Zc3h10 Cas9-KO Strategy

Designer: Xueting Zhang

Reviewer: Daohua Xu

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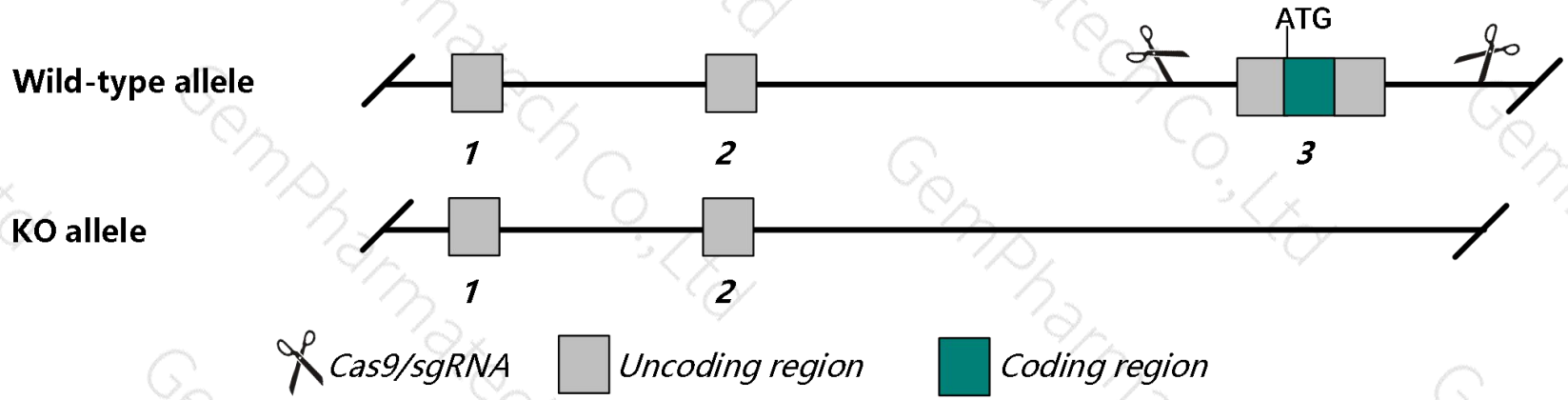
Project Overview

Project Name	***Zc3h10***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Zc3h10* gene. The schematic diagram is as follows:



Technical routes

➢ The *Zc3h10* gene has 4 transcripts. According to the structure of *Zc3h10* gene, exon3 of *Zc3h10-201*(ENSMUST00000040572.9) 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 *Zc3h10* gene. The brief process is as follows: CRISPR/Cas9 system 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.

Notice

➢ The *Zc3h10* gene is located on the Chr10. 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.

➢ *Gm29585* gene will be destroyed.

➢ The knockout region is near to the C-terminal of *Rpl41* gene,this strategy may influence the regulatory function of the C-terminal of *Rpl41* gene.

➢ 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）

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Zc3h10 zinc finger CCCH type containing 10 [Mus musculus (house mouse)]

Gene ID: 103284, updated on 13-Mar-2020

Summary

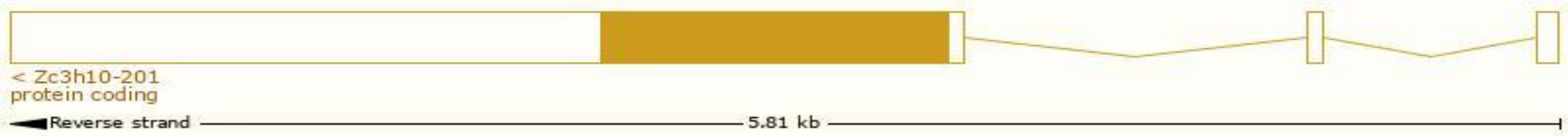
Official Symbol	Zc3h10 provided by MGI
Official Full Name	zinc finger CCCH type containing 10 provided by MGI
Primary source	MGI:MGI:2143670
See related	Ensembl:ENSMUSG00000039810
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI790326
Expression	Ubiquitous expression in testis adult (RPKM 16.0), ovary adult (RPKM 11.5) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

