

***Fbxw9* Cas9-CKO Strategy**

Designer

Jing Jin

Reviewer

Yang Zeng

Design Date

2018-6-11

Project Overview

Project Name

Fbxw9

Project type

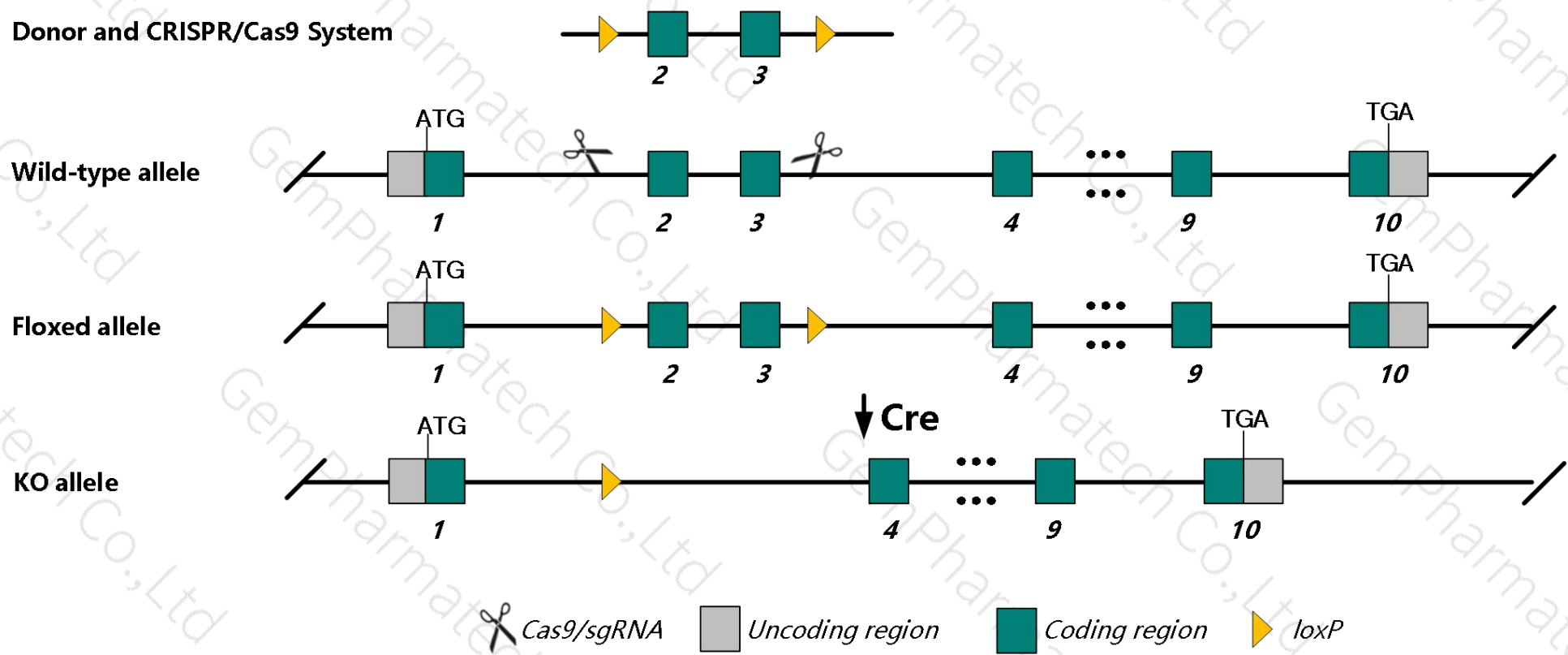
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fbxw9* gene. The schematic diagram is as follows:



- The *Fbxw9* gene has 9 transcripts. According to the structure of *Fbxw9* gene, exon2-exon3 of *Fbxw9-201* (ENSMUST00000095220.3) transcript is recommended as the knockout region. The region contains 269bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Fbxw9* 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.

