

***Zfp74* Cas9-CKO Strategy**

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Project Overview

Project Name

Zfp74

Project type

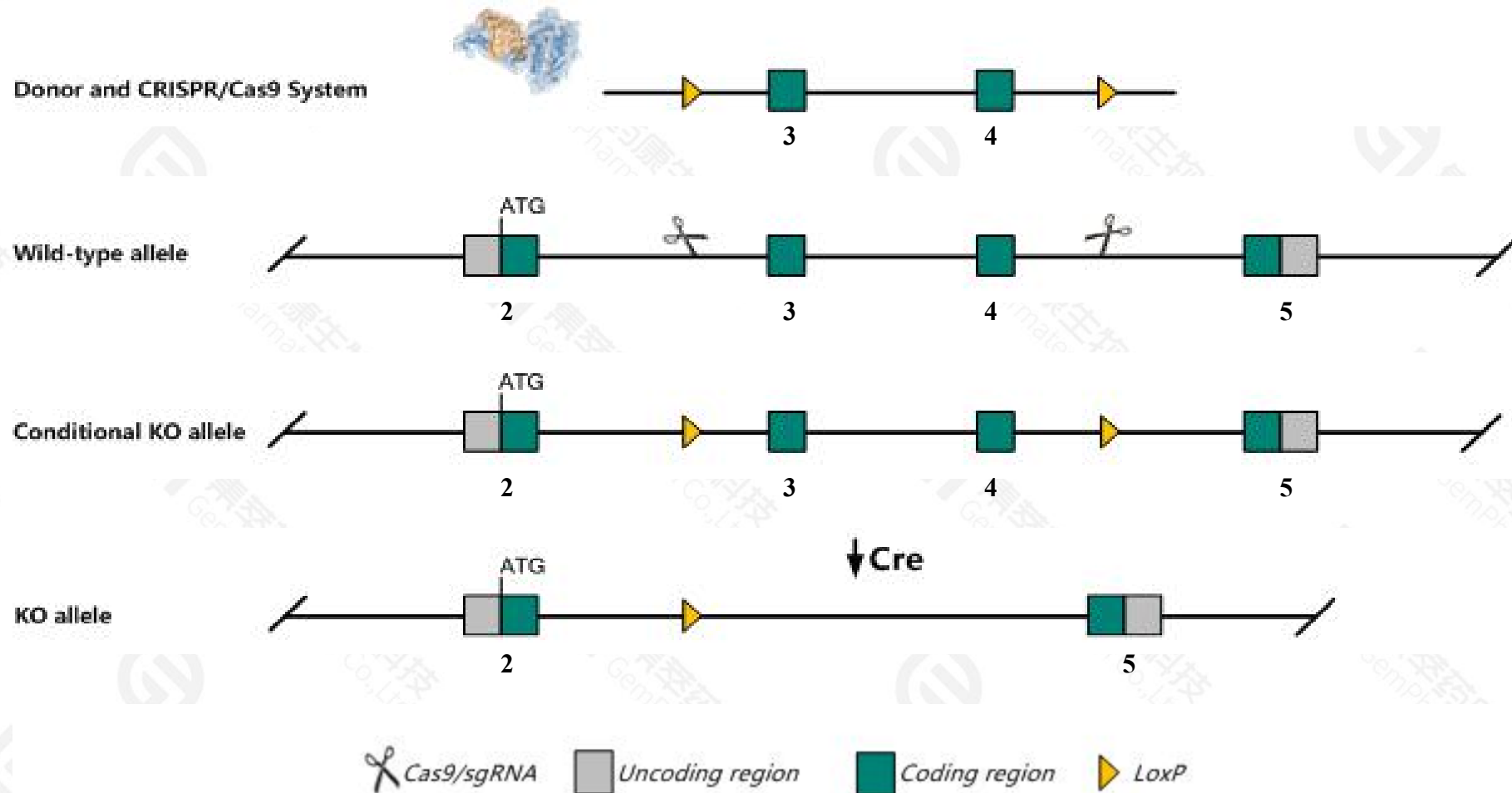
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Zfp74* gene. The schematic diagram is as follows:



Technical routes

- The *Zfp74* gene has 5 transcripts. According to the structure of *Zfp74* gene, exon3-exon4 of *Zfp74-202*(ENSMUST00000108205.9) transcript is recommended as the knockout region. The region contains 223bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Zfp74* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor was constructed. Cas9, sgRNA and Donor 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.
- The flox mice was knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

- The *Zfp74* gene is located on the Chr7. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Zfp74 zinc finger protein 74 [Mus musculus (house mouse)]

