

Zbtb46 Cas9-KO Strategy

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Project Overview

Project Name

Zbtb46

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Zbtb46* gene. The schematic diagram is as follows:



- The *Zbtb46* gene has 5 transcripts. According to the structure of *Zbtb46* gene, exon1 of *Zbtb46-205* (ENSMUST00000180222.7) 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 *Zbtb46* gene. The brief process is as follows: gRNA was transcribed in vitro. Cas9 and gRNA 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.

- According to the existing MGI data, Mice homozygous for a knock-out allele exhibit repressed altered myeloid potential in dendritic cells. Mice homozygous for a different knock-out allele exhibit partial activation of classical dendritic cells in the steady state.
- The *Zbtb46* gene is located on the Chr2. 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)

Zbtb46 zinc finger and BTB domain containing 46 [Mus musculus (house mouse)]

Gene ID: 72147, updated on 12-Mar-2019

Summary



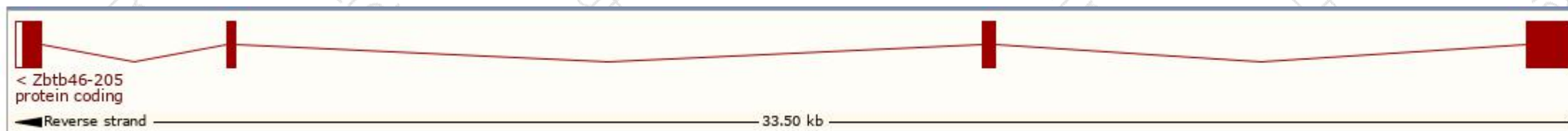
Official Symbol	Zbtb46 provided by MGI
Official Full Name	zinc finger and BTB domain containing 46 provided by MGI
Primary source	MGI:MGI:1919397
See related	Ensembl:ENSMUSG000000027583
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2610019F01Rik, 4933406L05Rik, BZEL, Btb4
Expression	Ubiquitous expression in cerebellum adult (RPKM 5.1), lung adult (RPKM 4.0) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

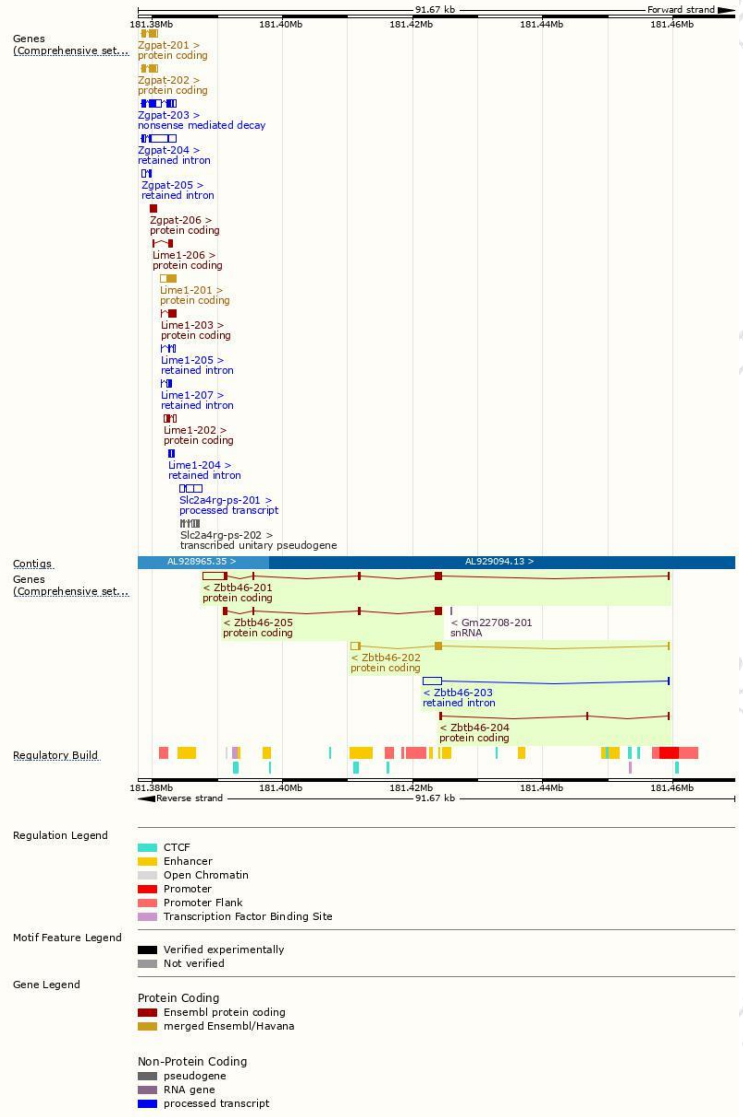
The gene has 5 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Zbtb46-201	ENSMUST00000029106.12	5309	600aa	Protein coding	CCDS50854	Q8BID6	TSL:5 GENCODE basic APPRIS P1
Zbtb46-202	ENSMUST00000087409.9	2577	434aa	Protein coding	CCDS17212	Q8BID6	TSL:1 GENCODE basic
Zbtb46-205	ENSMUST00000180222.7	2014	600aa	Protein coding	CCDS50854	Q8BID6	TSL:1 GENCODE basic APPRIS P1
Zbtb46-204	ENSMUST00000155535.1	468	42aa	Protein coding	-	E0CZ94	CDS 3' incomplete TSL:3
Zbtb46-203	ENSMUST00000146446.1	3006	No protein	Retained intron	-	-	TSL:1