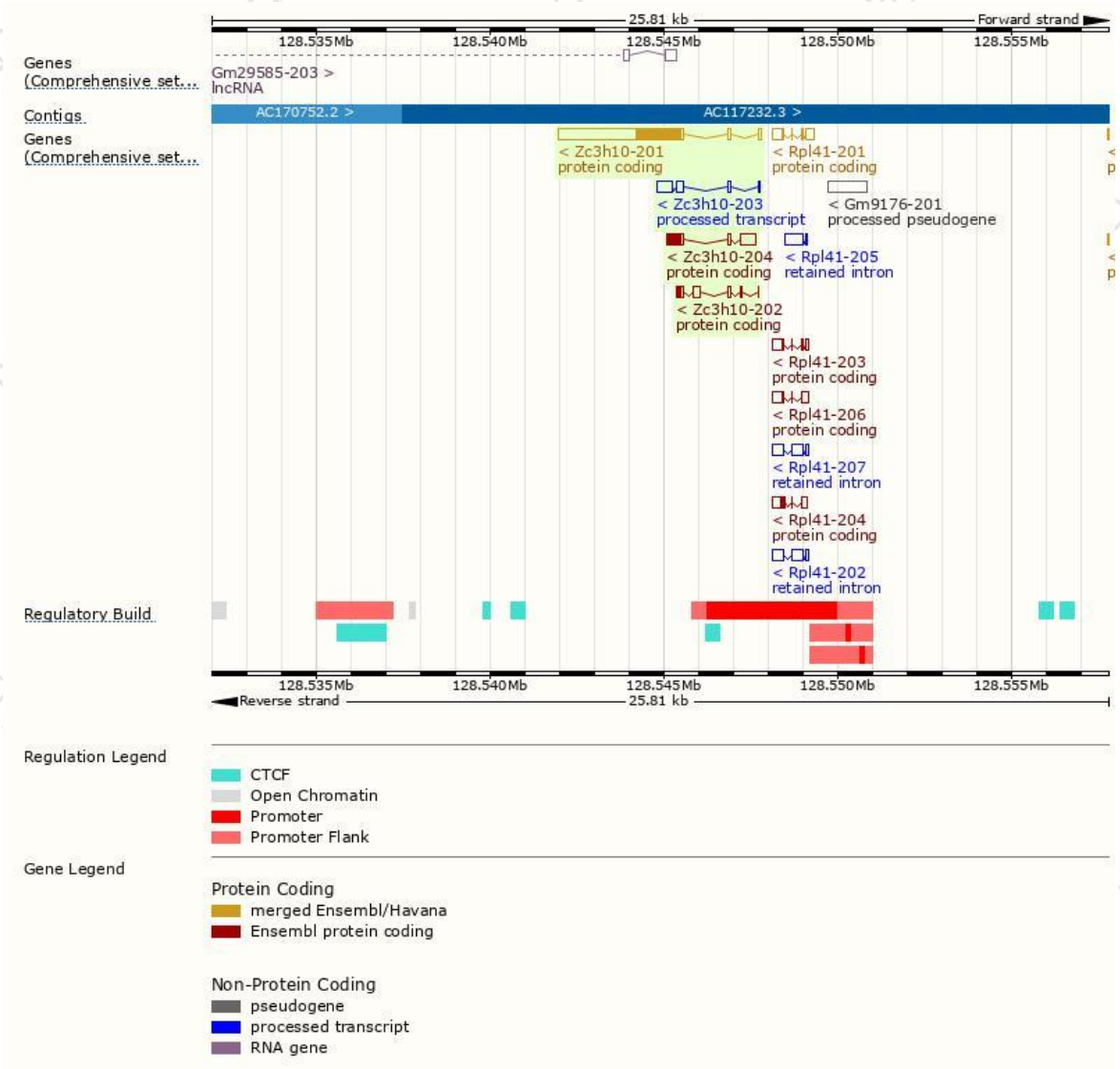
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Zc3h10-201	ENSMUST00000040572.9	3721	435aa	Protein coding	CCDS24281	Q8R205	TSL:1 GENCODE basic APPRIS P1
Zc3h10-204	ENSMUST00000152539.7	992	135aa	Protein coding	-	A0A1W2P6J1	CDS 3' incomplete TSL:2
Zc3h10-202	ENSMUST00000133458.1	565	49aa	Protein coding	-	A0A1W2P6L6	CDS 3' incomplete TSL:5
Zc3h10-203	ENSMUST00000135226.7	757	No protein	Processed transcript	-	-	TSL:3

