

Tbp Cas9-KO Strategy

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Project Overview

Project Name

Tbp

Project type

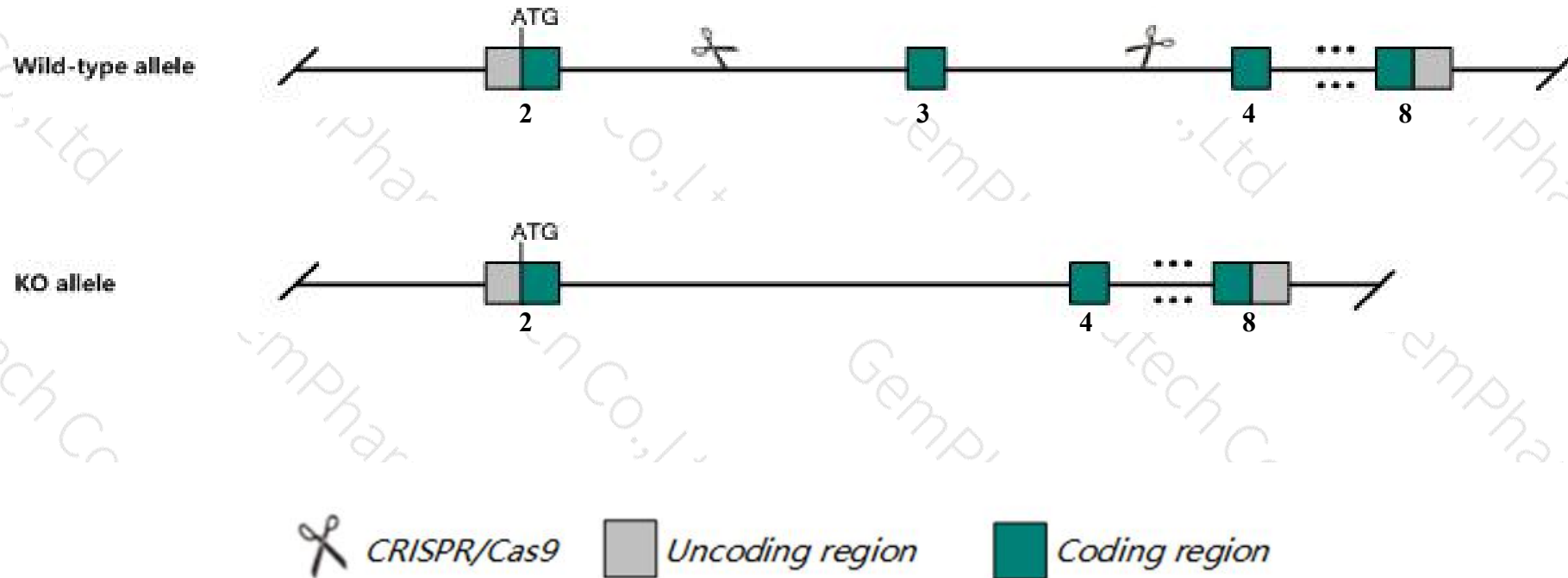
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Tbp* gene has 12 transcripts. According to the structure of *Tbp* gene, exon3 of *Tbp-211* (ENSMUST00000162505.7) transcript is recommended as the knockout region. The region contains 374bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Tbp* gene. The brief process is as follows: CRISPR/Cas9 system w

- According to the existing MGI data, Mice homozygous for one null allele exhibit embryonic lethality caused by hemorrhaging and clotting in the placenta and surviving embryos die prior to weaning. Mice homozygous for another null allele undergo growth arrest after hatching and apoptosis.
- The *Tbp* gene is located on the Chr17. 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)

Tbp TATA box binding protein [Mus musculus (house mouse)]

Gene ID: 21374, updated on 31-Jan-2019

Summary



Official Symbol	Tbp provided by MGI
Official Full Name	TATA box binding protein provided by MGI
Primary source	MGI:MGI:101838
See related	Ensembl:ENSMUSG00000014767
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	GTF2D1, Gtf2d, SCA17, TFIID
Expression	Ubiquitous expression in testis adult (RPKM 40.6), CNS E14 (RPKM 17.0) and 27 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

