Efcab6 Cas9-KO Strategy

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Design Date: 2020-11-25

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Project Overview

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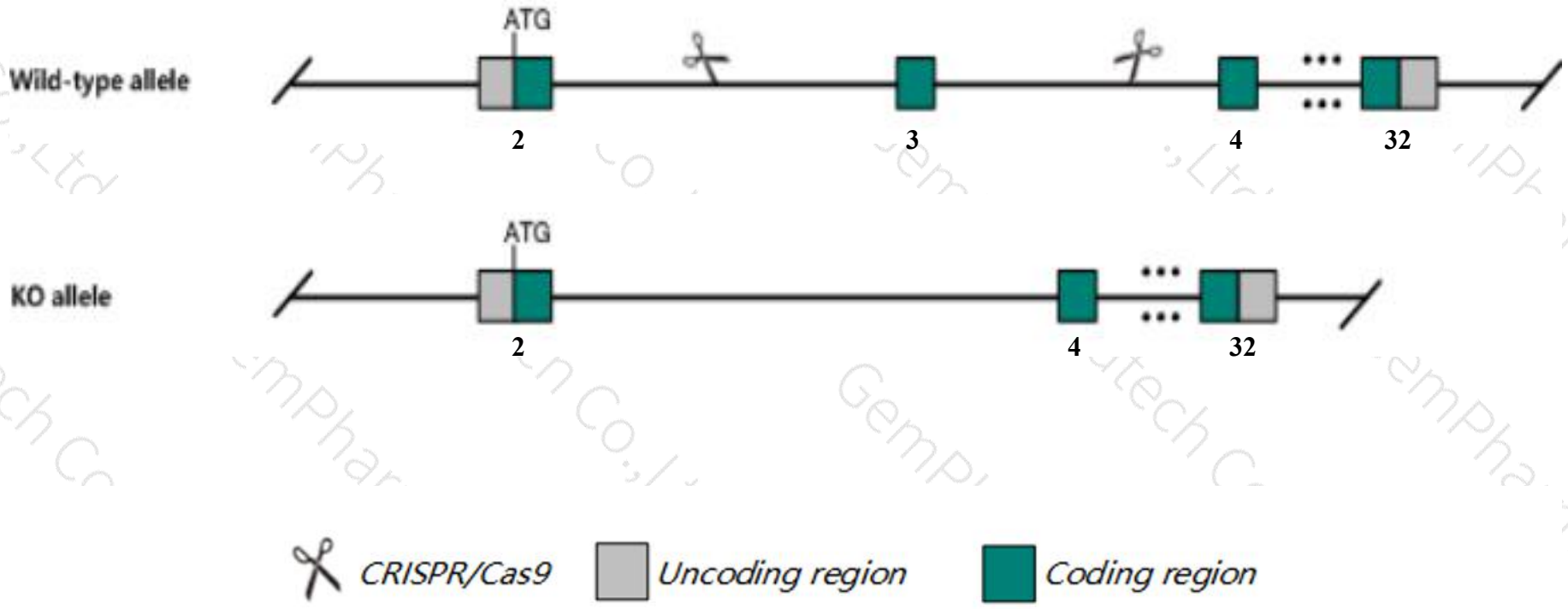
Project Name	***Efcab6***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Efcab6* gene. The schematic diagram is as follows:



Technical routes

➢ The *Efcab6* gene has 8 transcripts. According to the structure of *Efcab6* gene, exon3 of *Efcab6-207*(ENSMUST00000156187.7) transcript is recommended as the knockout region.The region contains 146bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Efcab6* gene. The brief process is as follows: CRISPR/Cas9 system 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.

Notice

➢ The *Efcab6* 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）

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Efcab6 EF-hand calcium binding domain 6 [Mus musculus (house mouse)]

Gene ID: 77627, updated on 20-Mar-2020

Summary

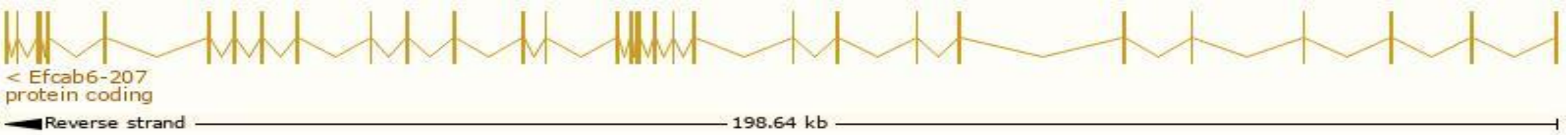
Official Symbol	Efcab6 provided by MGI
Official Full Name	EF-hand calcium binding domain 6 provided byMGI
Primary source	MGI:MGI:1924877
See related	Ensembl:ENSMUSG00000022441
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	4931407K02Rik, 4932408N08Rik, bM150J22.2, mKIAA1672
Expression	Restricted expression toward testis adult (RPKM 41.3)See more
Orthologs	human all

