Efcab5 Cas9-KO Strategy

Designer: Daohua Xu

Reviewer: Xueting Zhang

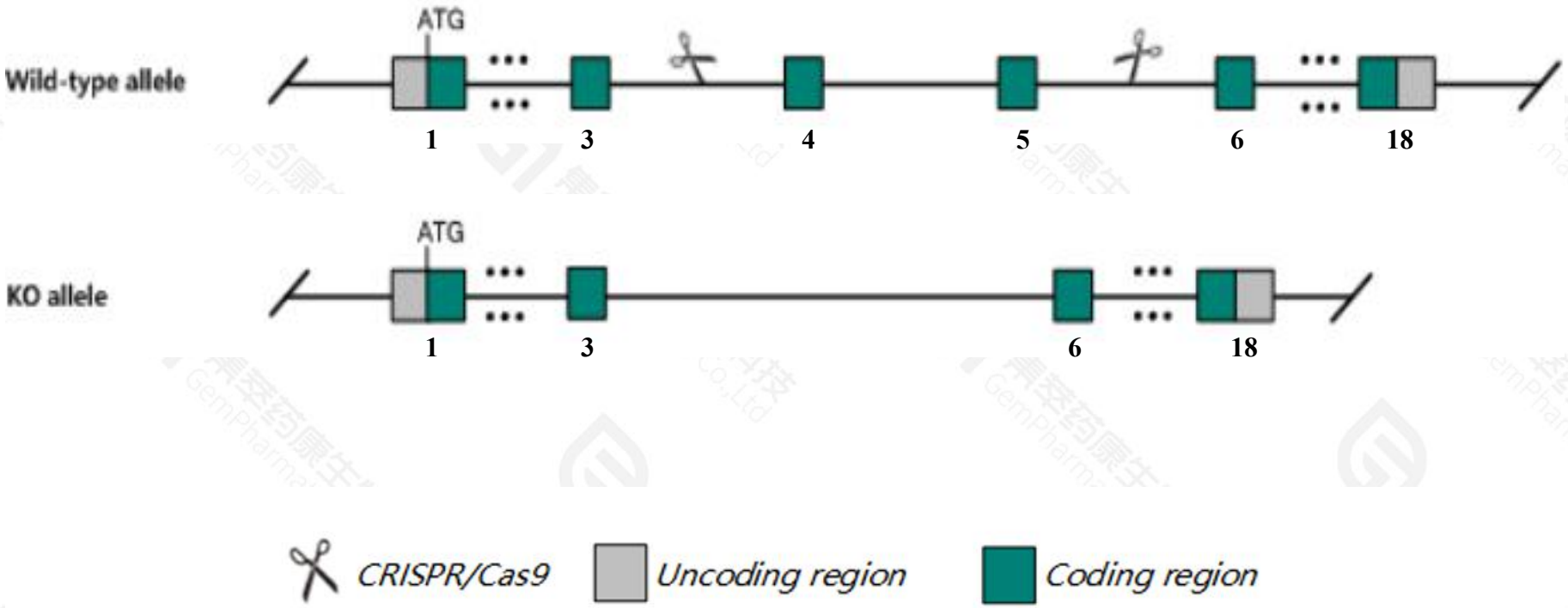
Design Date: 2021-2-9

Project Overview

Project Name	***Efcab5***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Efcab5* gene. The schematic diagram is as follows:



Technical routes

➢ The *Efcab5* gene has 5 transcripts. According to the structure of *Efcab5* gene, exon4-exon5 of *Efcab5-201*(ENSMUST00000108400.7) transcript is recommended as the knockout region.The region contains 1390bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Efcab5* 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 *Efcab5* gene is located on the Chr11. 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）

集萃药康 GemPharmatech

Efcab5 EF-hand calcium binding domain 5 [Mus musculus (house mouse)]

