

Zfyve27-tdTomato Cas9-KI Strategy

Designer:

Huimin Su

Reviewer

Yanhua Shen

Design Date:

2020-1-19

Project Overview

Project Name

Zfyve27-tdTomato

Project type

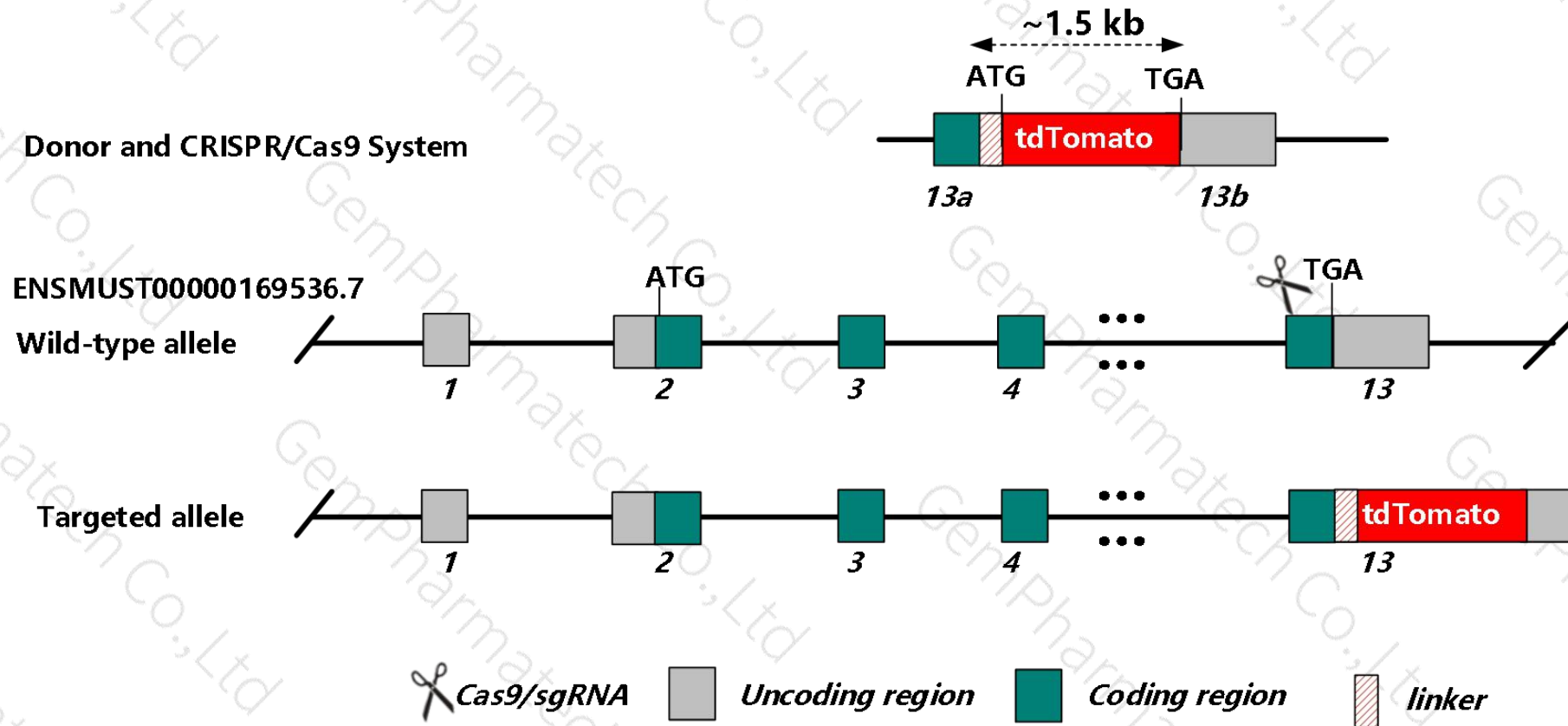
Cas9-KI

Strain background

C57BL/6JGpt

Knockin strategy

This model will use CRISPR/Cas9 technology to edit the *Zfyve27* gene. The schematic diagram is as follows:



- The *Zfyve27* gene has 8 transcripts. According to the structure of *Zfyve27* gene, *Zfyve27-207*(ENSMUST00000169536.7) is selected for presentation of the recommended strategy.
- *Zfyve27-207* gene has 13 exons, with the ATG start codon in exon2 and TGA stop codon in exon13.
- We make *Zfyve27*-Linker-tdTomato knockin mice via CRISPR/Cas9 system. Cas9 mRNA, sgRNA and donor will be co-injected into zygotes. sgRNA direct Cas9 endonuclease cleavage near stop coding of *Zfyve27* gene, and create a DSB(double-strand break). Such breaks will be repaired, and result in Linker-tdTomato before stop coding of *Zfyve27* gene by homologous recombination. The pups will be genotyped by PCR, followed by sequence analysis.

