

***Zbtb41* Cas9-CKO Strategy**

Designer: Xueting Zhang

Reviewer: Daohua Xu

Design Date: 2020-11-3

Project Overview

Project Name

Zbtb41

Project type

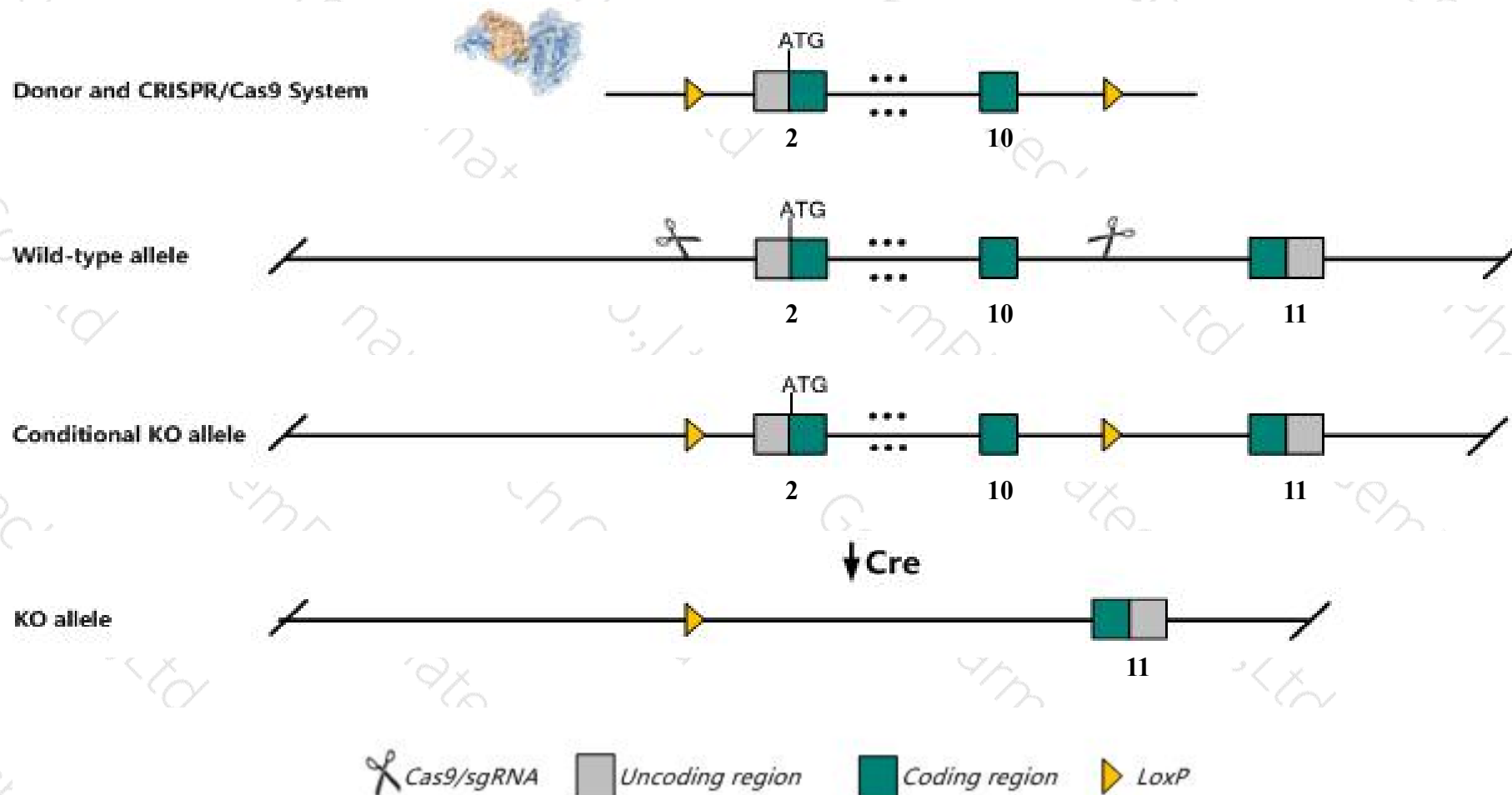
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Zbtb41* gene. The schematic diagram is as follows:



- The *Zbtb41* gene has 3 transcripts. According to the structure of *Zbtb41* gene, exon2-exon10 of *Zbtb41-201*(ENSMUST00000039867.9) 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 *Zbtb41* 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 *Zbtb41* gene is located on the Chr1. 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)

Zbtb41 zinc finger and BTB domain containing 41 [Mus musculus (house mouse)]

