

Fkbp3 Cas9-KO Strategy

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Reviewer:

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Design Date:

2020-3-12

Project Overview

Project Name

Fkbp3

Project type

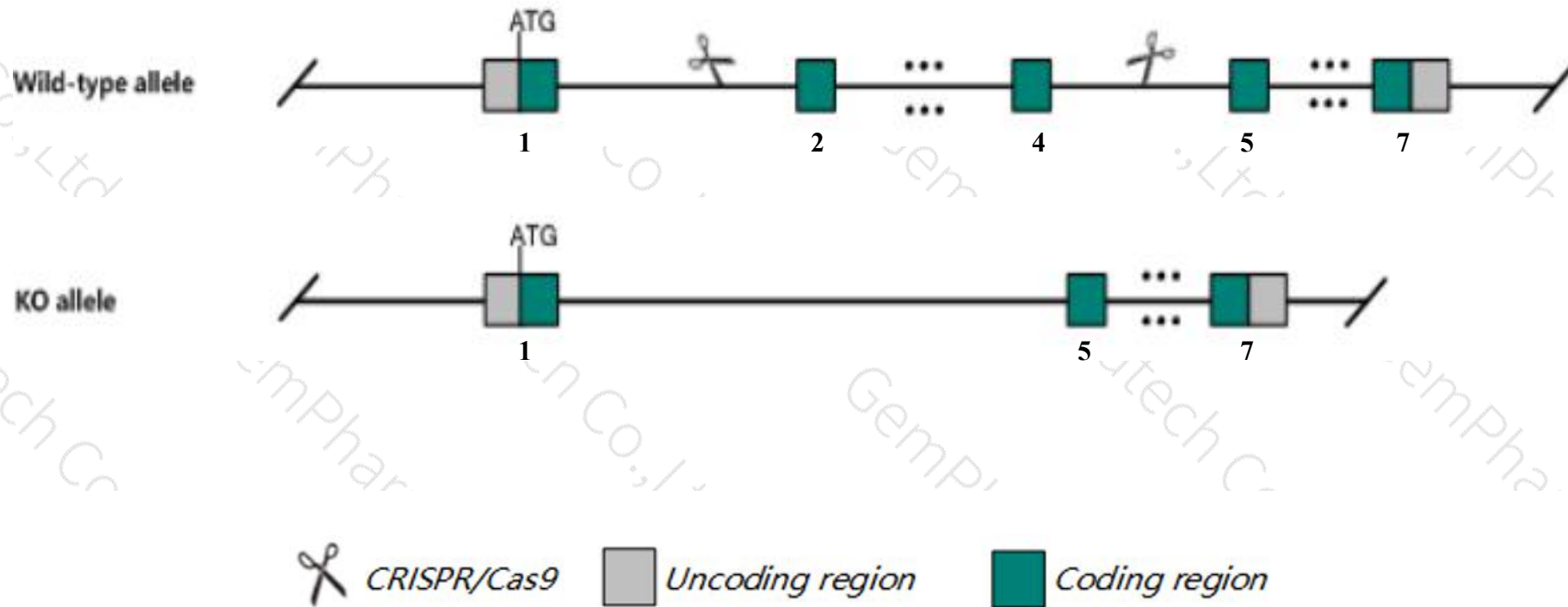
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fkbp3* gene. The schematic diagram is as follows:



- The *Fkbp3* gene has 12 transcripts. According to the structure of *Fkbp3* gene, exon2-exon4 of *Fkbp3-201* (ENSMUST00000021332.9) transcript is recommended as the knockout region. The region contains 346bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Fkbp3* gene. The brief process is as follows: CRISPR/Cas9 system

- The *Fkbp3* gene is located on the Chr12. 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.
- The KO region deletes parts of the coding sequence of *Fkbp3-204* transcript, but does not result in frameshift.
- 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)

Fkbp3 FK506 binding protein 3 [*Mus musculus* (house mouse)]

Gene ID: 30795, updated on 3-Nov-2019

Summary

Official Symbol Fkbp3 provided by [MGI](#)
Official Full Name FK506 binding protein 3 provided by [MGI](#)
Primary source [MGI:MGI:1353460](#)
See related [Ensembl:ENSMUSG00000020949](#)
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 25kDa; FKBP-3; FKBP25
Expression Biased expression in CNS E11.5 (RPKM 104.7), CNS E14 (RPKM 69.9) and 13 other tissues [See more](#)
Orthologs [human](#) [all](#)