Notice

- The *Zfyve27* gene is located on the Chr19. If the knockin mice are crossed with other mice strains to obtain double gene positive homozygous mouse offspring, please avoid the two genes on the same chromosome.
- Transcript *Zfyve27-206* is incomplete, so the effect on it is unknown.
- This strategy is designed based on genetic information in existing databases. Due to the complexity of gene transcription and translation processes, all risks cannot be predicted under existing information.

Gene information (NCBI)

Zfyve27 zinc finger, FYVE domain containing 27 [*Mus musculus* (house mouse)]

Gene ID: 319740, updated on 10-Oct-2019

Summary

- Official Symbol
- Zfyve27 provided by MGI
- Official Full Name
- zinc finger, FYVE domain containing 27 provided by MGI
- Primary source
- MGI:MGI:1919602
- See related
- Ensembl:ENSMUSG00000018820
- 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
- AI426636; AI593546; AI835681; 2210011N02Rik; 9530077C24Rik
- Expression
- Ubiquitous expression in CNS E18 (RPKM 14.2), whole brain E14.5 (RPKM 12.8) and 28 other tissues [See more](#)
- Orthologs
- [human](#) [all](#)

Genomic context

Location: 19; 19 C3

See Zfyve27 in [Genome Data Viewer](#)

Exon count: 13

Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	19	NC_000085.6 (42170567..42194593)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	19	NC_000085.5 (42245057..42269083)

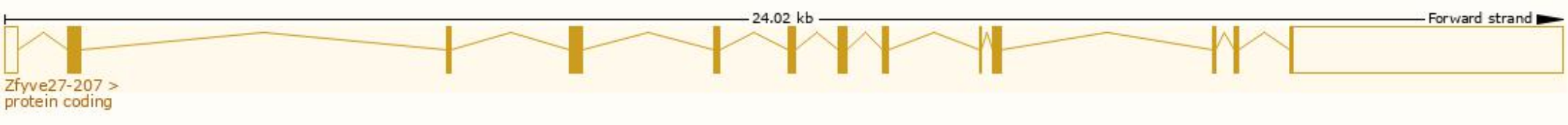


Transcript information (Ensembl)

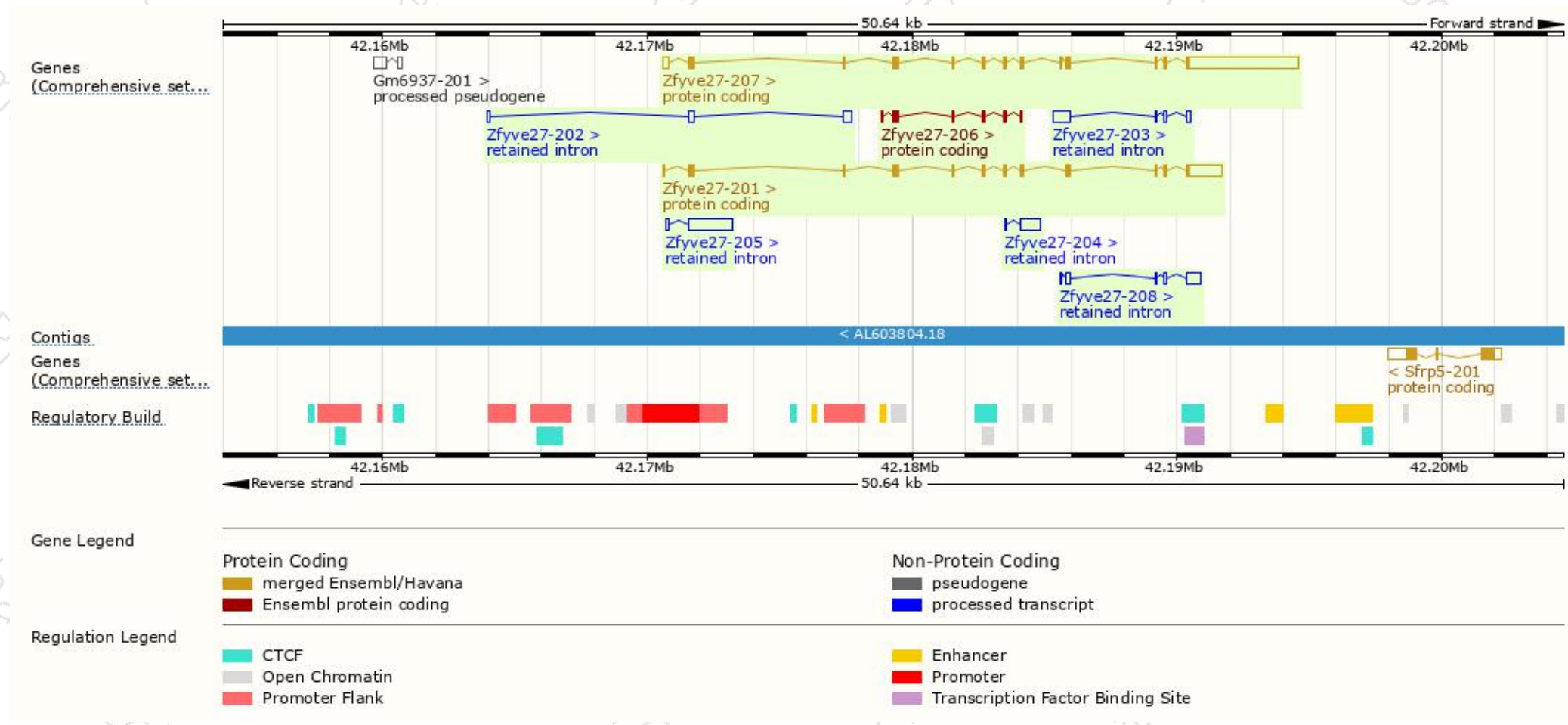
The gene has 8 transcripts, and all transcripts are shown below :

