

Zhx1 Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Zhx1

Project type

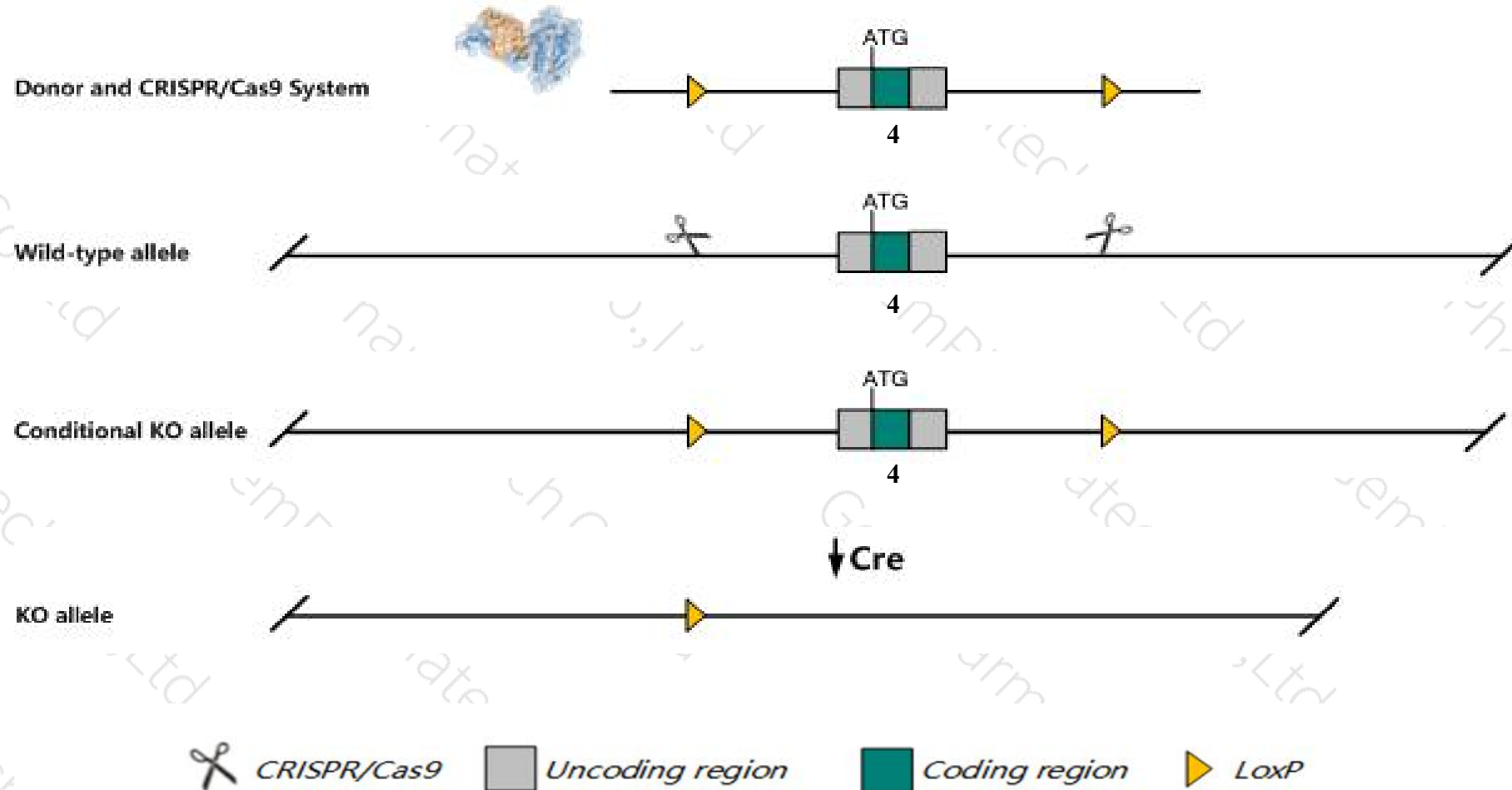
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Zhx1* gene. The schematic diagram is as follows:



Technical routes

- The *Zhx1* gene has 6 transcripts. According to the structure of *Zhx1* gene, exon4 of *Zhx1*-202 (ENSMUST00000110168.7) transcript is recommended as the knockout region. The region contains all of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Zhx1* gene. The brief process is as follows: CRISPR/Cas9 system 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 will be 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.