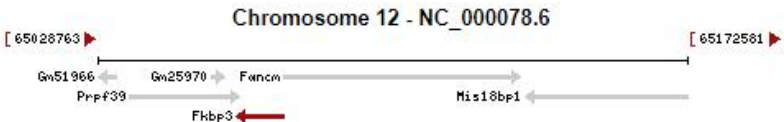
Genomic context

Location: 12; 12 C1

[See Fkbp3 in Genome Data Viewer](#)

Exon count: 7

Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	12	NC_000078.6 (65062432..65073938, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	12	NC_000078.5 (66163419..66174925, complement)

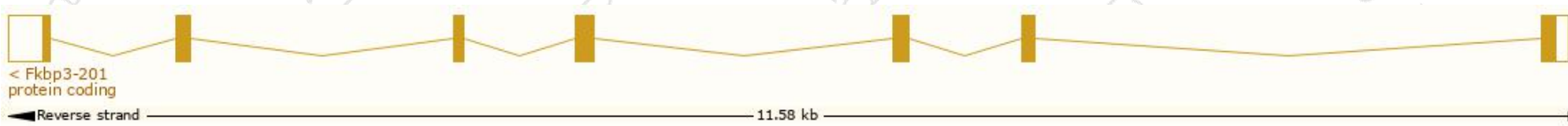


Transcript information (Ensembl)

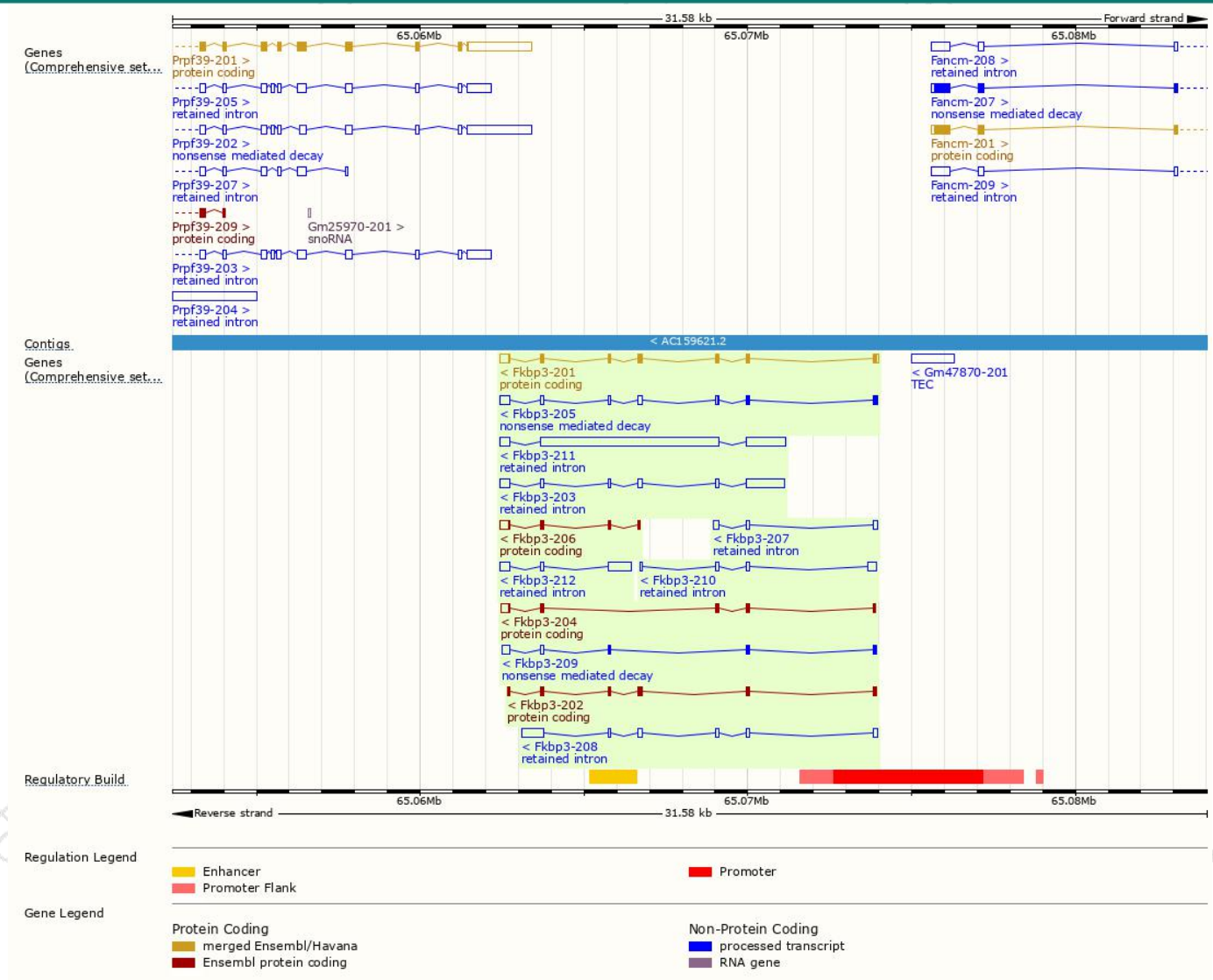
The gene has 12 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Fkbp3-201	ENSMUST00000021332.9	1022	224aa	Protein coding	CCDS25940	Q3UBU9 Q62446	TSL:1 GENCODE basic APPRIS P1
Fkbp3-204	ENSMUST00000220983.1	654	149aa	Protein coding	-	A0A1Y7VP01	CDS 5' incomplete TSL:5
Fkbp3-202	ENSMUST00000220730.1	579	188aa	Protein coding	-	A0A1Y7VLK0	TSL:5 GENCODE basic
Fkbp3-206	ENSMUST00000221608.1	529	88aa	Protein coding	-	A0A1Y7VJ86	CDS 5' incomplete TSL:3
Fkbp3-205	ENSMUST00000221166.1	981	76aa	Nonsense mediated decay	-	A0A1Y7VMJ9	TSL:5
Fkbp3-209	ENSMUST00000221913.1	600	82aa	Nonsense mediated decay	-	A0A1Y7VLV3	CDS 5' incomplete TSL:3
Fkbp3-211	ENSMUST00000222684.1	6939	No protein	Retained intron	-	-	TSL:5
Fkbp3-203	ENSMUST00000220957.1	1910	No protein	Retained intron	-	-	TSL:2
Fkbp3-208	ENSMUST00000221710.1	1233	No protein	Retained intron	-	-	TSL:2
Fkbp3-212	ENSMUST00000223167.1	1109	No protein	Retained intron	-	-	TSL:1
Fkbp3-210	ENSMUST00000222467.1	511	No protein	Retained intron	-	-	TSL:3
Fkbp3-207	ENSMUST00000221706.1	408	No protein	Retained intron	-	-	TSL:2

