Zdhhc18 Cas9-CKO Strategy

Designer: Xiaojing Li

Reviewer: JiaYu

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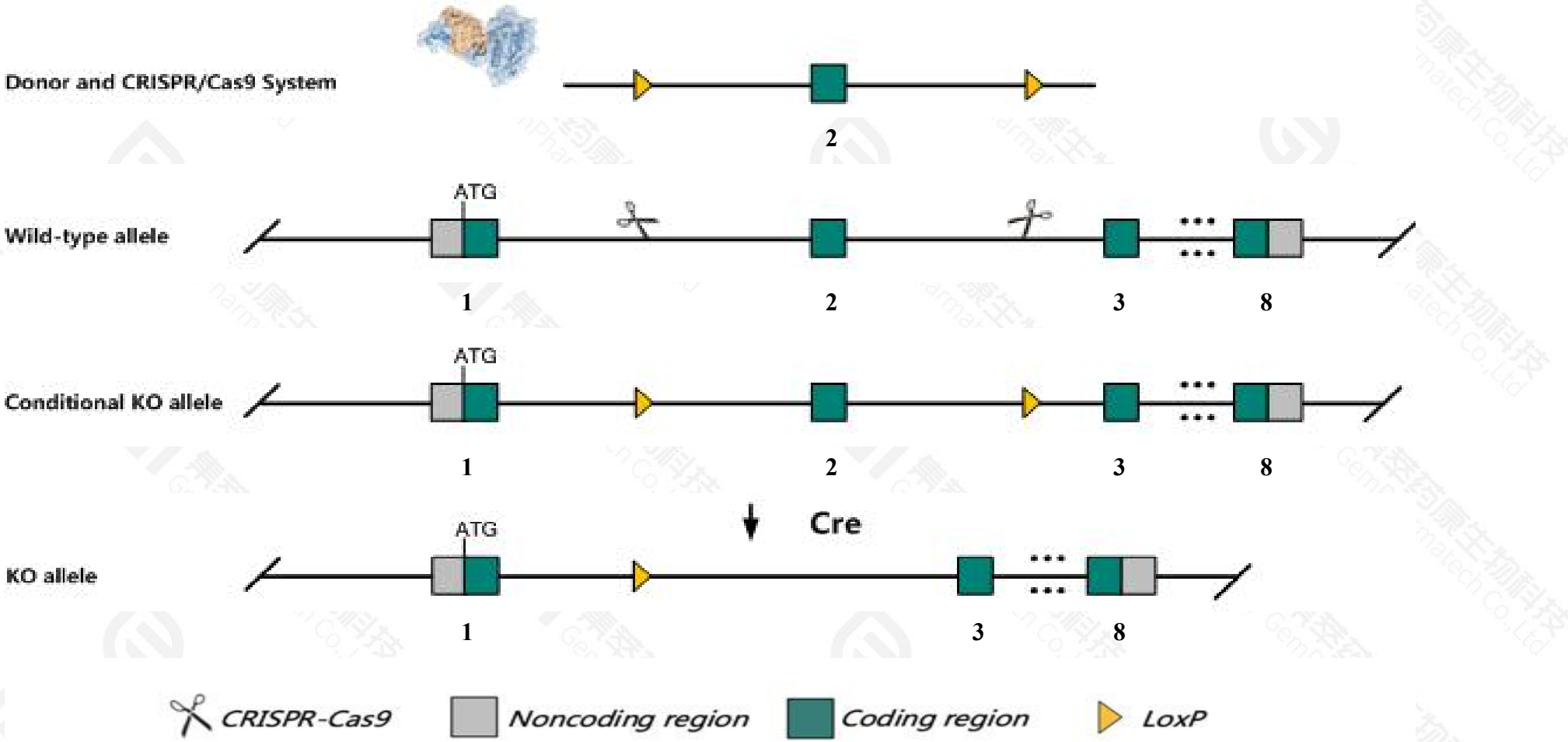
Project Overview

Project Name	***Zdhhc18***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR-Cas9 technology to edit the *Zdhhc18* gene. The schematic diagram is as follows:



Technical routes

➢ The *Zdhhc18* gene has 5 transcripts. According to the structure of *Zdhhc18* gene, exon2 of *Zdhhc18-201*(ENSMUST00000084238.5) transcript is recommended as the knockout region.The region contains 161bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR-Cas9 technology to modify *Zdhhc18* 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 *Zdhhc18* gene is located on the Chr4. 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）

Zdhhc18 zinc finger, DHHC domain containing 18 [Mus musculus (house mouse)]

Gene ID: 503610, updated on 24-Apr-2022

Summary

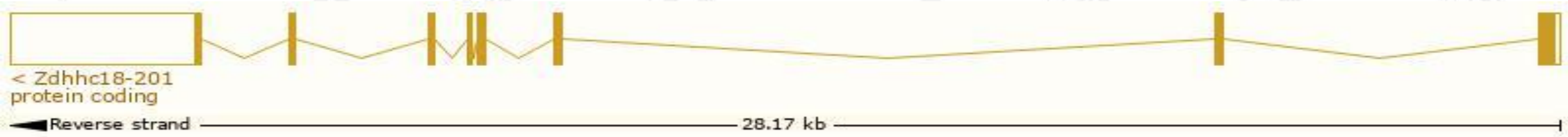
Official Symbol	Zdhhc18 provided by MGI
Official Full Name	zinc finger, DHHC domain containing 18 provided byMGI
Primary source	MGI:MGI:3527792
See related	Ensembl:ENSMUSG00000037553
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	DHHC-18
Expression	Broad expression in spleen adult (RPKM 53.1), thymus adult (RPKM 41.2) and 23 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