Transcript information（Ensembl）

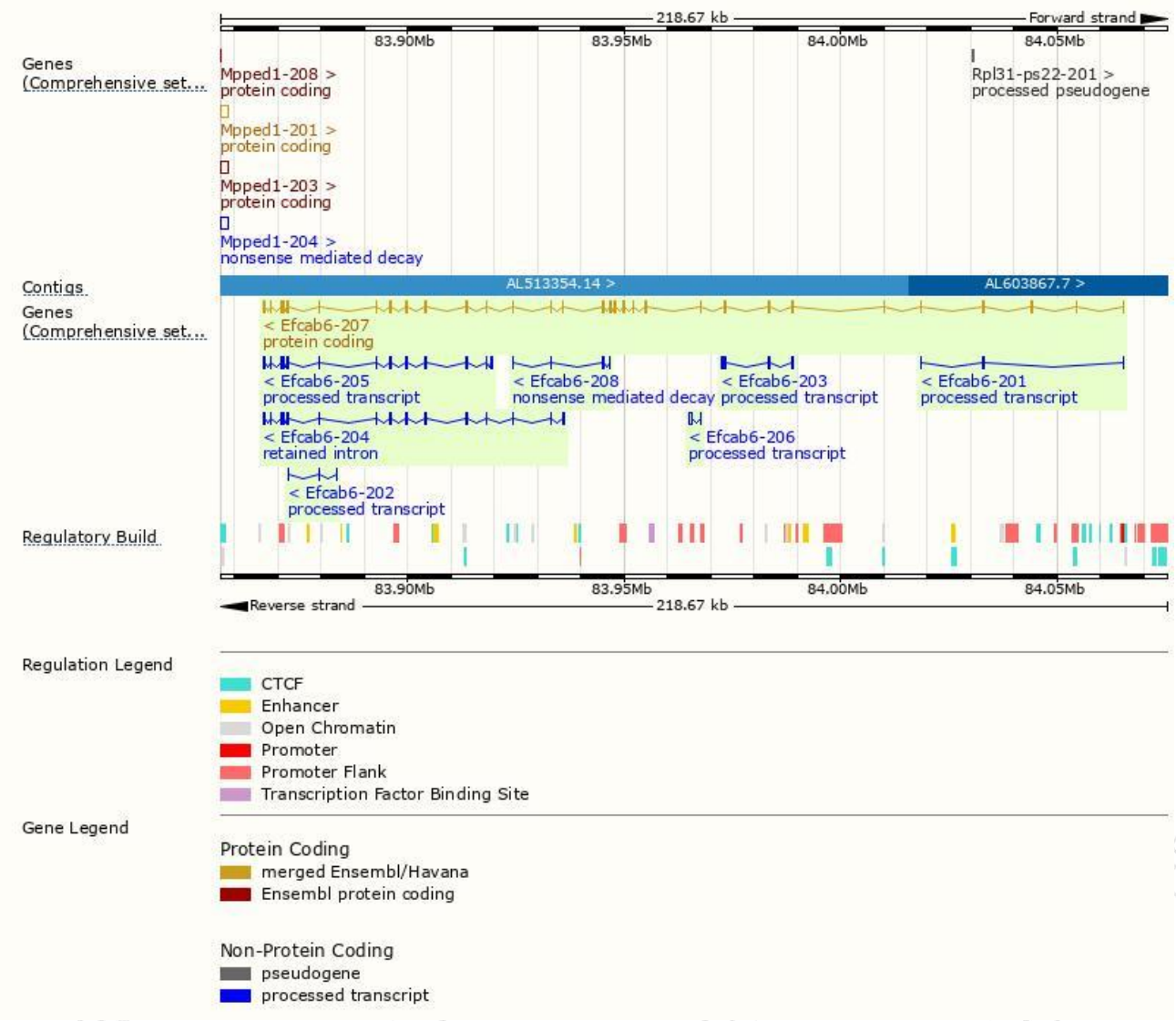
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Efcab6-207	ENSMUST00000156187.7	5012	1516aa	Protein coding	CCDS27707	Q6P1E8	TSL:1 GENCODE basic APPRIS P1
Efcab6-208	ENSMUST00000163773.1	368	70aa	Nonsense mediated decay	-	F6RST1	CDS 5' incomplete TSL:5
Efcab6-205	ENSMUST00000144169.7	2495	No protein	Processed transcript	-	-	TSL:1
Efcab6-203	ENSMUST00000140633.1	700	No protein	Processed transcript	-	-	TSL:3
Efcab6-206	ENSMUST00000149563.1	652	No protein	Processed transcript	-	-	TSL:3
Efcab6-202	ENSMUST00000130551.1	594	No protein	Processed transcript	-	-	TSL:3
Efcab6-201	ENSMUST00000122836.1	381	No protein	Processed transcript	-	-	TSL:3
Efcab6-204	ENSMUST00000143592.7	2850	No protein	Retained intron	-	-	TSL:1