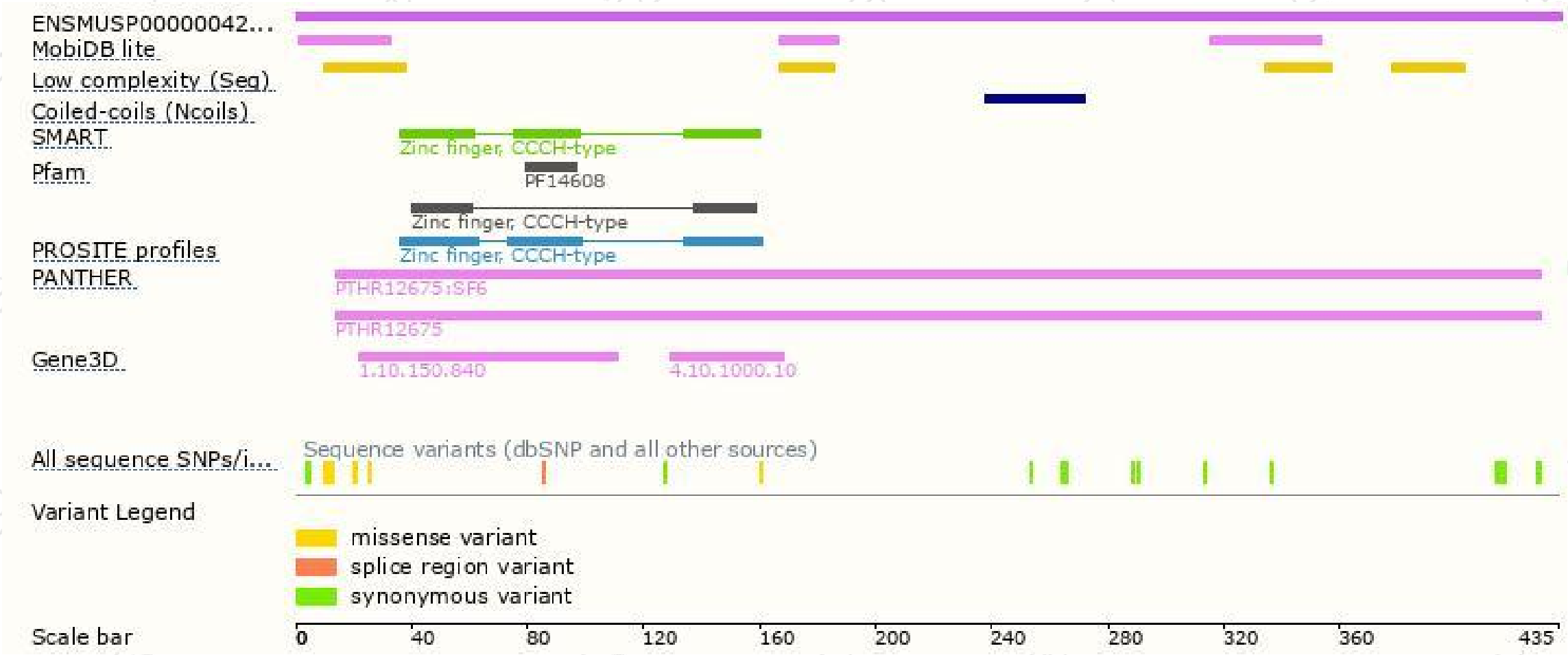
The strategy is based on the design of *Zc3h10-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

Tel: 400-9660890

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