Fbxl16 Cas9-CKO Strategy

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Design Date	**2018-6-11**

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Project Overview

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Project Name	***Fbxl16***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

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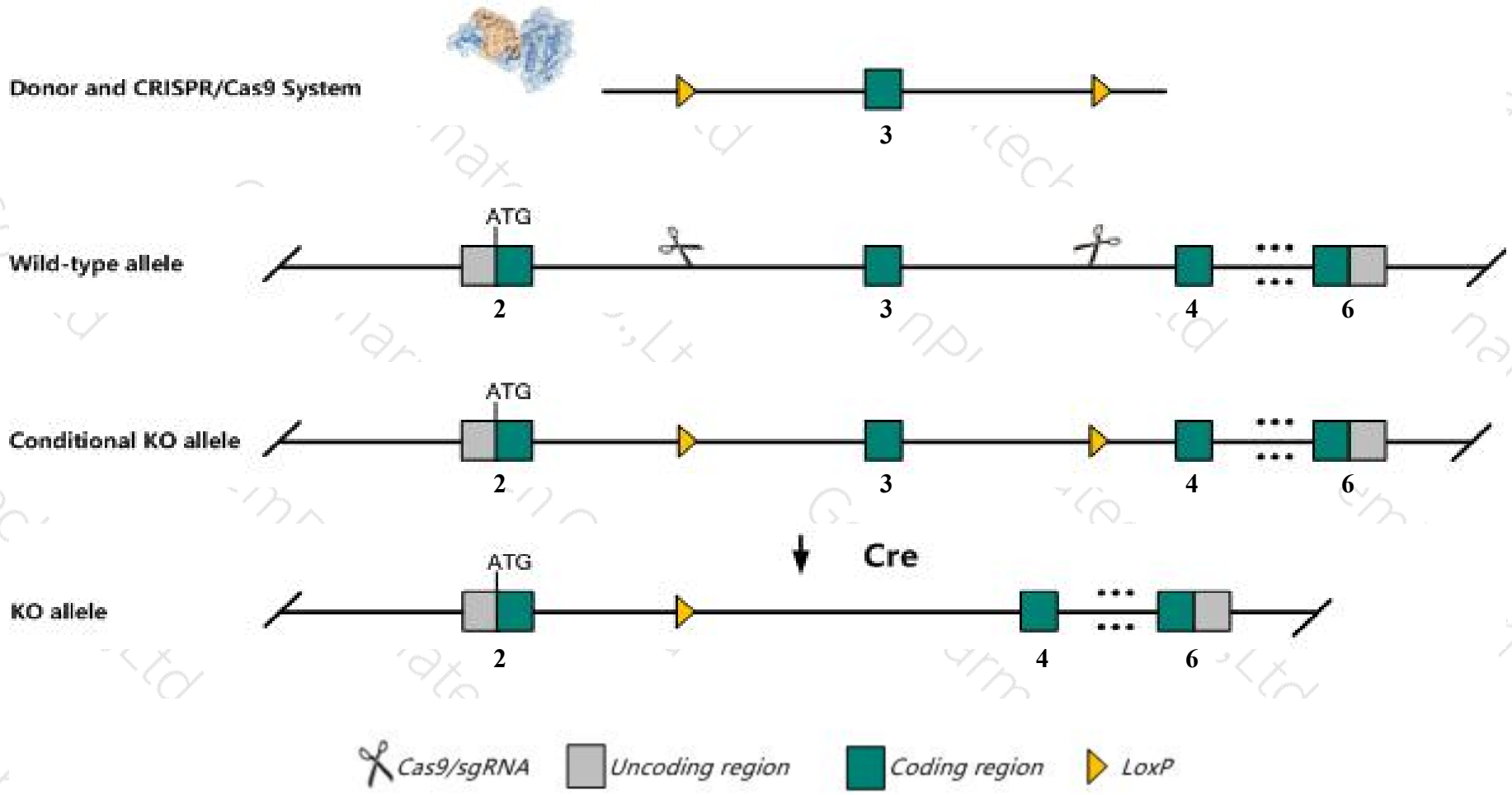
This model will use CRISPR/Cas9 technology to edit the *Fbxl16* gene. The schematic diagram is as follows:



Technical routes

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- The *Fbxl16* gene has 3 transcripts. According to the structure of *Fbxl16* gene, exon3 of *Fbxl16-201* (ENSMUST00000045692.8) transcript is recommended as the knockout region.The region contains 509bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Fbxl16* gene. The brief process is as follows:sgRNA was transcribed in vitro, donor vector 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.