- The KO region overlaps with the *Mir7070* gene. Knockout the region may affect the function of *Mir7070* gene.
The KO region is close to 5'UTR region of the *A230103J11Rik* gene. Knockout the region may affect the regulatory function of *A230103J11Rik* gene. Transcript *Stambp-202/204/206/208* may not be affected.
- The *Fbxw9* gene is located on the Chr8. 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)

Fbxw9 F-box and WD-40 domain protein 9 [*Mus musculus* (house mouse)]

Gene ID: 68628, updated on 12-Aug-2019

Summary

Official Symbol	Fbxw9 provided by MGI
Official Full Name	F-box and WD-40 domain protein 9 provided by MGI
Primary source	MGI:MGI:1915878
See related	Ensembl:ENSMUSG00000008167
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	Fbw9; 1110017H11Rik
Expression	Ubiquitous expression in testis adult (RPKM 27.8), ovary adult (RPKM 26.8) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

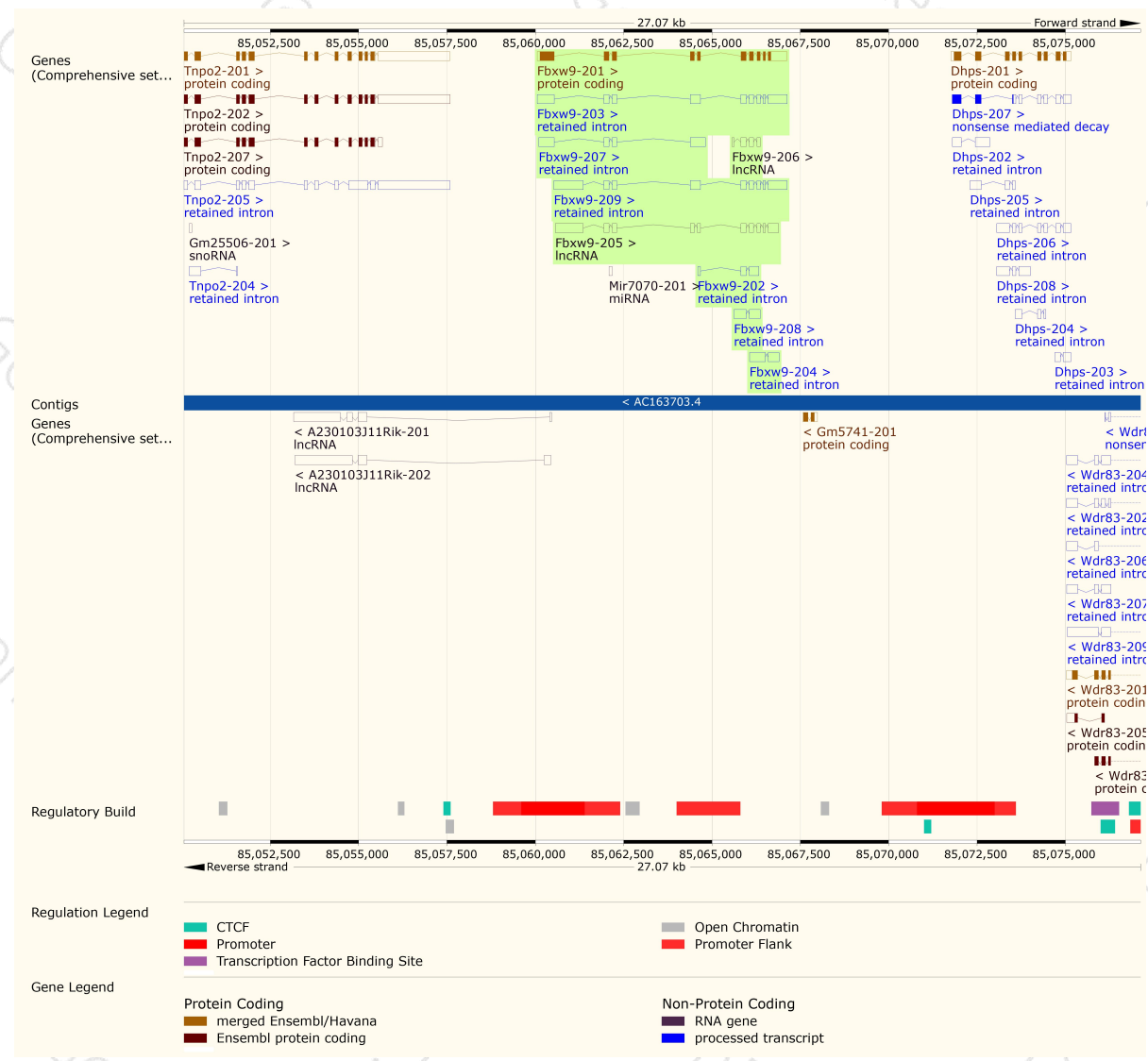
The gene has 9 transcripts,all transcripts are shown below:

