

***Zbtb7c* Cas9-CKO Strategy**

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Project Overview

Project Name

Zbtb7c

Project type

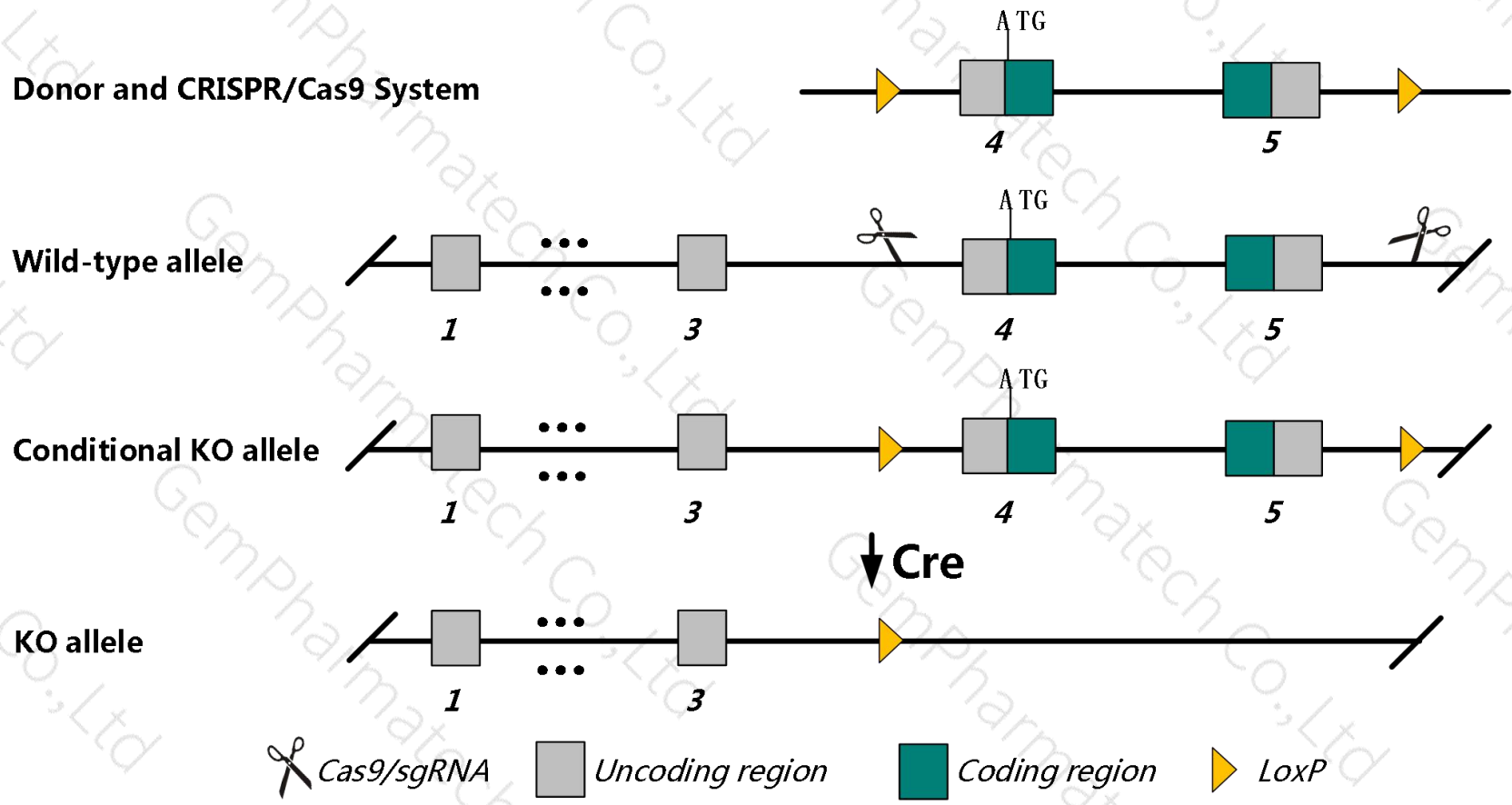
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Zbtb7c* gene. The schematic diagram is as follows:



- The *Zbtb7c* gene has 3 transcripts. According to the structure of *Zbtb7c* gene, exon4-exon5 of *Zbtb7c*-201(ENSMUST00000058997.14) 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 *Zbtb7c* 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.