Gene ID: 319634, updated on 13-Mar-2020

Summary

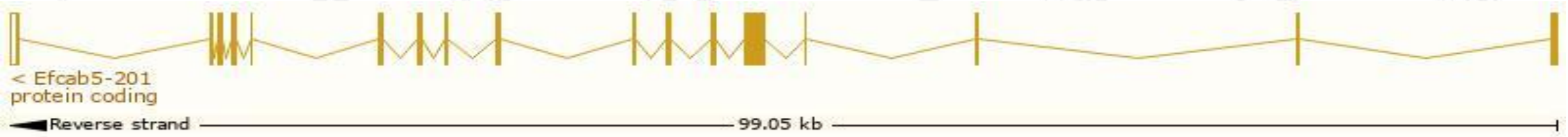
Official Symbol	Efcab5 provided by MGI
Official Full Name	EF-hand calcium binding domain 5 provided byMGI
Primary source	MGI:MGI:2442440
See related	Ensembl:ENSMUSG00000050944
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	4930563A03Rik
Expression	Biased expression in testis adult (RPKM 14.7) and CNS E18 (RPKM 0.4)See more
Orthologs	human all

Transcript information（Ensembl）

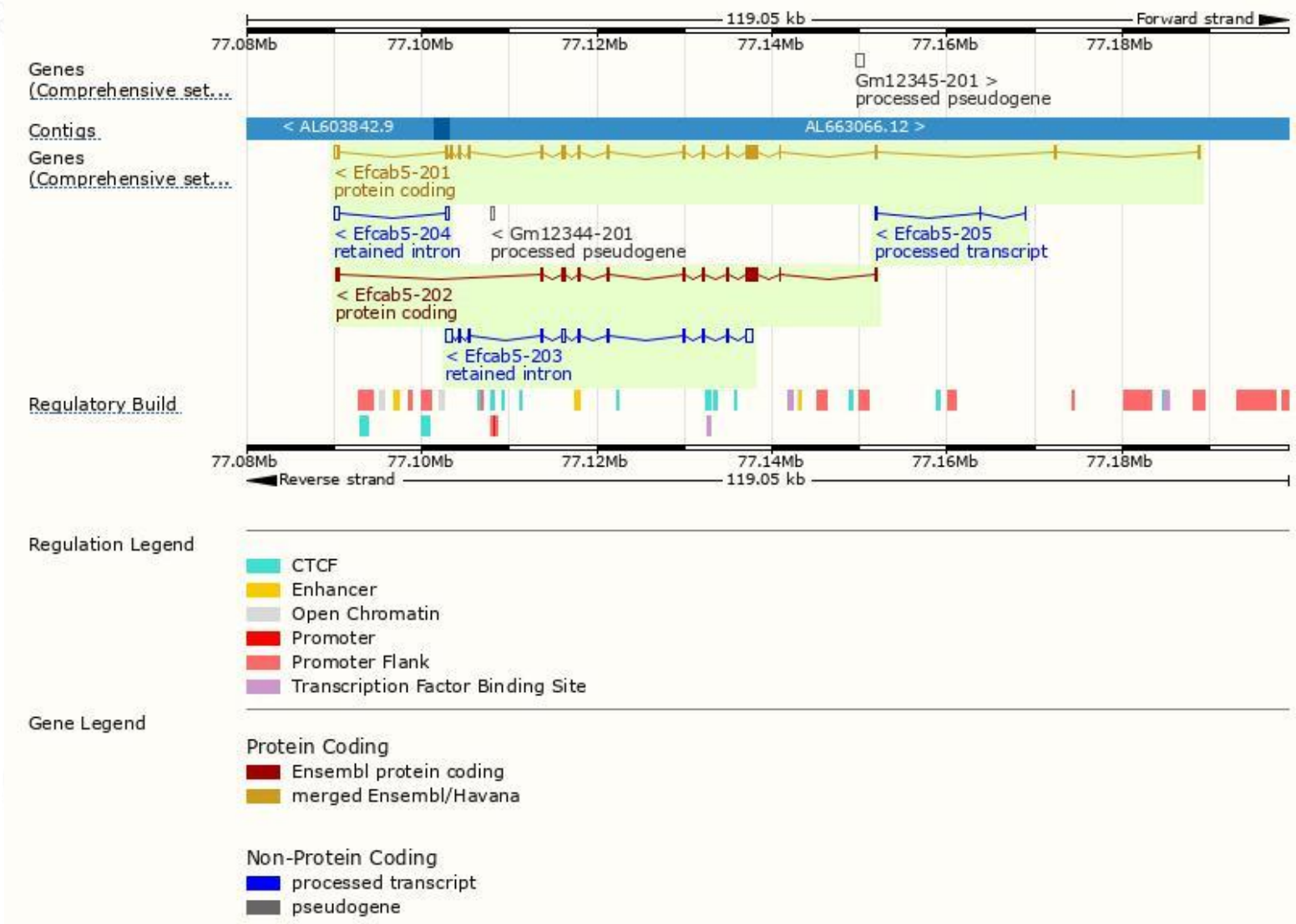
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Efcab5-201	ENSMUST00000108400.7	4654	1406aa	Protein coding	CCDS36232	A0JP43	TSL:5 GENCODE basic APPRIS P1
Efcab5-202	ENSMUST00000130901.1	3190	982aa	Protein coding	-	A0A0A0MQI1	CDS 5' incomplete TSL:1
Efcab5-205	ENSMUST00000155085.1	253	No protein	Processed transcript	-	-	TSL:5
Efcab5-203	ENSMUST00000148985.1	3322	No protein	Retained intron	-	-	TSL:1
Efcab5-204	ENSMUST00000151731.1	817	No protein	Retained intron	-	-	TSL:1