Notice

- The KO region is close to 5'UTR region of the *Wdr24* gene.Knockout the region may affect the regulatory function of *Wdr24* gene.

- The *Fbxl16* gene is located on the Chr17. 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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Fbxl16 F-box and leucine-rich repeat protein 16 [Mus musculus (house mouse)]

Gene ID: 214931, updated on 3-Feb-2019

Summary

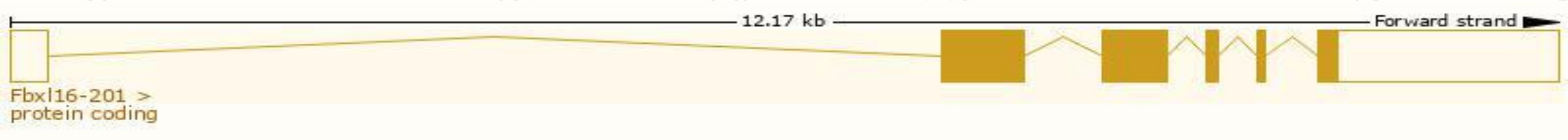
Official Symbol	Fbxl16 provided by MGI
Official Full Name	F-box and leucine-rich repeat protein 16 provided by MGI
Primary source	MGI:MGI:2448488
See related	Ensembl:ENSMUSG00000025738
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	BC042620, Scirr1
Expression	Biased expression in cortex adult (RPKM 168.0), frontal lobe adult (RPKM 157.2) and 5 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

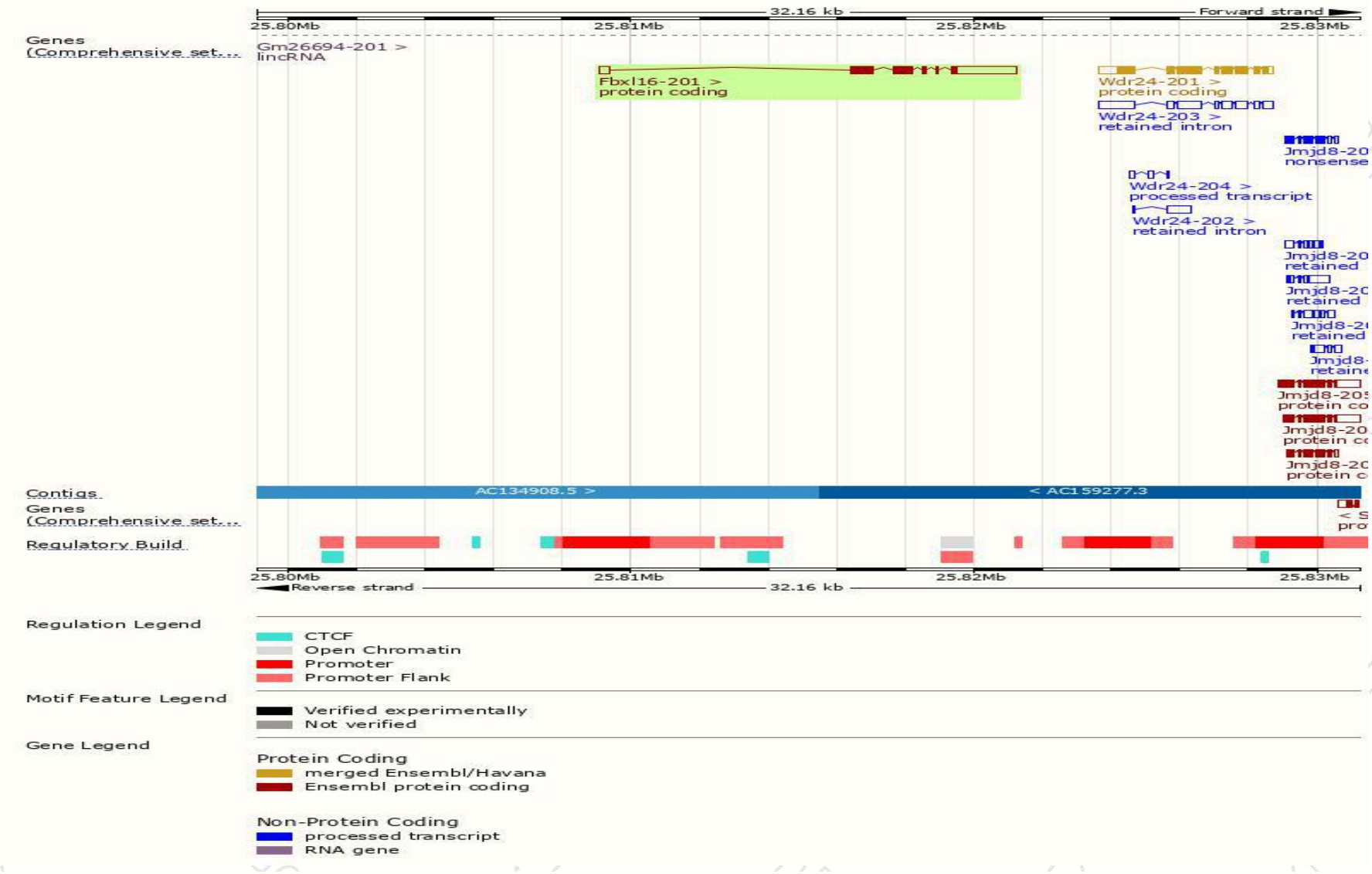
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Fbxl16-201	ENSMUST00000045692.8	3489	479aa	Protein coding	CCDS50036	A2RT62 B2RPY3	TSL:5 GENCODE basic APPRIS P1
Fbxl16-203	ENSMUST00000236165.1	2757	479aa	Protein coding	CCDS50036	B2RPY3	GENCODE basic APPRIS P1
Fbxl16-202	ENSMUST00000235694.1	387	122aa	Protein coding	-	-	CDS 5' incomplete

