

Zfhx4 Cas9-KO Strategy

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Project Overview

Project Name

Zfhx4

Project type

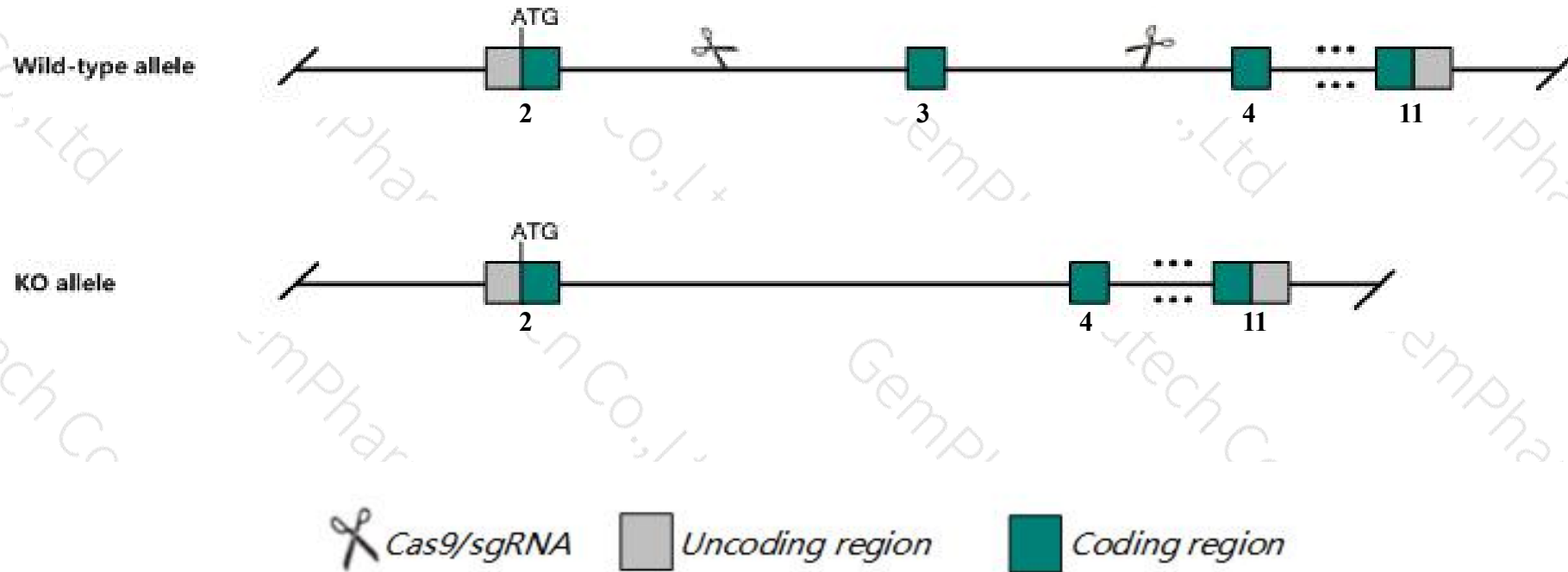
Cas9-KO

Strain background

C57BL/6J

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Zfx4* gene. The schematic diagram is as follows:



- The *Zfhx4* gene has 5 transcripts. According to the structure of *Zfhx4* gene, exon3 of *Zfhx4-201* (ENSMUST00000026284.12) transcript is recommended as the knockout region. The region contains 425bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Zfhx4* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6J 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/6J mice.

- Transcript *Zfhx4* -202,204 affects the unknown.
- 861 amino acids remain at the N-terminus and some functions may be retained.
- The *Zfhx4* gene is located on the Chr3. 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)

Zfx4 zinc finger homeodomain 4 [Mus musculus (house mouse)]

Gene ID: 80892, updated on 16-Feb-2019

Summary



Official Symbol	Zfx4 provided by MGI
Official Full Name	zinc finger homeodomain 4 provided by MGI
Primary source	MGI:MGI:2137668
See related	Ensembl:ENSMUSG00000025255
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	A930021B15, C130041O22Rik, Zfh-4, Zfh4
Expression	Biased expression in limb E14.5 (RPKM 10.6), CNS E11.5 (RPKM 7.7) and 8 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

