

Zfand4 Cas9-CKO Strategy

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Design Date: 2020-11-10

Project Overview

Project Name

Zfand4

Project type

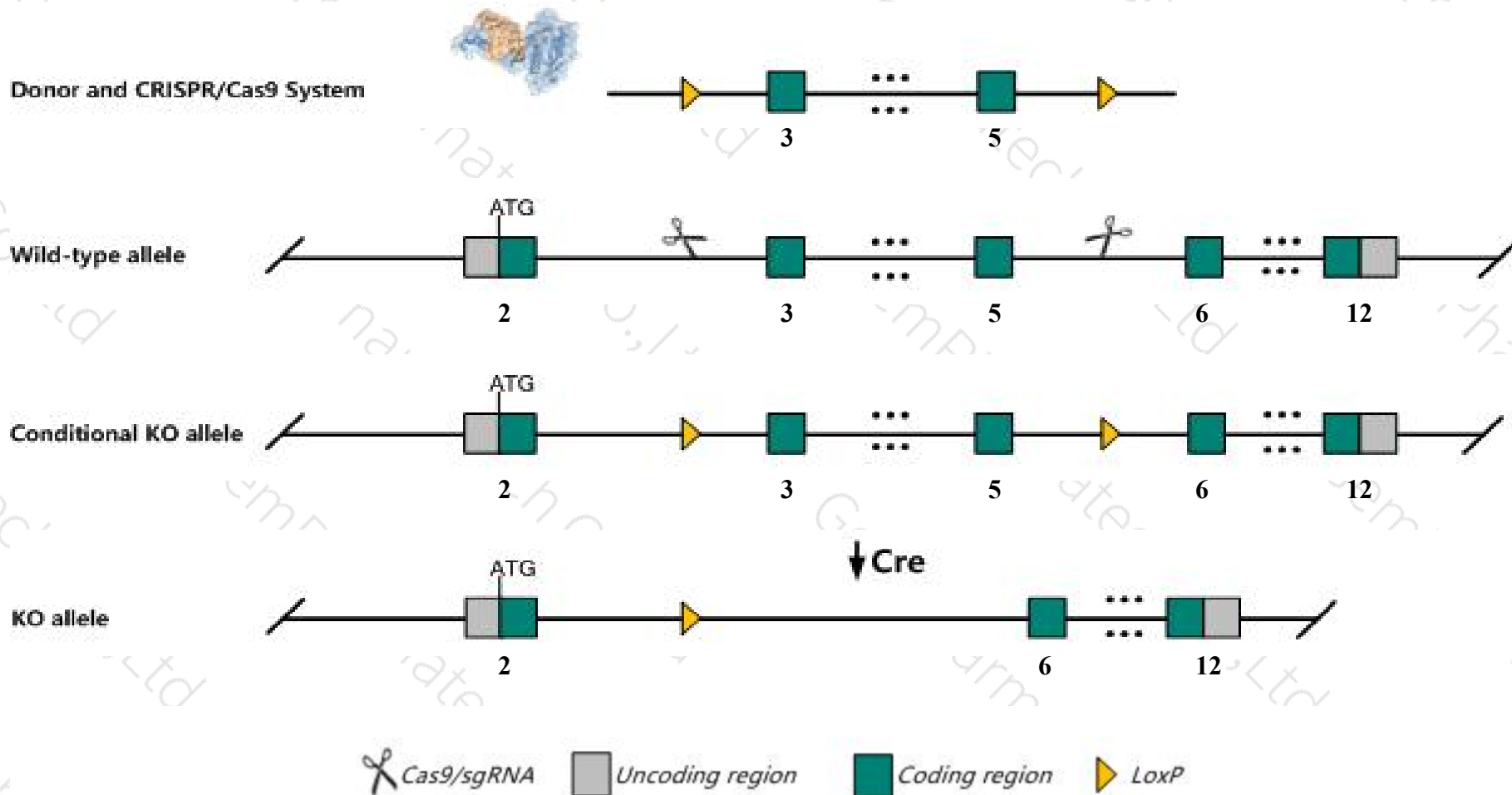
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Zfand4* gene. The schematic diagram is as follows:



Technical routes

- The *Zfand4* gene has 10 transcripts. According to the structure of *Zfand4* gene, exon3-exon5 of *Zfand4*-202(ENSMUST00000112900.8) transcript is recommended as the knockout region. The region contains 322bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Zfand4* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector 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 *Zfand4* gene is located on the Chr6. 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.
- Transcript *Zfand4*-206 may not be affected.
- The effect on transcript *Zfand4*-204 is unknown.
- 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)

Zfand4 zinc finger, AN1-type domain 4 [Mus musculus (house mouse)]