- According to the existing MGI data, mice homozygous for a targeted mutation exhibit decreased proliferation of mouse embryonic fibroblasts.
- The *Zbtb7c* gene is located on the Chr18. 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)

Zbtb7c zinc finger and BTB domain containing 7C [Mus musculus (house mouse)]

Gene ID: 207259, updated on 13-Mar-2020

Summary



Official Symbol	Zbtb7c provided by MGI
Official Full Name	zinc finger and BTB domain containing 7C provided by MGI
Primary source	MGI:MGI:2443302
See related	Ensembl:ENSMUSG00000044646
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	B230208J24Rik, Kr-pok, Zbtb36
Expression	Broad expression in stomach adult (RPKM 11.5), colon adult (RPKM 6.0) and 21 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

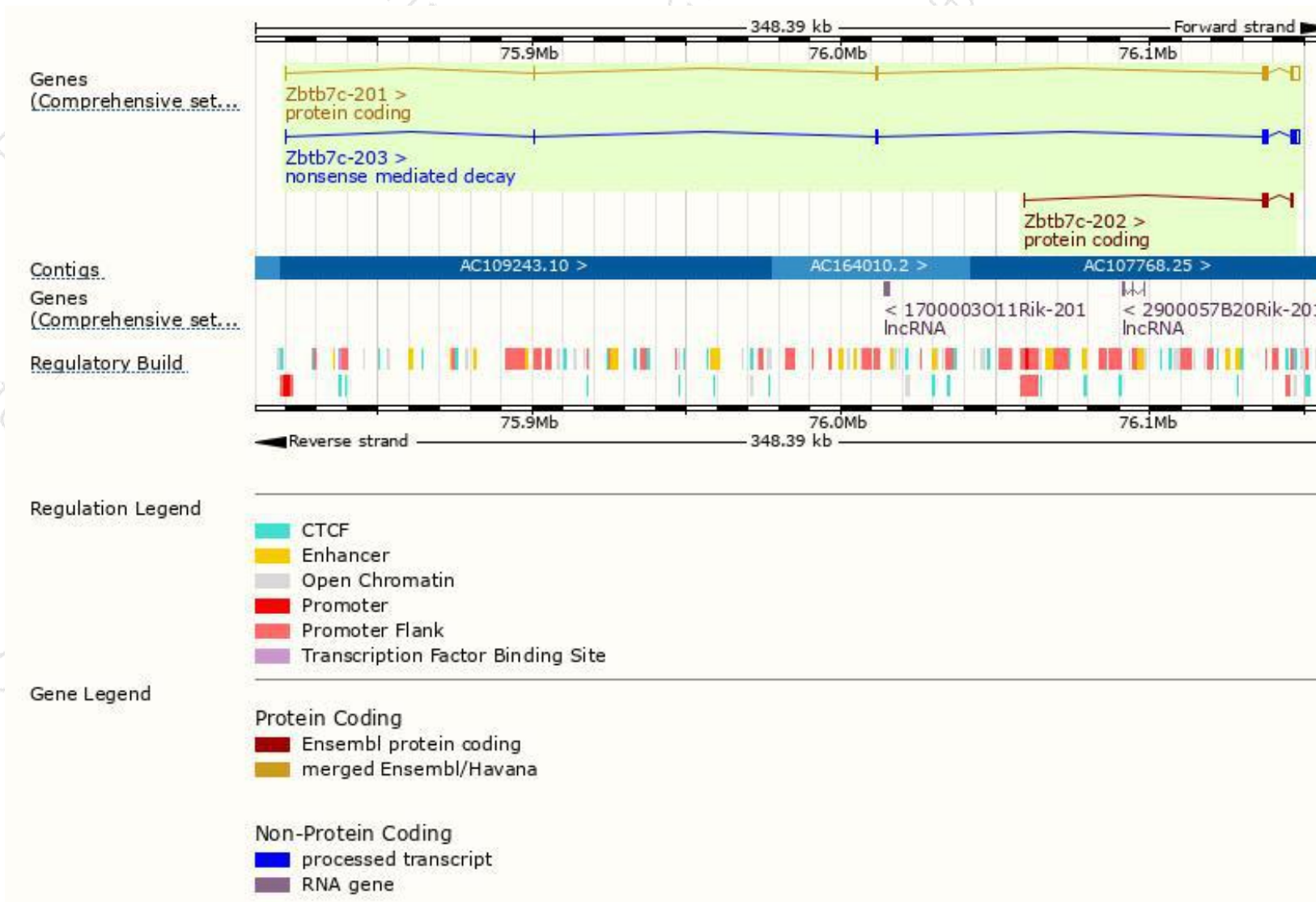
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Zbtb7c-201	ENSMUST00000058997.14	4572	619aa	Protein coding	CCDS29349	Q8VCZ7	TSL:1 GENCODE basic APPRIS P1
Zbtb7c-202	ENSMUST00000167921.1	2147	619aa	Protein coding	CCDS29349	Q8VCZ7	TSL:1 GENCODE basic APPRIS P1
Zbtb7c-203	ENSMUST00000236462.1	3571	619aa	Nonsense mediated decay	-	Q8VCZ7	