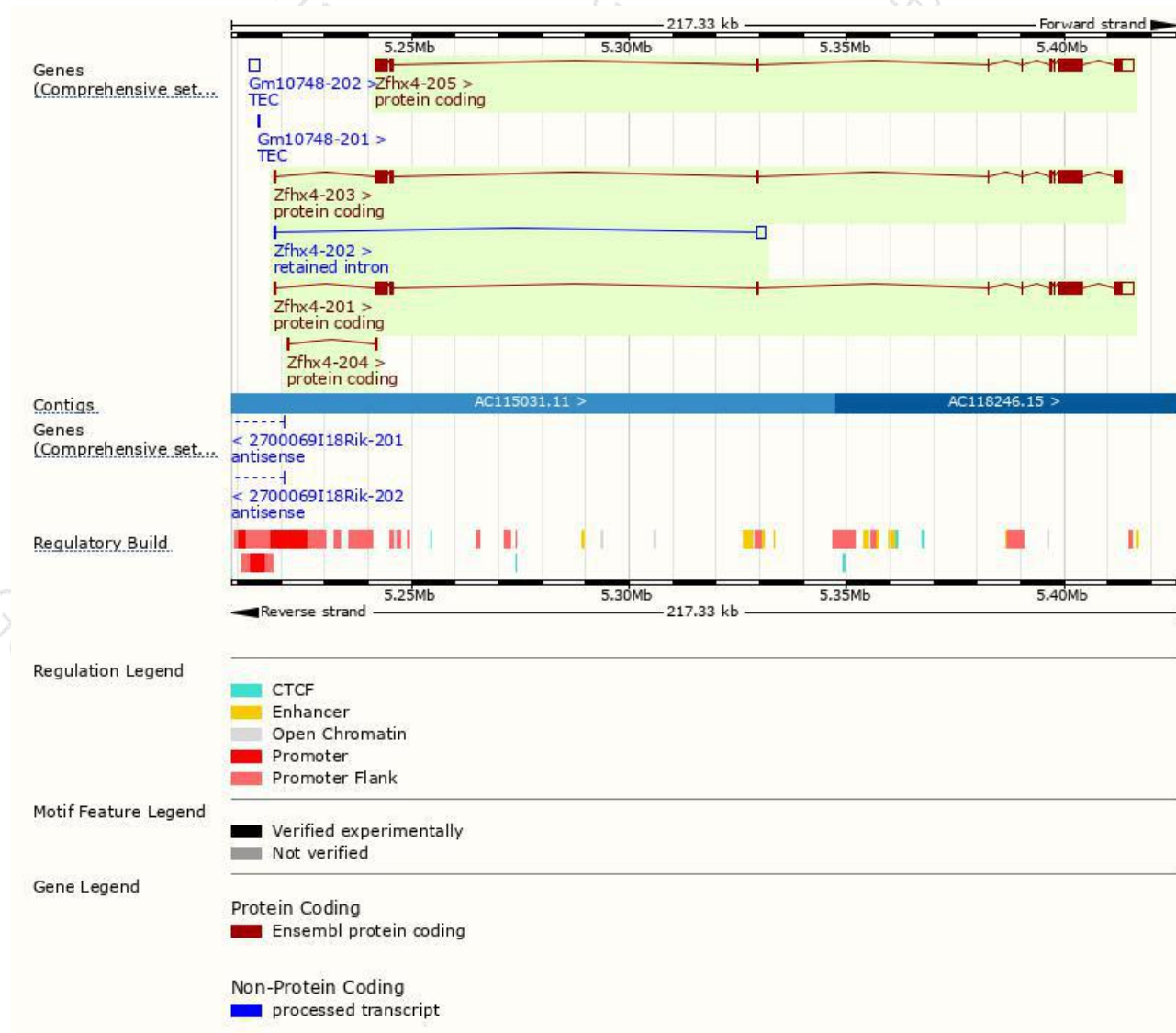
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Zfhx4-201	ENSMUST00000026284.12	13874	3581aa	Protein coding	CCDS38382	E9Q5A7	TSL:5 GENCODE basic APPRIS P2
Zfhx4-205	ENSMUST00000176383.2	13500	3581aa	Protein coding	CCDS38382	E9Q5A7	TSL:5 GENCODE basic APPRIS P2
Zfhx4-203	ENSMUST00000175866.7	11287	3606aa	Protein coding	-	H3BLK8	TSL:5 GENCODE basic APPRIS ALT2
Zfhx4-204	ENSMUST00000176175.1	524	101aa	Protein coding	-	V9GXP5	CDS 3' incomplete TSL:5
Zfhx4-202	ENSMUST00000175641.1	2194	No protein	Retained intron	-	-	TSL:1