Notice

- The KO region contains partial intron of the *Gm29394* gene. Knockout the region may affect the function of *Gm29394* gene.
- The *Zhx1* gene is located on the Chr15. 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)

Zhx1 zinc fingers and homeoboxes 1 [Mus musculus (house mouse)]

Gene ID: 22770, updated on 5-Feb-2019

Summary



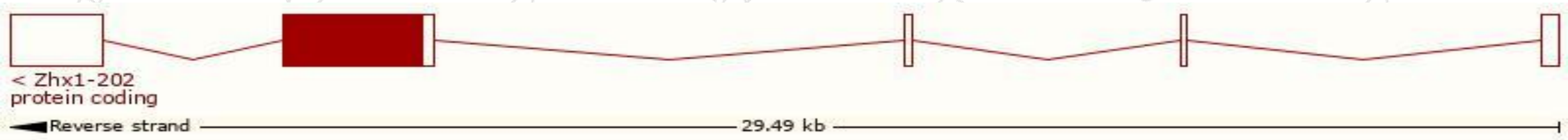
Official Symbol	Zhx1 provided by MGI
Official Full Name	zinc fingers and homeoboxes 1 provided by MGI
Primary source	MGI:MGI:109271
See related	Ensembl:ENSMUSG00000022361
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Expression	Ubiquitous expression in bladder adult (RPKM 9.2), CNS E18 (RPKM 8.7) and 25 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

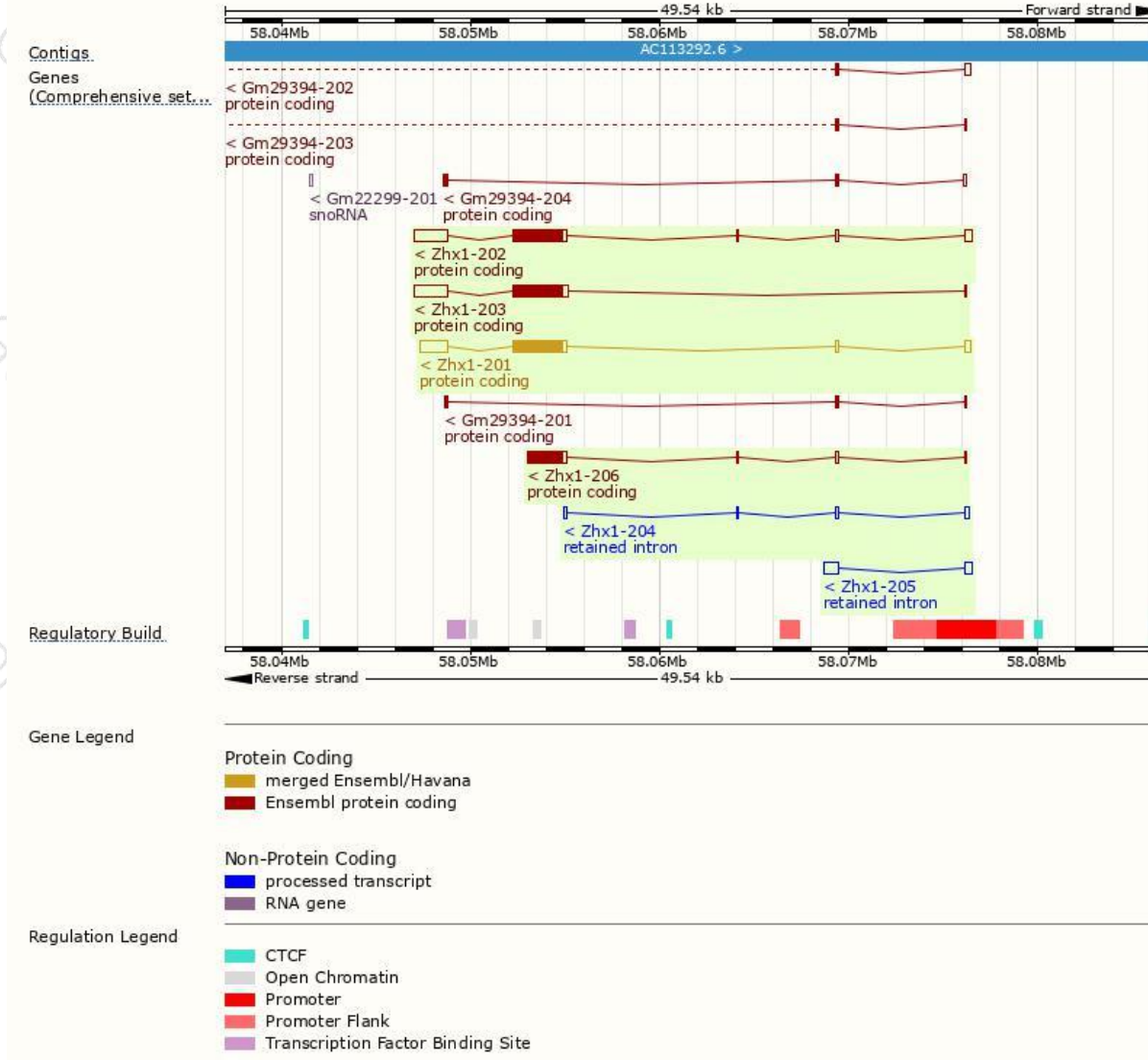
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Zhx1-202	ENSMUST00000110168.7	5212	873aa	Protein coding	CCDS27488	P70121	TSL:5 GENCODE basic APPRIS P1
Zhx1-203	ENSMUST00000175805.8	4839	873aa	Protein coding	CCDS27488	P70121	TSL:5 GENCODE basic APPRIS P1
Zhx1-201	ENSMUST00000070143.12	4764	873aa	Protein coding	CCDS27488	P70121	TSL:1 GENCODE basic APPRIS P1
Zhx1-206	ENSMUST00000177276.7	2398	623aa	Protein coding	-	H3BK31	CDS 3' incomplete TSL:1
Zhx1-205	ENSMUST00000176713.1	1155	No protein	Retained intron	-	-	TSL:2
Zhx1-204	ENSMUST00000176270.1	613	No protein	Retained intron	-	-	TSL:1