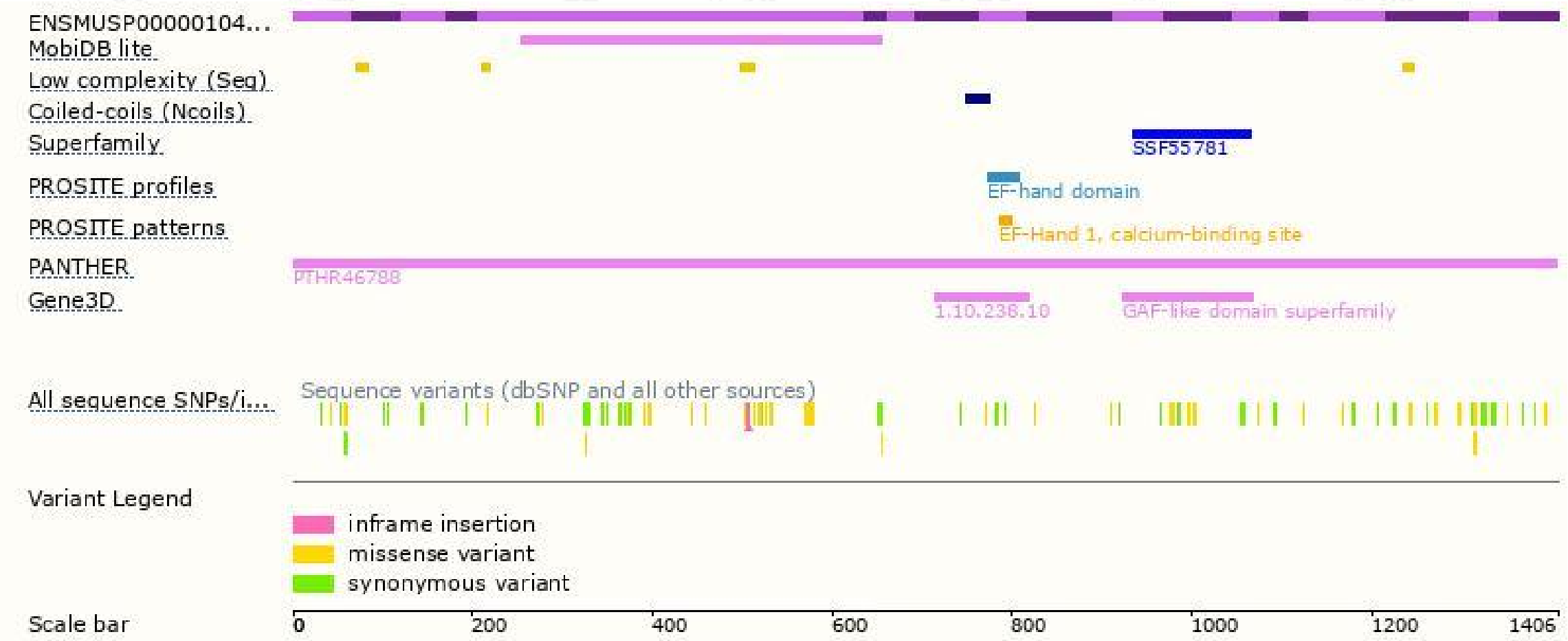
The strategy is based on the design of *Efcab5-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



集萃药康
GemPharmatech

If you have any questions, you are welcome to inquire.
Tel: 400-9660890

集萃药康生物科技
GemPharmatech Co.,Ltd