Gene ID: 226470, updated on 13-Mar-2020

Summary



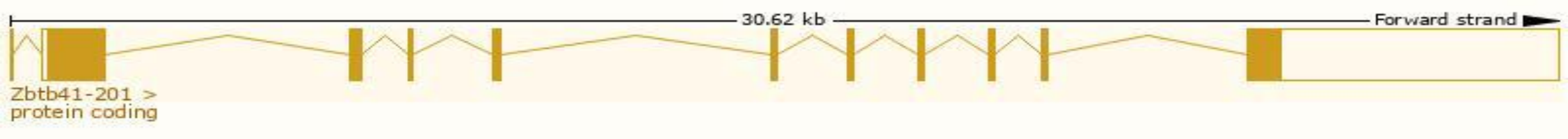
Official Symbol	Zbtb41 provided by MGI
Official Full Name	zinc finger and BTB domain containing 41 provided by MGI
Primary source	MGI:MGI:2444487
See related	Ensembl:ENSMUSG00000033964
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	8430415N23Rik, 9430031N01, 9830132G07Rik, AI316857
Expression	Ubiquitous expression in CNS E18 (RPKM 5.4), whole brain E14.5 (RPKM 5.0) and 25 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

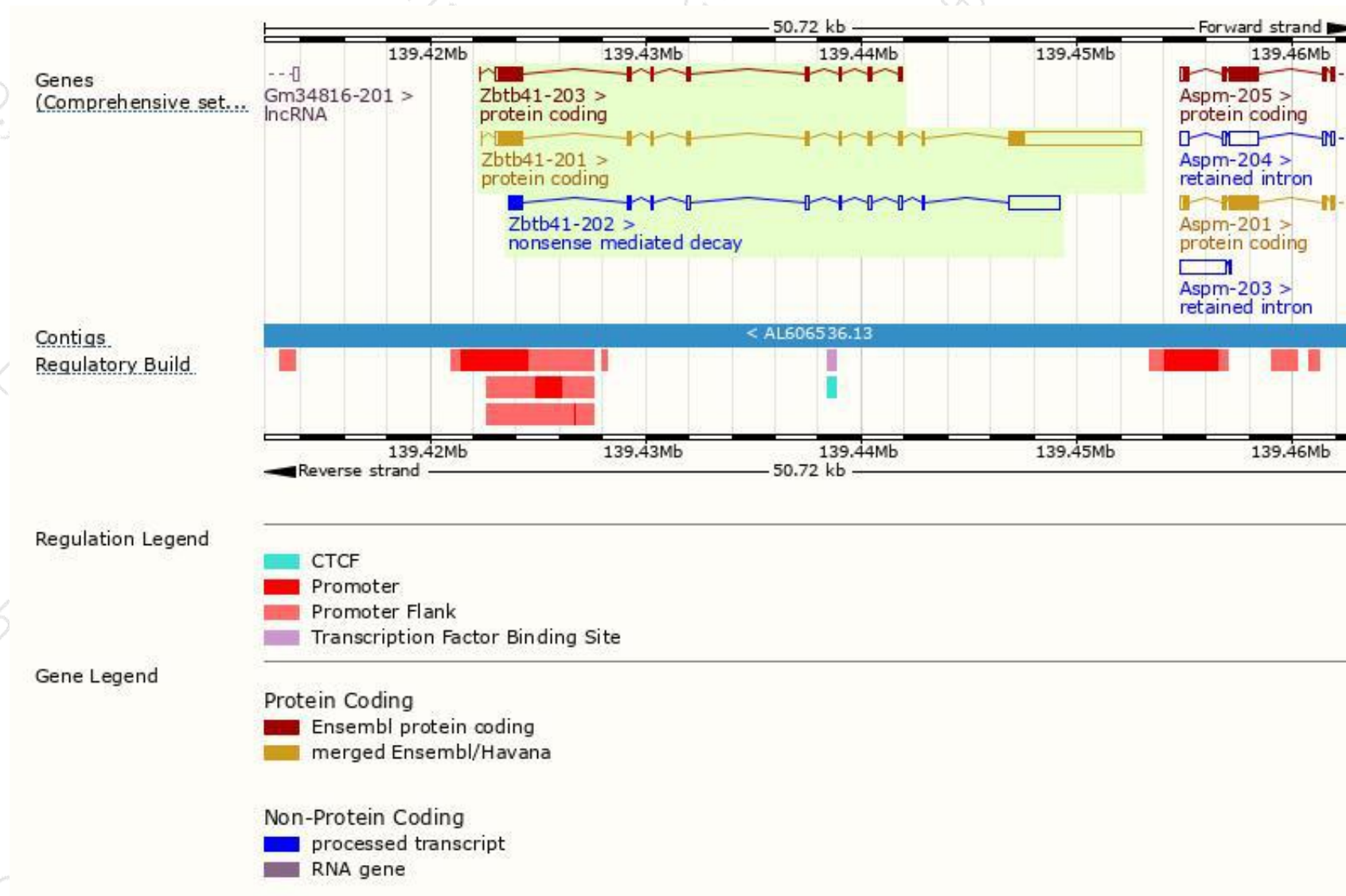
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Zbtb41-201	ENSMUST00000039867.9	8361	908aa	Protein coding	CCDS48385	Q811F1	TSL:1 GENCODE basic APPRIS P1
Zbtb41-203	ENSMUST00000200243.4	2127	657aa	Protein coding	-	A0A0G2JEJ7	CDS 3' incomplete TSL:5
Zbtb41-202	ENSMUST00000199011.1	3803	219aa	Nonsense mediated decay	-	A0A0G2JH01	CDS 5' incomplete TSL:1