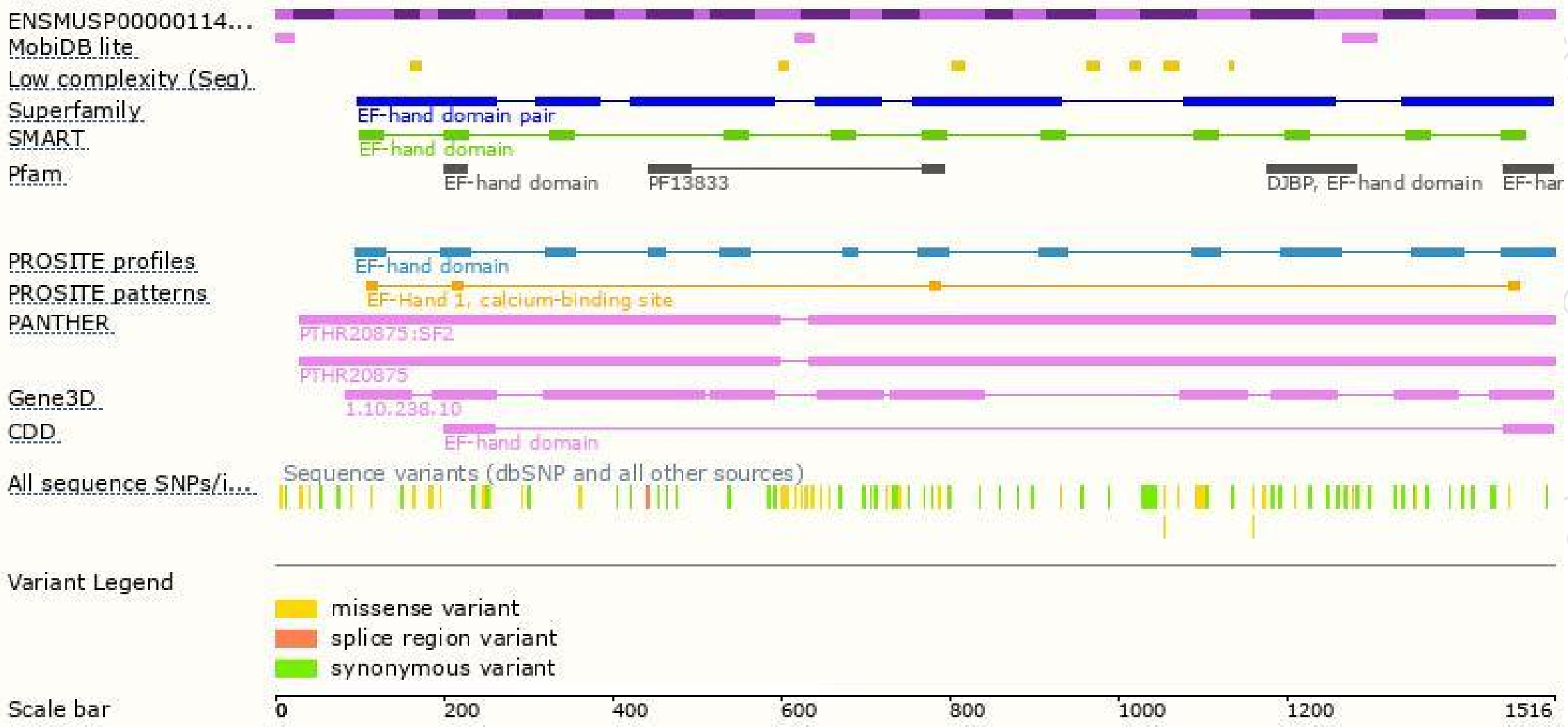
The strategy is based on the design of *Efcab6-207* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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