Gene ID: 72723, updated on 17-Nov-2020

Summary



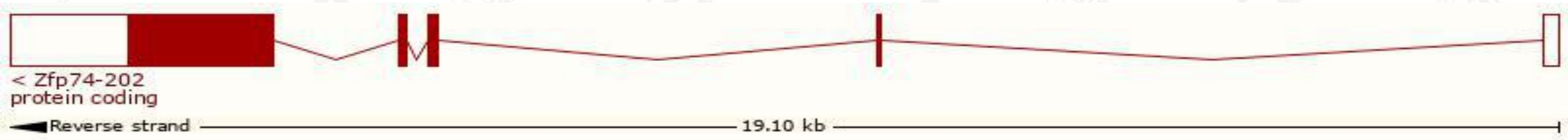
Official Symbol	Zfp74 provided by MGI
Official Full Name	zinc finger protein 74 provided by MGI
Primary source	MGI:MGI:107784
See related	Ensembl:ENSMUSG00000059975
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2810054M15Rik, KRA, KRAB8, Zfp6, Zfp66, Znf569, mszf21, mszf77, zfp-74
Expression	Ubiquitous expression in CNS E18 (RPKM 4.0), CNS E14 (RPKM 3.2) and 26 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

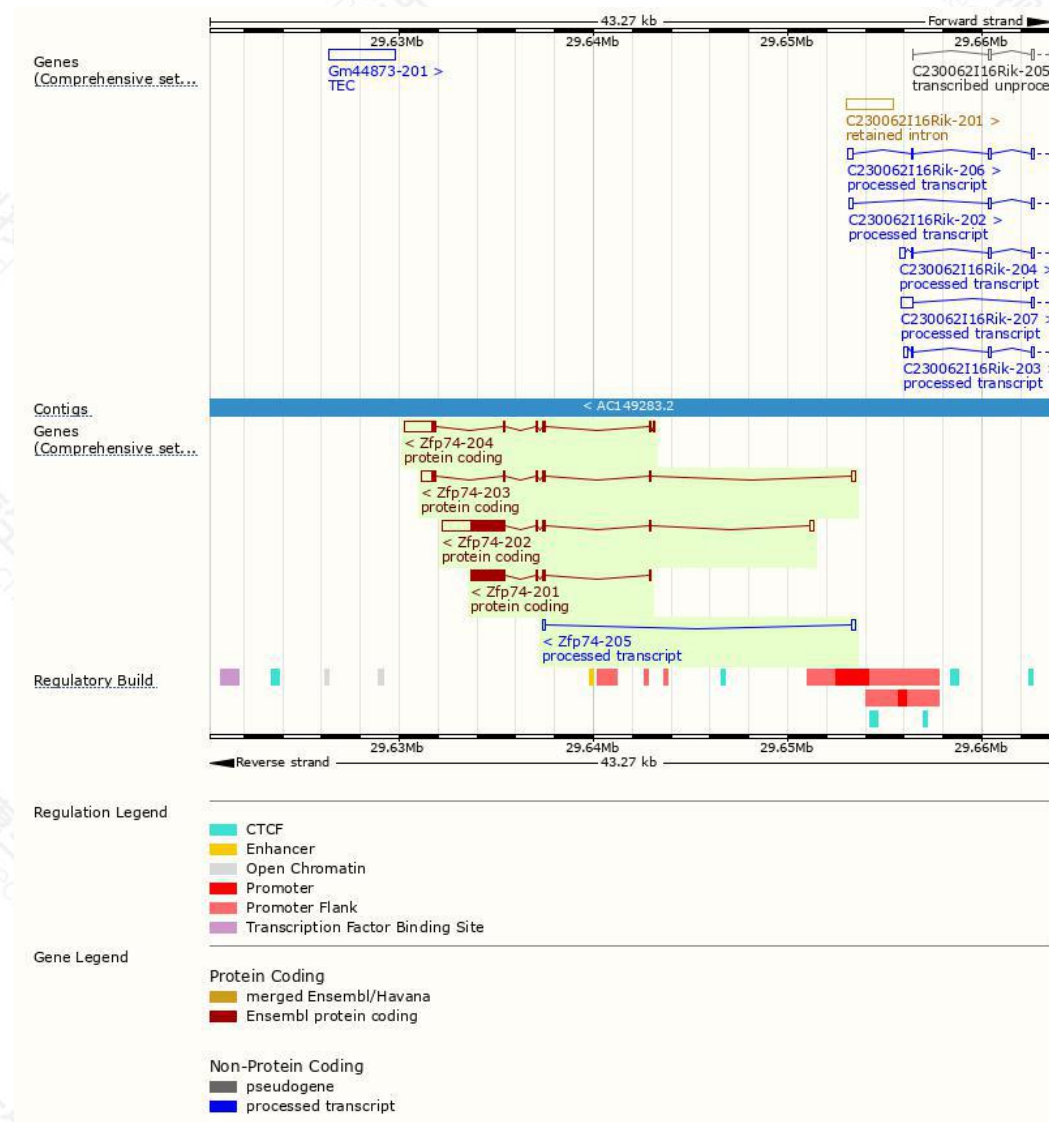
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Zfp74-202	ENSMUST00000108205.9	3711	679aa	Protein coding	CCDS39874		TSL:1 , GENCODE basic , APPRIS P1 ,
Zfp74-201	ENSMUST00000032797.9	2040	679aa	Protein coding	CCDS39874		TSL:5 , GENCODE basic , APPRIS P1 ,
Zfp74-204	ENSMUST00000108212.8	2060	153aa	Protein coding	-		TSL:1 , GENCODE basic ,
Zfp74-203	ENSMUST00000108211.8	1278	153aa	Protein coding	-		TSL:1 , GENCODE basic ,
Zfp74-205	ENSMUST00000149793.2	359	No protein	Processed transcript	-		TSL:3 ,