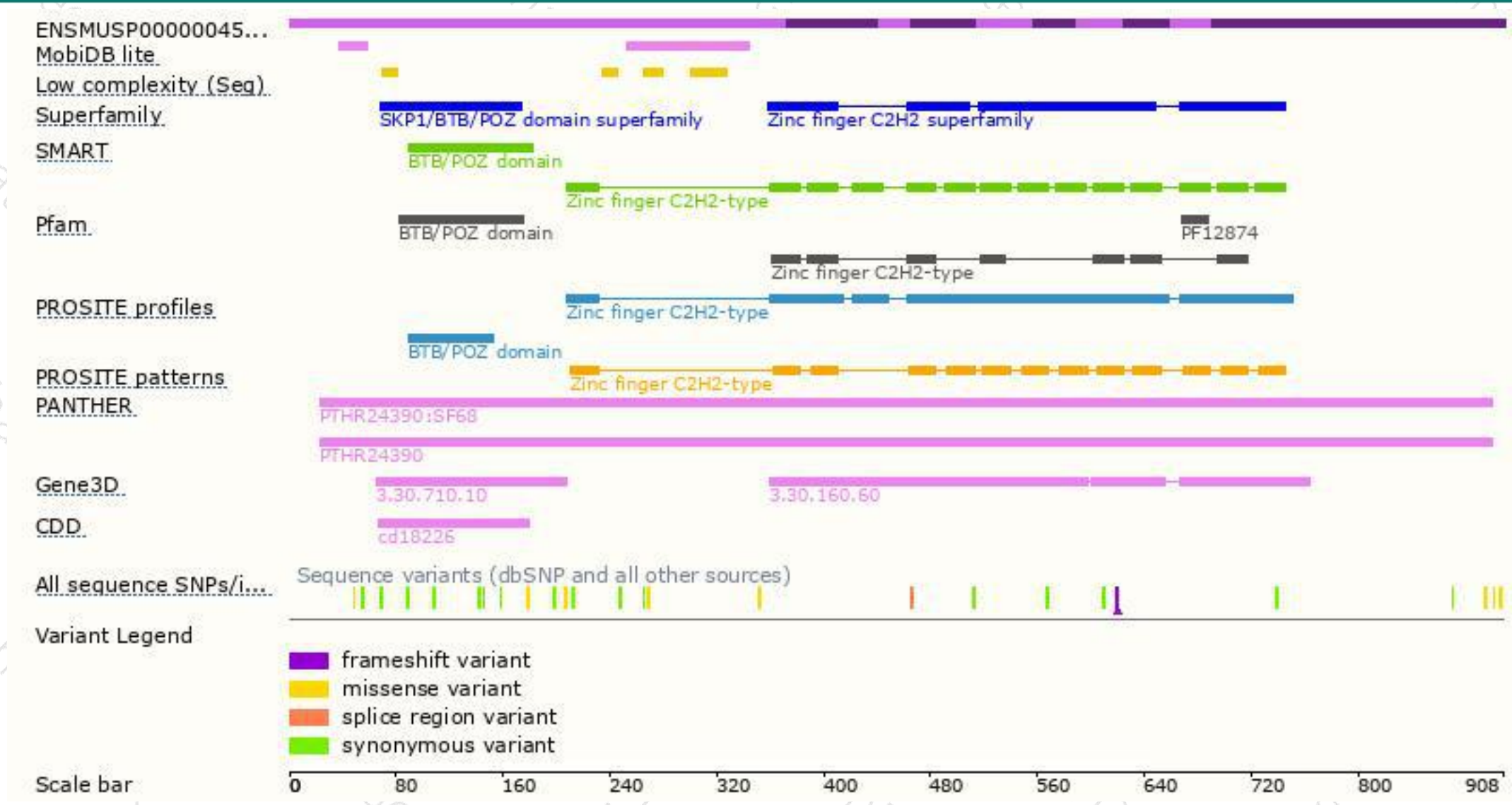
The strategy is based on the design of *Zbtb41-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

Tel: 025-5864 1534