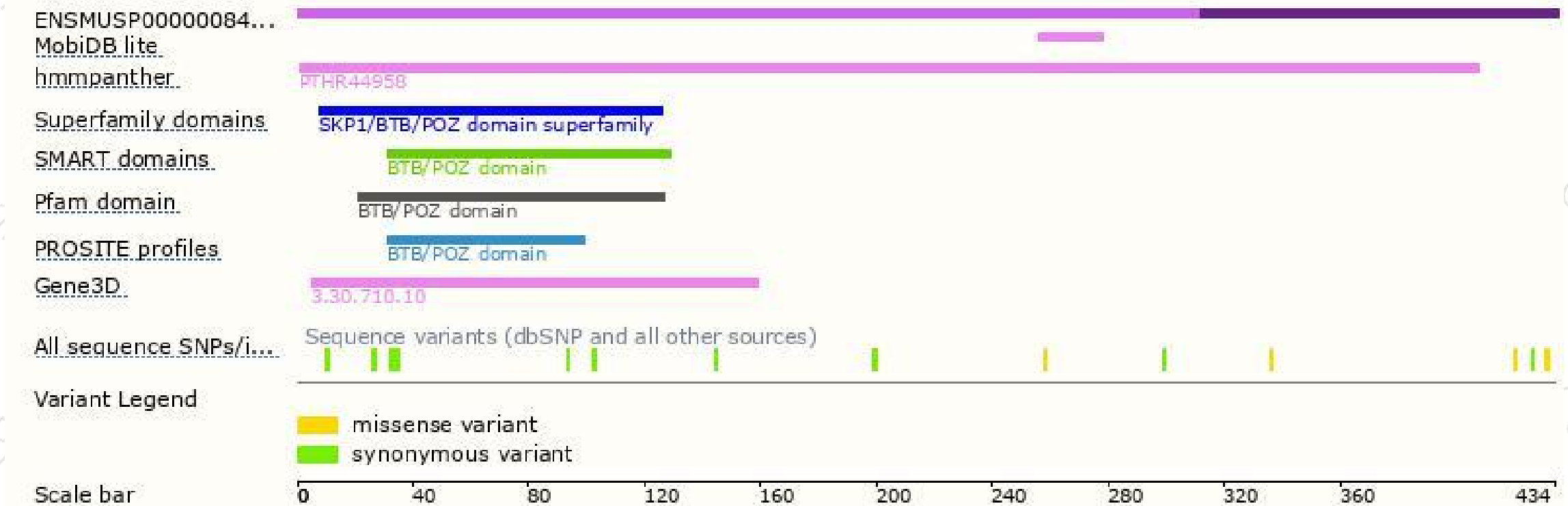
The strategy is based on the design of *Zbtb46-205* transcript, The transcription is shown below



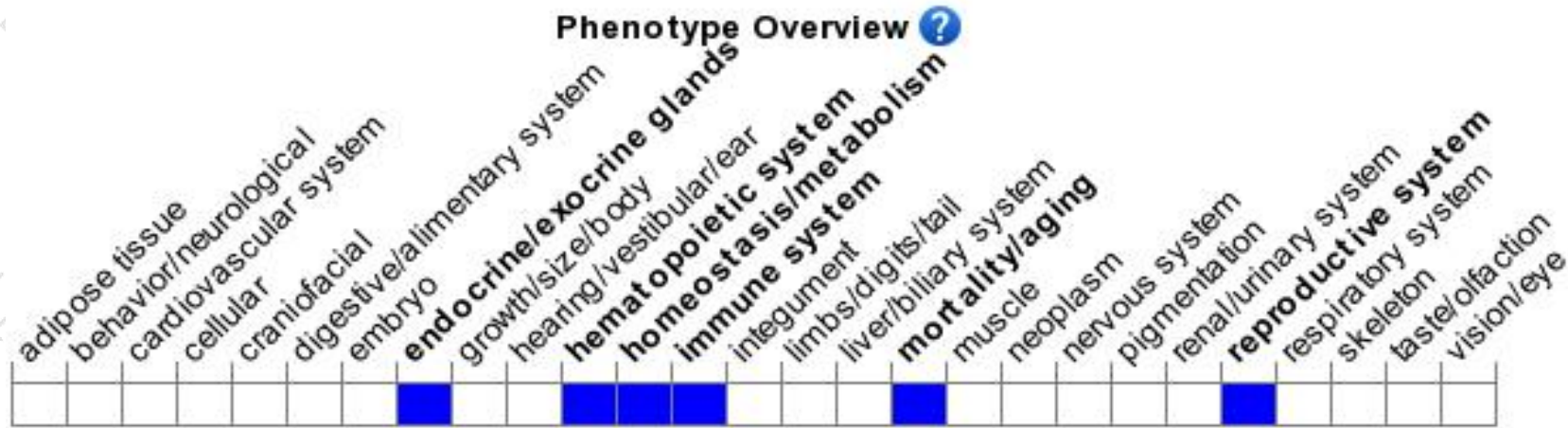
Genomic location distribution



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 knock-out allele exhibit repressed altered myeloid potential in dendritic cells. Mice homozygous for a different knock-out allele exhibit partial activation of classical dendritic cells in the steady state.

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

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