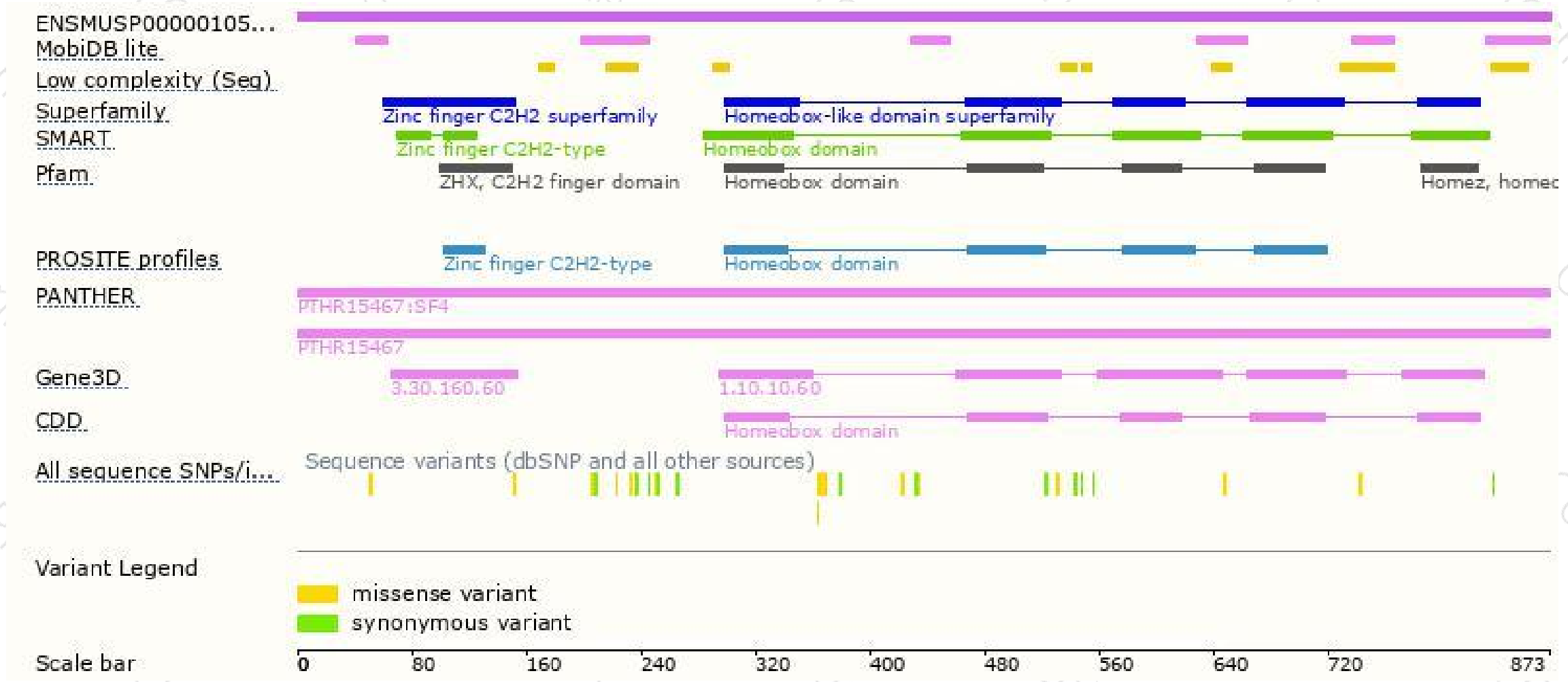
The strategy is based on the design of *Zhx1-202* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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