Name ▲	Transcript ID ▲	bp ▲	Protein ▲	Translation ID ▲	Biotype ▲	CCDS ▲	UniProt ▲	Flags ▲
Fbxw9-201	ENSMUST00000095220.3	1907	458aa	ENSMUSP00000092845.3	Protein coding	CCDS40418	F8VPX2	TSL:1 Gencode basic APPRIS P1
Fbxw9-202	ENSMUST00000125109.7	497	No protein	-	Retained intron	-	-	TSL:2
Fbxw9-203	ENSMUST00000139721.7	1993	No protein	-	Retained intron	-	-	TSL:1
Fbxw9-204	ENSMUST00000141183.1	757	No protein	-	Retained intron	-	-	TSL:2
Fbxw9-205	ENSMUST00000142036.7	1969	No protein	-	lncRNA	-	-	TSL:1
Fbxw9-206	ENSMUST00000143763.1	404	No protein	-	lncRNA	-	-	TSL:5
Fbxw9-207	ENSMUST00000145479.7	1138	No protein	-	Retained intron	-	-	TSL:2
Fbxw9-208	ENSMUST00000151962.1	657	No protein	-	Retained intron	-	-	TSL:2
Fbxw9-209	ENSMUST00000152884.7	2327	No protein	-	Retained intron	-	-	TSL:1

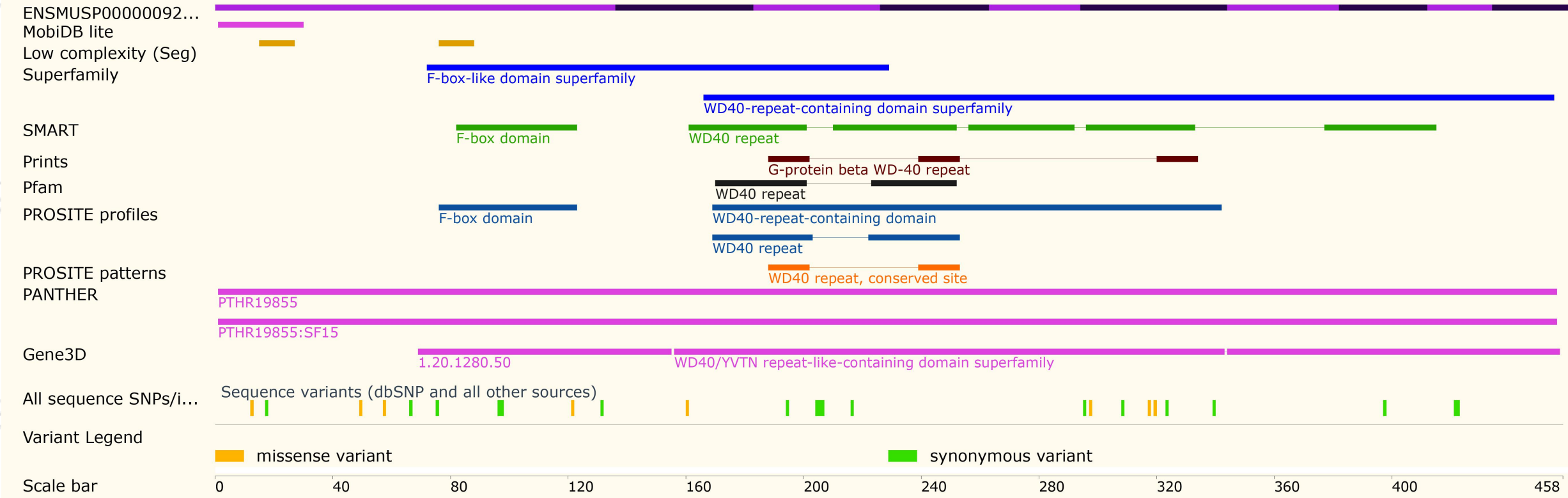
The strategy is based on the design of *Fbxw9-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

Tel: 025-5864 1534