Gene ID: 67492, updated on 13-Mar-2020

Summary



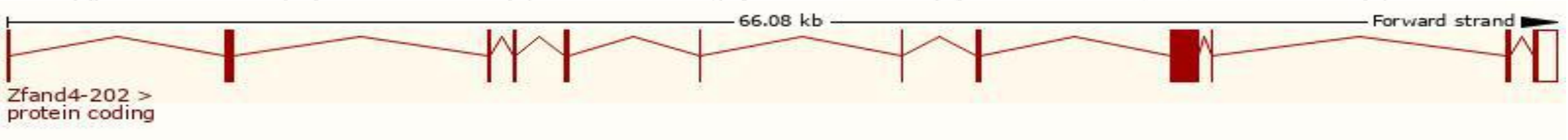
Official Symbol	Zfand4 provided by MGI
Official Full Name	zinc finger, AN1-type domain 4 provided by MGI
Primary source	MGI:MGI:1914742
See related	Ensembl:ENSMUSG00000042213
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Anubl1
Expression	Biased expression in testis adult (RPKM 15.6), liver E18 (RPKM 1.4) and 7 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

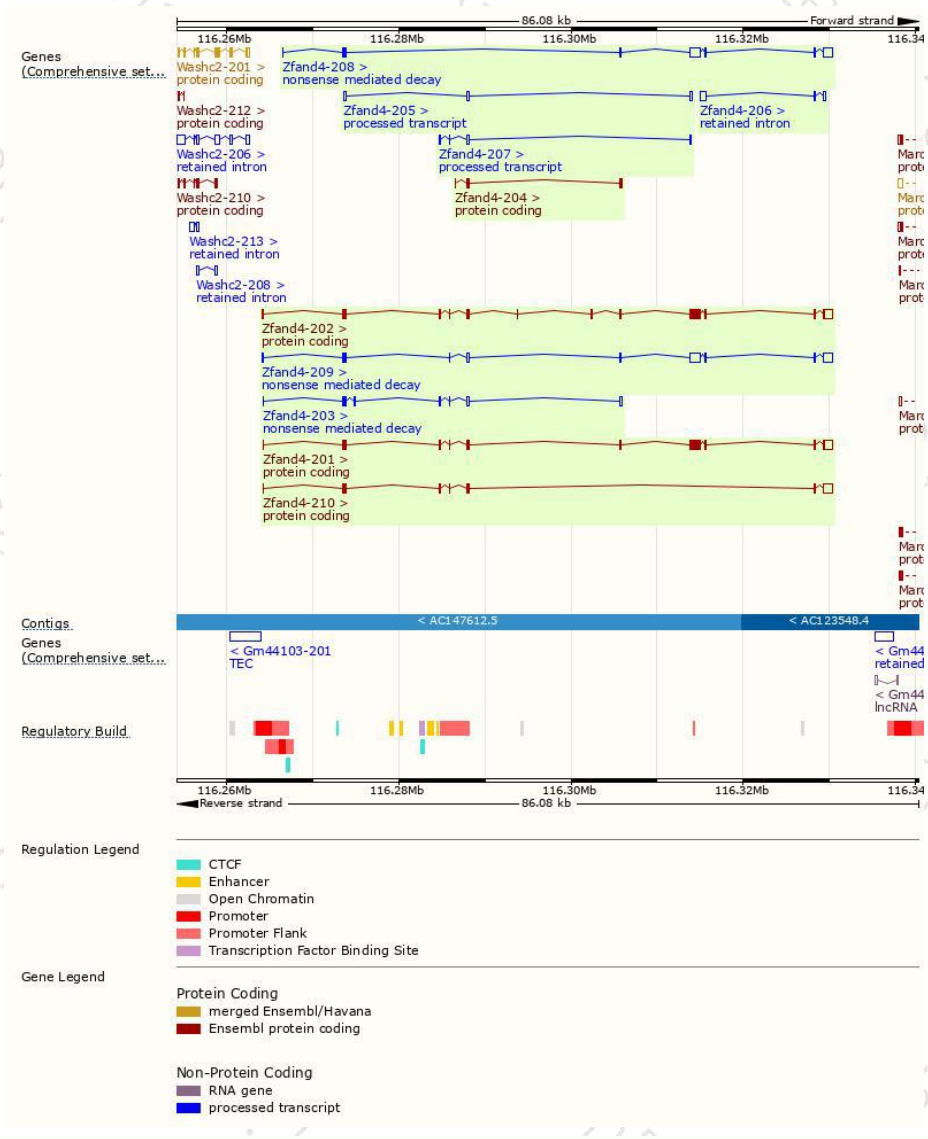
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Zfand4-202	ENSMUST00000112900.8	3220	758aa	Protein coding	-	K3W4R9	TSL:5 GENCODE basic APPRIS P5
Zfand4-201	ENSMUST00000036503.13	3123	739aa	Protein coding	-	D3Z3C6	TSL:5 GENCODE basic APPRIS ALT2
Zfand4-210	ENSMUST00000223495.1	1751	232aa	Protein coding	-	A0A1Y7VIN5	TSL:5 GENCODE basic
Zfand4-204	ENSMUST00000221069.1	501	128aa	Protein coding	-	A0A1Y7VJ66	TSL:3 GENCODE basic
Zfand4-209	ENSMUST00000222819.1	3087	94aa	Nonsense mediated decay	-	A0A1Y7VLJ0	TSL:1
Zfand4-208	ENSMUST00000222494.1	2790	115aa	Nonsense mediated decay	-	A0A1Y7VMG5	TSL:1
Zfand4-203	ENSMUST00000220845.1	1163	100aa	Nonsense mediated decay	-	A0A1Y7VIN9	TSL:5
Zfand4-205	ENSMUST00000221239.1	708	No protein	Processed transcript	-	-	TSL:5
Zfand4-207	ENSMUST00000222144.1	374	No protein	Processed transcript	-	-	TSL:5
Zfand4-206	ENSMUST00000221824.1	889	No protein	Retained intron	-	-	TSL:3