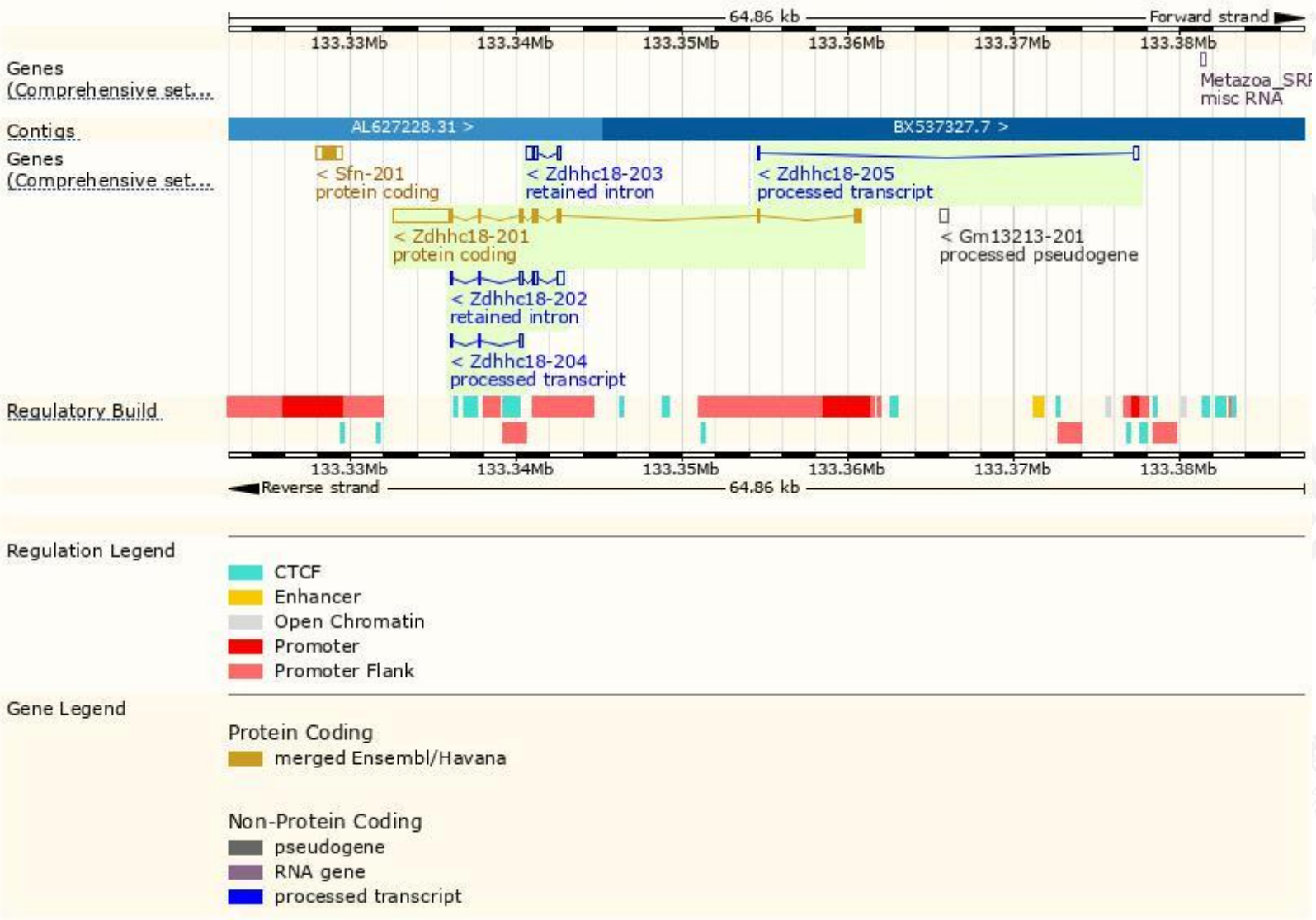
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Zdhhc18-201	ENSMUST00000084238.5	4580	380aa	Protein coding	CCDS38906		TSL:2 , GENCODE basic , APPRIS P1 ,
Zdhhc18-205	ENSMUST00000146464.2	316	No protein	Processed transcript	-		TSL:3 ,
Zdhhc18-204	ENSMUST00000142382.2	260	No protein	Processed transcript	-		TSL:2 ,
Zdhhc18-202	ENSMUST00000135999.8	896	No protein	Retained intron	-		TSL:2 ,
Zdhhc18-203	ENSMUST00000138639.2	673	No protein	Retained intron	-		TSL:2 ,

The strategy is based on the design of *Zdhhc18-201* 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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