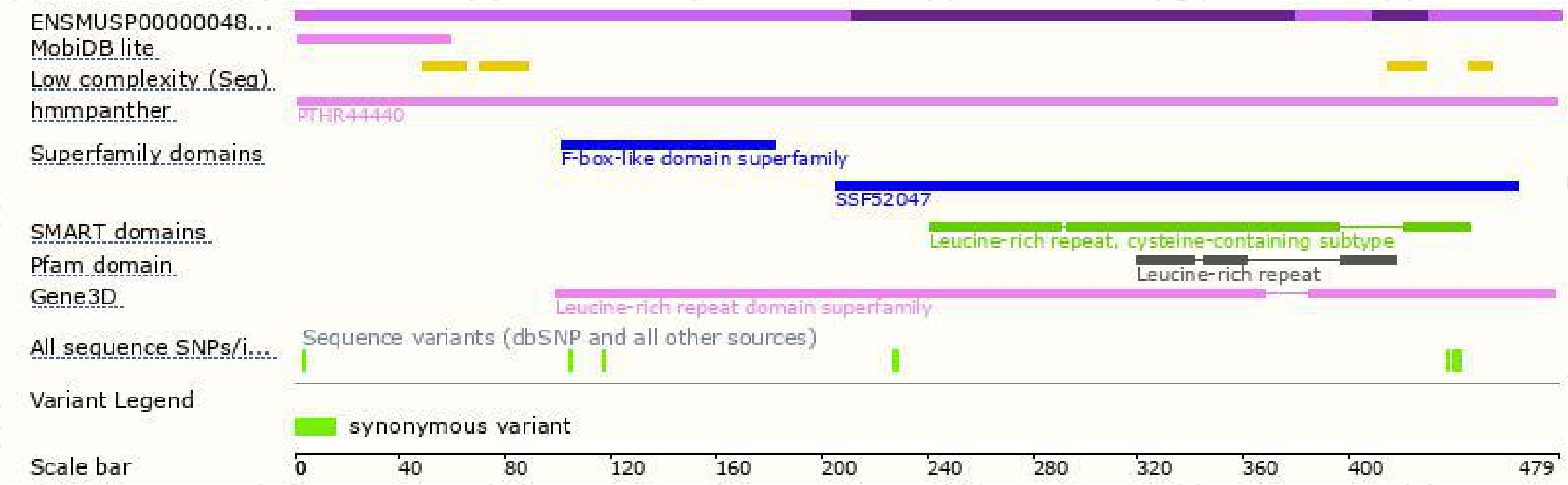
The strategy is based on the design of *Fbxl16-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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