Zfp366 Cas9-KO Strategy

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Reviewer: Xueting Zhang

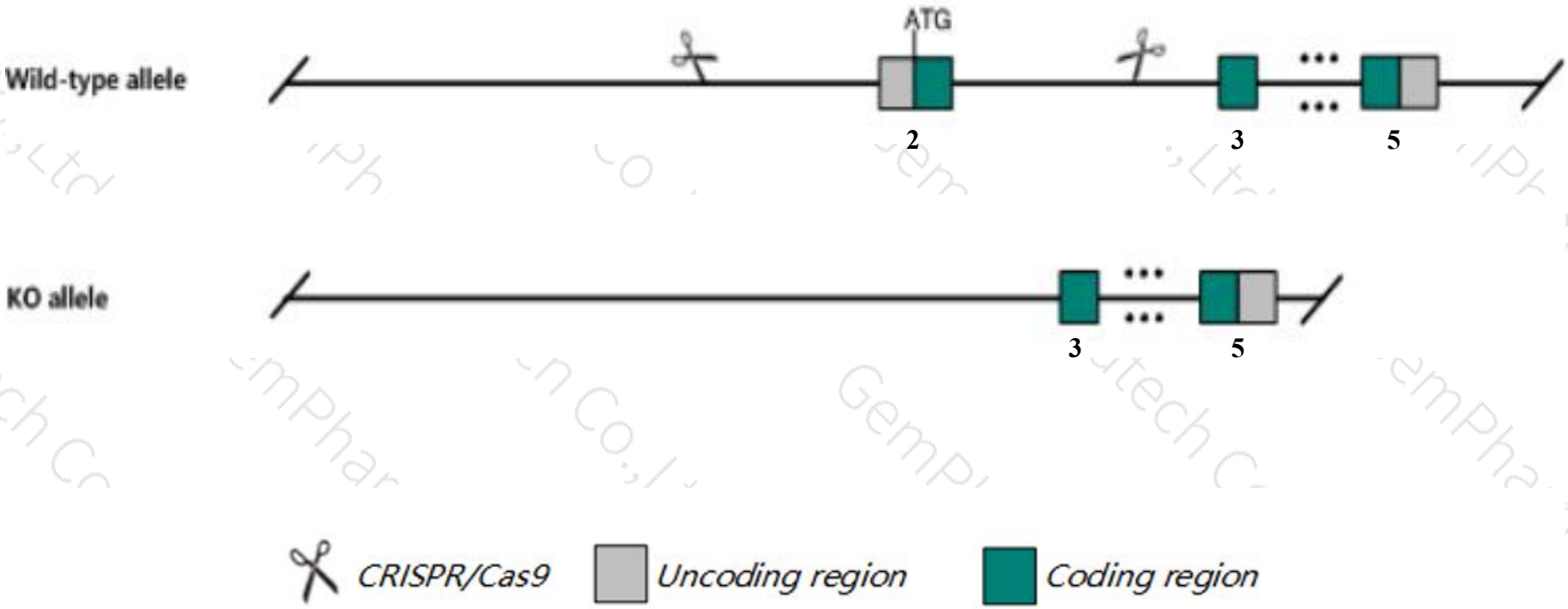
Design Date: 2020-11-23

Project Overview

Project Name	***Zfp366***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Zfp366* gene. The schematic diagram is as follows:



Technical routes

➢ The *Zfp366* gene has 1 transcript. According to the structure of *Zfp366* gene, exon2 of *Zfp366-201*(ENSMUST00000056558.9) transcript is recommended as the knockout region.The region contains start codon ATG.Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Zfp366* 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

➢ According to the existing MGI data,mice homozygous for an ENU-induced mutation exhibit perimembranous and muscular ventricular septal defects (VSD), and overriding aorta. Short snout, micrognathia, micropthalmia, hypoplastic thymus, and hydronephrosis are also observed.

➢ The *Zfp366* gene is located on the Chr13. 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 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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Zfp366 zinc finger protein 366 [Mus musculus (house mouse)]

Gene ID: 238803, updated on 13-Mar-2020

Summary

Official Symbol	Zfp366 provided by MGI
Official Full Name	zinc finger protein 366 provided byMGI
Primary source	MGI:MGI:2178429
See related	Ensembl:ENSMUSG00000050919
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	DC-SCRIPT, Znf366
Expression	Broad expression in lung adult (RPKM 7.2), spleen adult (RPKM 3.6) and 21 other tissuesSee more
Orthologs	human all