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Zfyve27-207	ENSMUST00000169536.7	5611	415aa	Protein coding	CCDS29825	Q3TXX3	TSL:1 GENCODE basic APPRIS P3
Zfyve27-201	ENSMUST00000099443.10	2573	408aa	Protein coding	CCDS50440	Q3TXX3	TSL:1 GENCODE basic APPRIS ALT2
Zfyve27-206	ENSMUST00000168130.1	684	192aa	Protein coding	-	E9Q4U6	CDS 3' incomplete TSL:3
Zfyve27-205	ENSMUST00000166788.1	1747	No protein	Retained intron	-	-	TSL:1
Zfyve27-203	ENSMUST00000164460.7	876	No protein	Retained intron	-	-	TSL:2
Zfyve27-208	ENSMUST00000170184.1	818	No protein	Retained intron	-	-	TSL:3
Zfyve27-204	ENSMUST00000165783.1	791	No protein	Retained intron	-	-	TSL:3
Zfyve27-202	ENSMUST00000164455.1	636	No protein	Retained intron	-	-	TSL:5

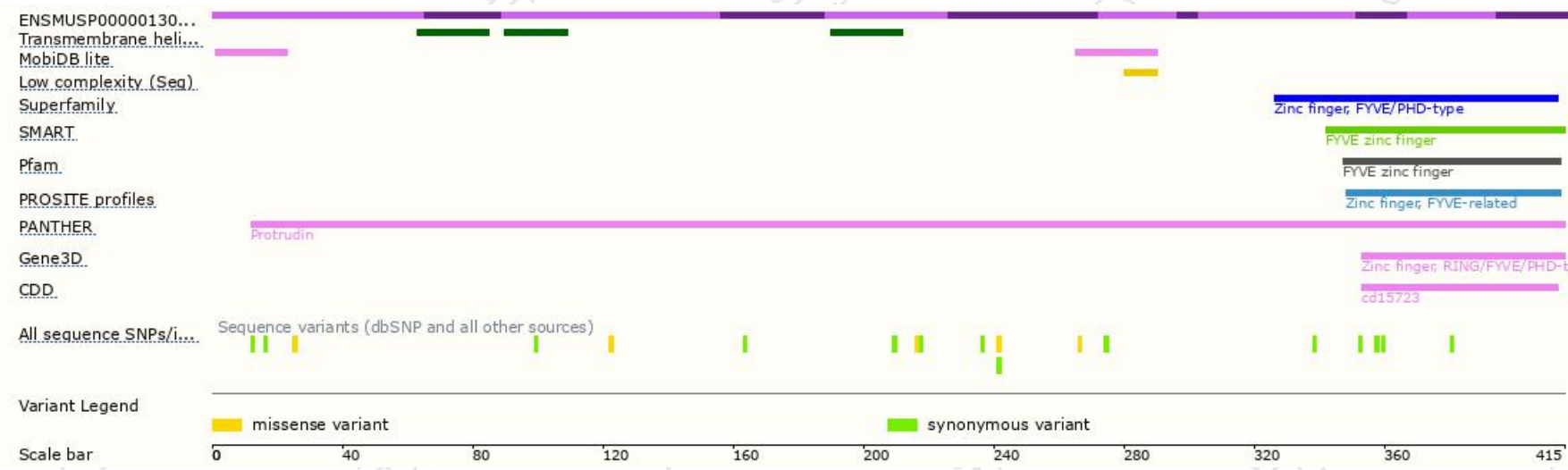
The strategy is based on the design of Zfyve27-207 transcript,The transcription is shown below



Genomic location distribution



Protein domains for ENSMUSP00000130684.1



If you have any questions, you are welcome to inquire.
Tel: 025-5864 1534