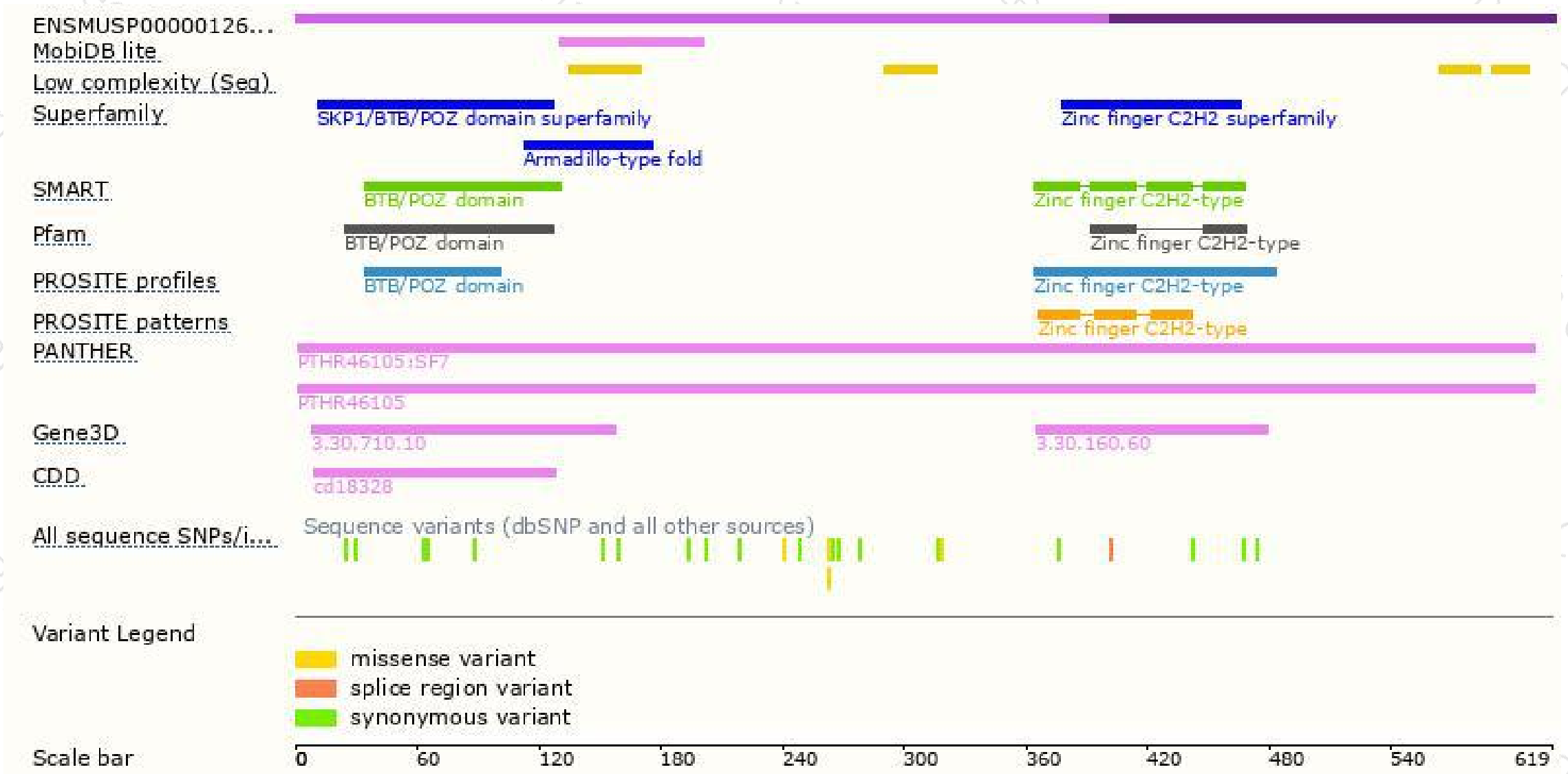
The strategy is based on the design of *Zbtb7c-201* transcript,the transcription is shown below:



