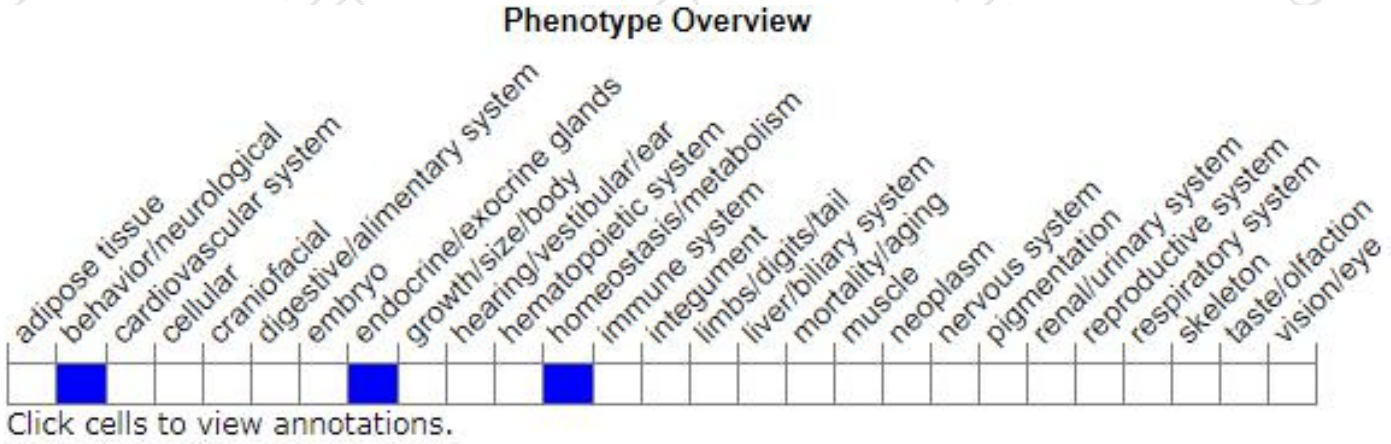
Genomic location distribution



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/).

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

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