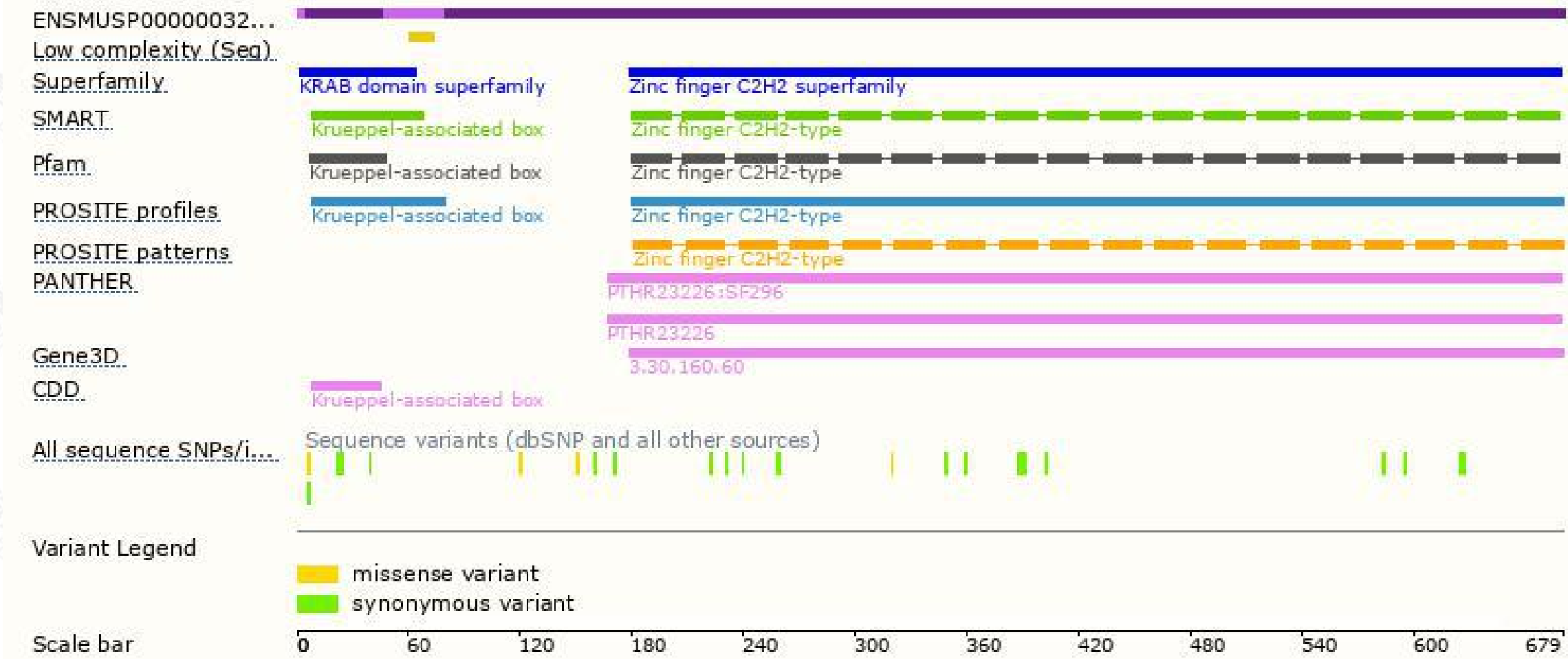
The strategy is based on the design of *Zfp74-202* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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