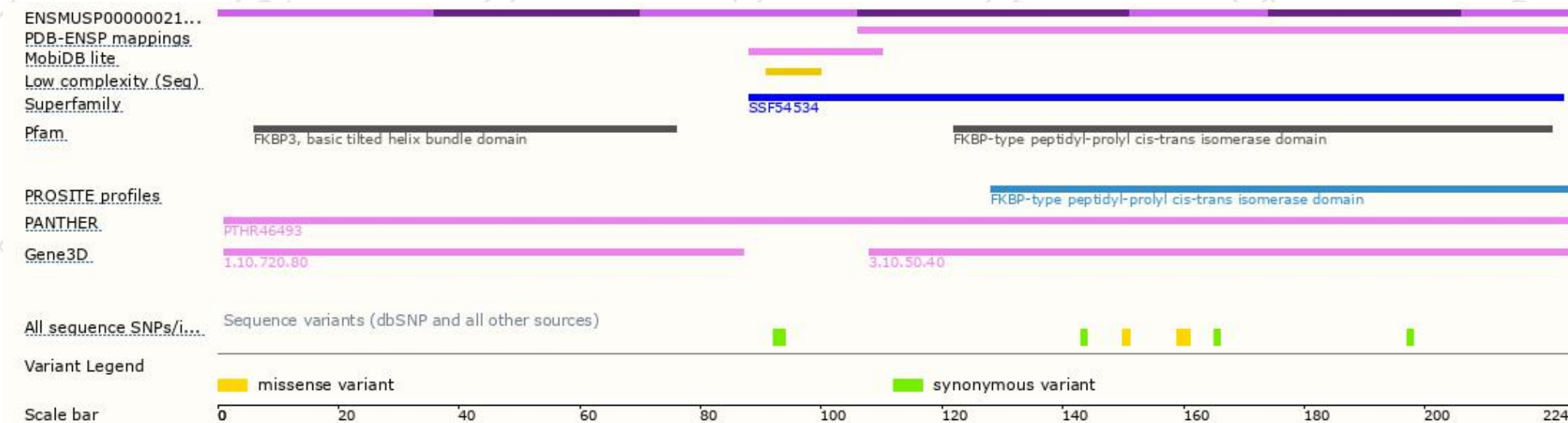
The strategy is based on the design of *Fkbp3-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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