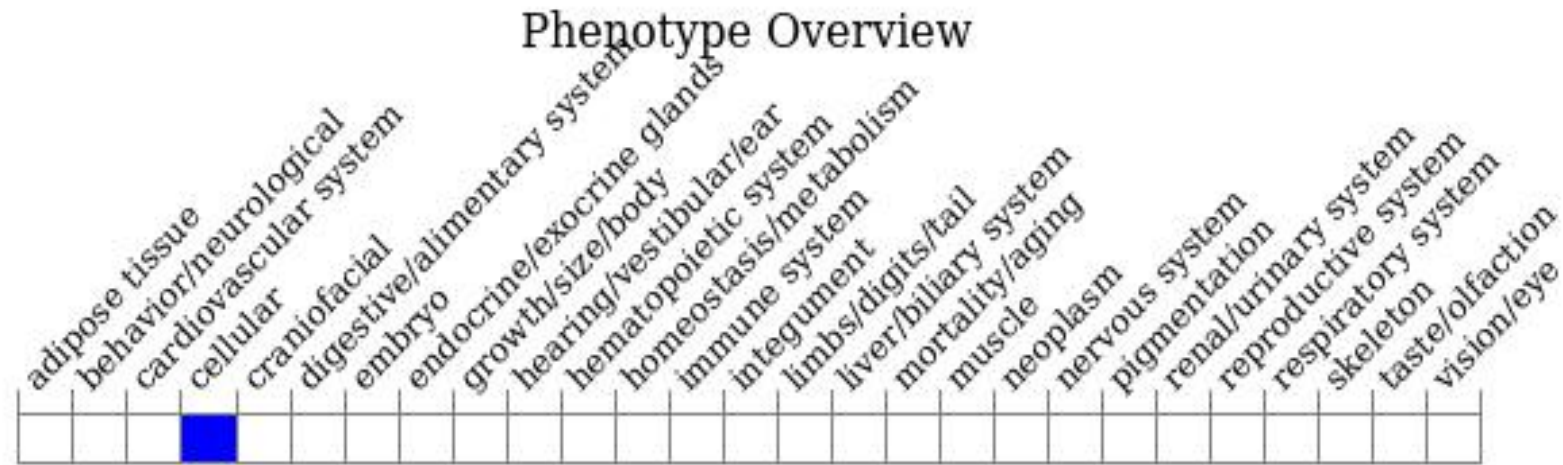
Genomic location distribution



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/>).

According to the existing MGI data, mice homozygous for a targeted mutation exhibit decreased proliferation of mouse embryonic fibroblasts.

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

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