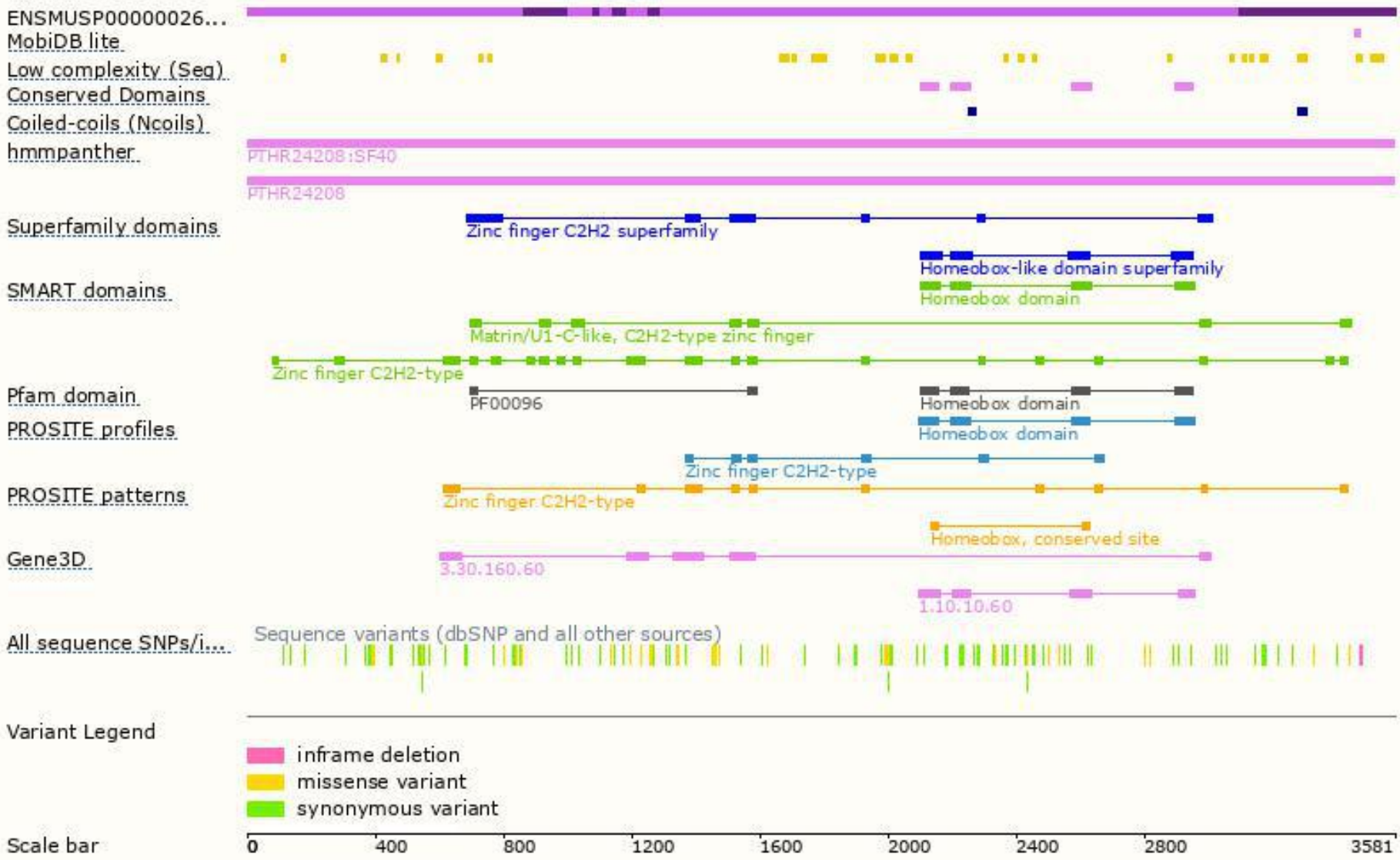
The strategy is based on the design of *Zfhx4-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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