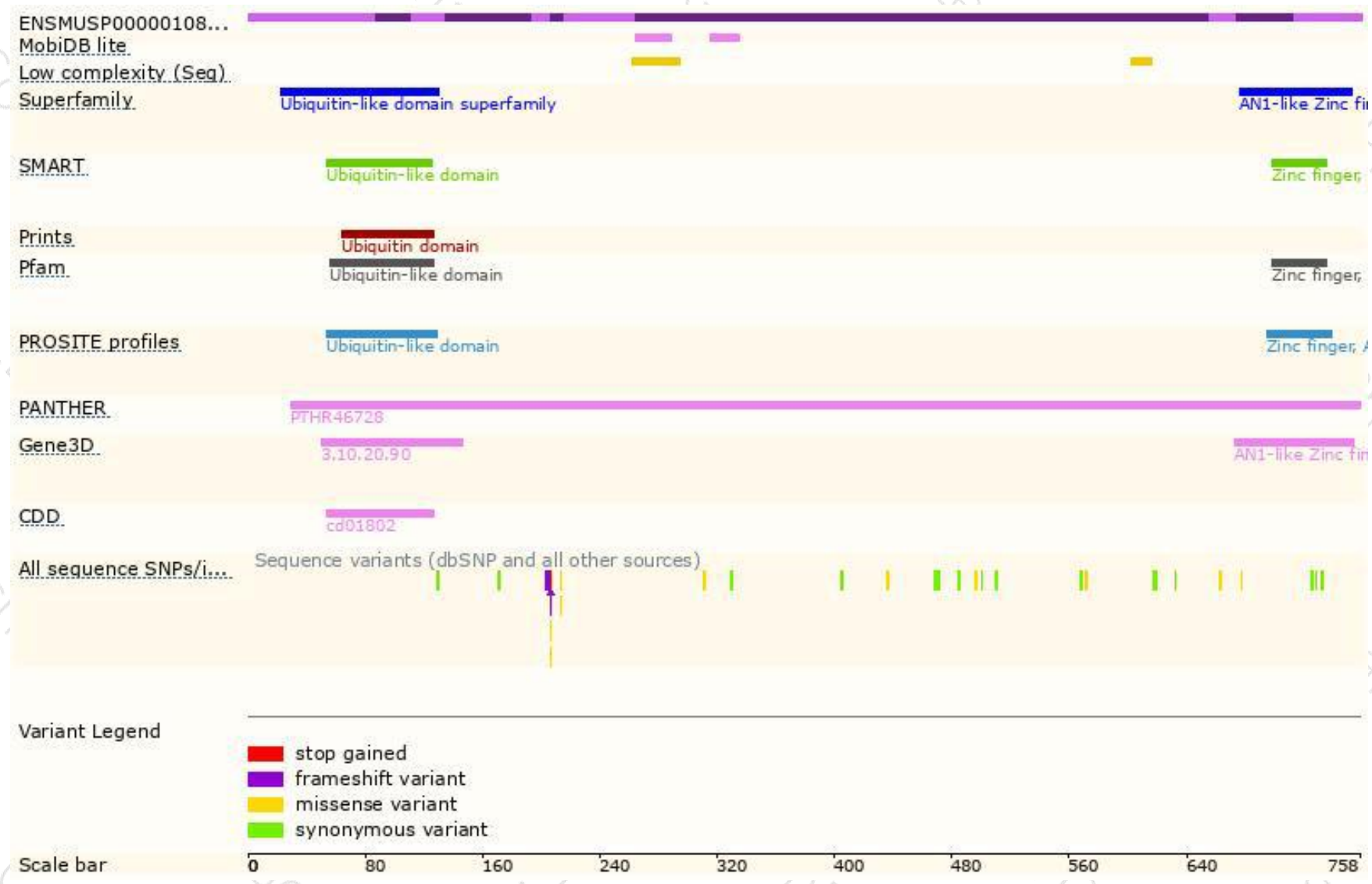
The strategy is based on the design of *Zfand4-202* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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