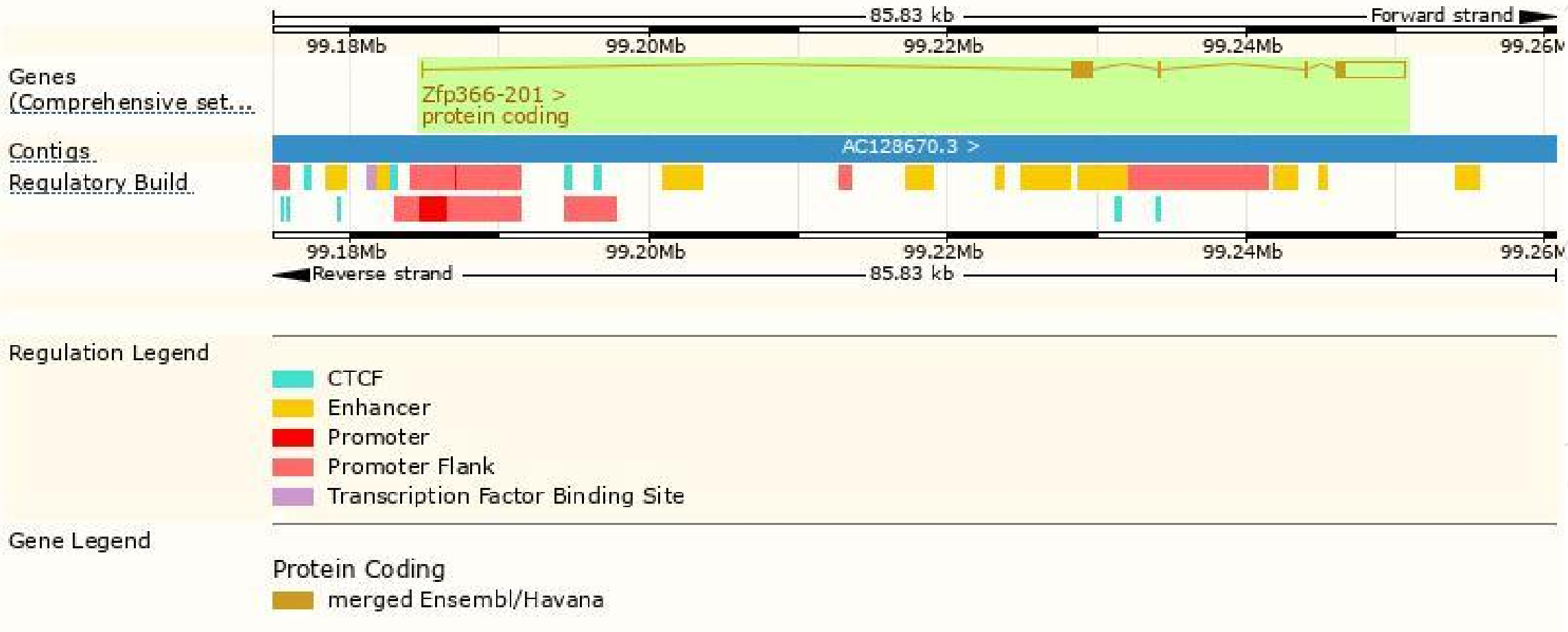
Transcript information（Ensembl）

The gene has 1 transcript,and the transcript is shown below:

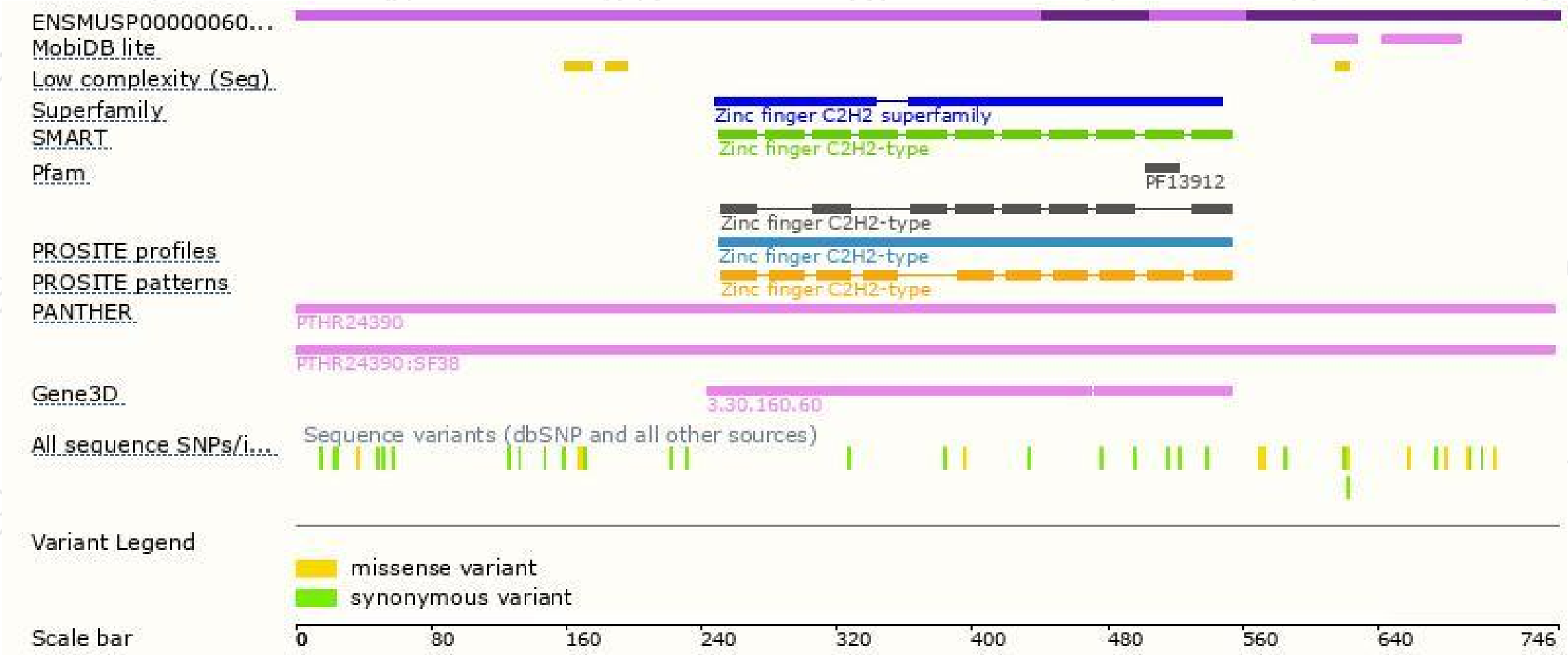
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Zfp366-201	ENSMUST00000056558.9	6382	746aa	Protein coding	CCDS26720	Q6NS86	TSL:1 GENCODE basic APPRIS P1

The strategy is based on the design of *Zfp366-201* transcript,the transcription is shown below:

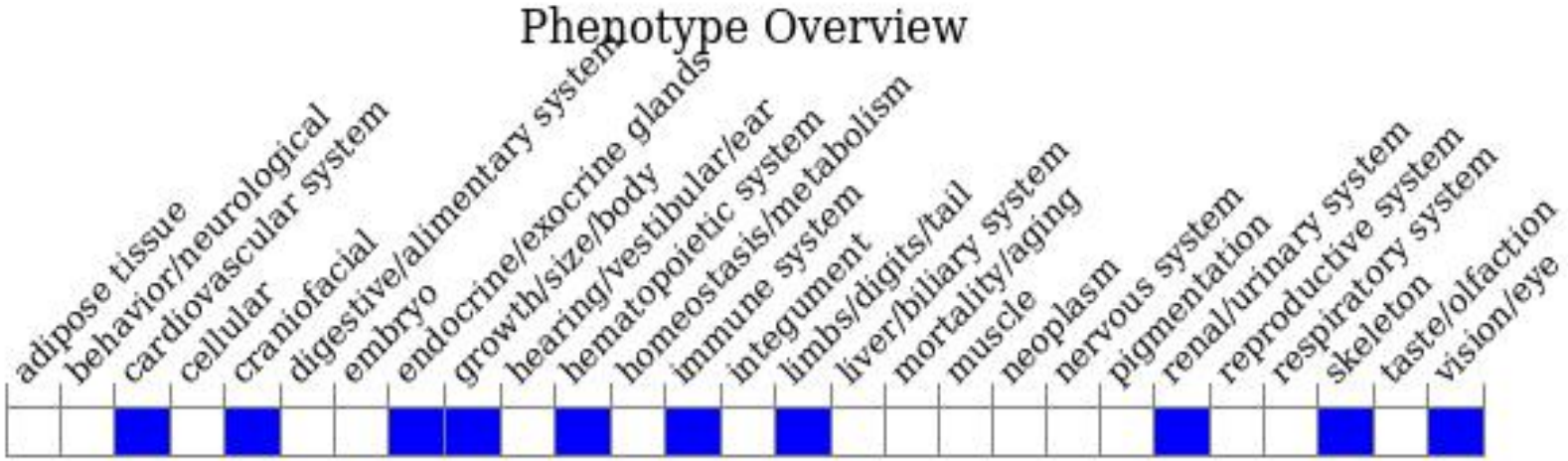
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue.Data quoted from MGI database(http://www.informatics.jax.org/).

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

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