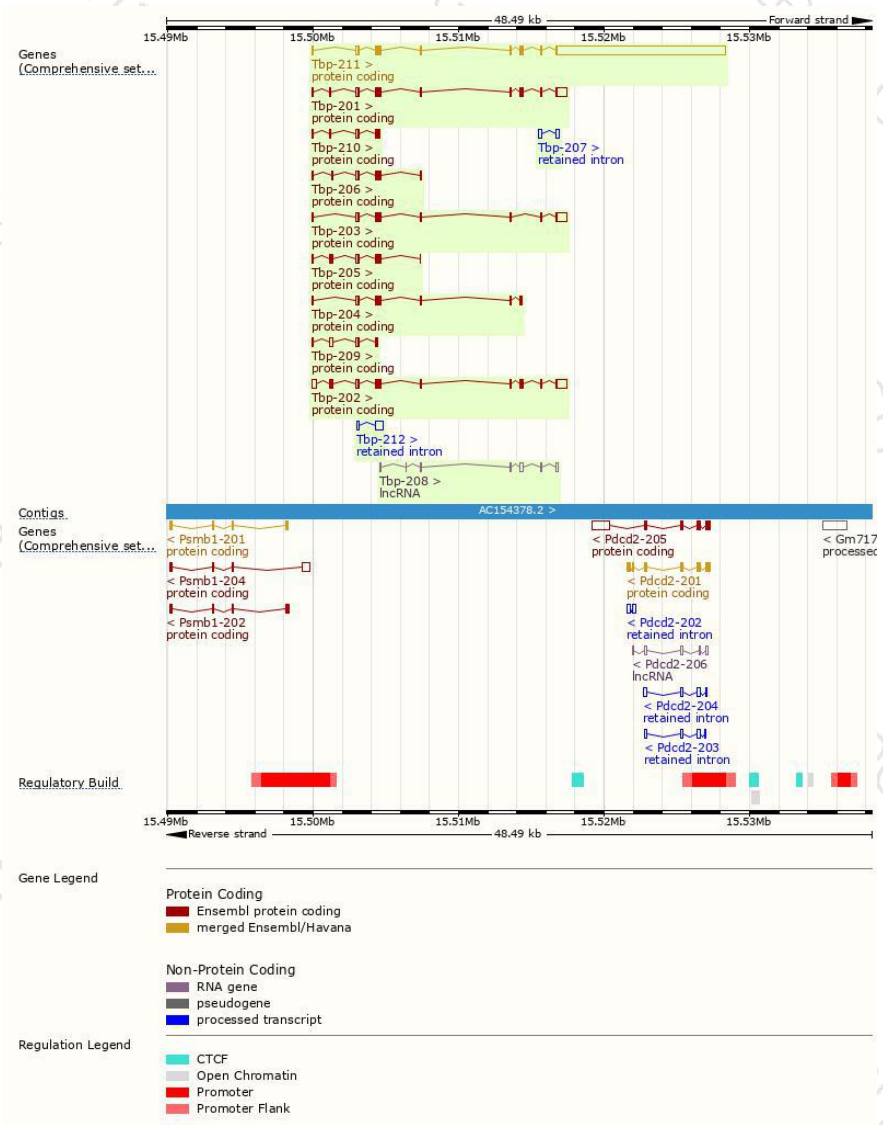
The gene has 12 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tbp-211	ENSMUST00000162505.7	12794	316aa	Protein coding	CCDS37454	P29037 Q6RI65	TSL:1 GENCODE basic APPRIS P1
Tbp-202	ENSMUST00000117593.7	2067	316aa	Protein coding	CCDS37454	P29037 Q6RI65	TSL:1 GENCODE basic APPRIS P1
Tbp-201	ENSMUST00000014911.11	1891	316aa	Protein coding	CCDS37454	P29037 Q6RI65	TSL:1 GENCODE basic APPRIS P1
Tbp-203	ENSMUST00000118001.7	1652	260aa	Protein coding	-	Q91YM5	TSL:1 GENCODE basic
Tbp-204	ENSMUST00000119879.8	967	250aa	Protein coding	-	F8WJ67	CDS 3' incomplete TSL:5
Tbp-206	ENSMUST00000147081.8	820	180aa	Protein coding	-	E9Q084	CDS 3' incomplete TSL:3
Tbp-205	ENSMUST00000143924.7	763	148aa	Protein coding	-	E9Q9Z7	CDS 3' incomplete TSL:5
Tbp-210	ENSMUST00000159197.7	685	128aa	Protein coding	-	E9Q6D9	CDS 3' incomplete TSL:3
Tbp-209	ENSMUST00000155051.7	639	76aa	Protein coding	-	D3Z453	CDS 3' incomplete TSL:2
Tbp-212	ENSMUST00000232661.1	691	No protein	Retained intron	-	-	
Tbp-207	ENSMUST00000149518.1	460	No protein	Retained intron	-	-	TSL:2
Tbp-208	ENSMUST00000153480.1	712	No protein	lncRNA	-	-	TSL:3

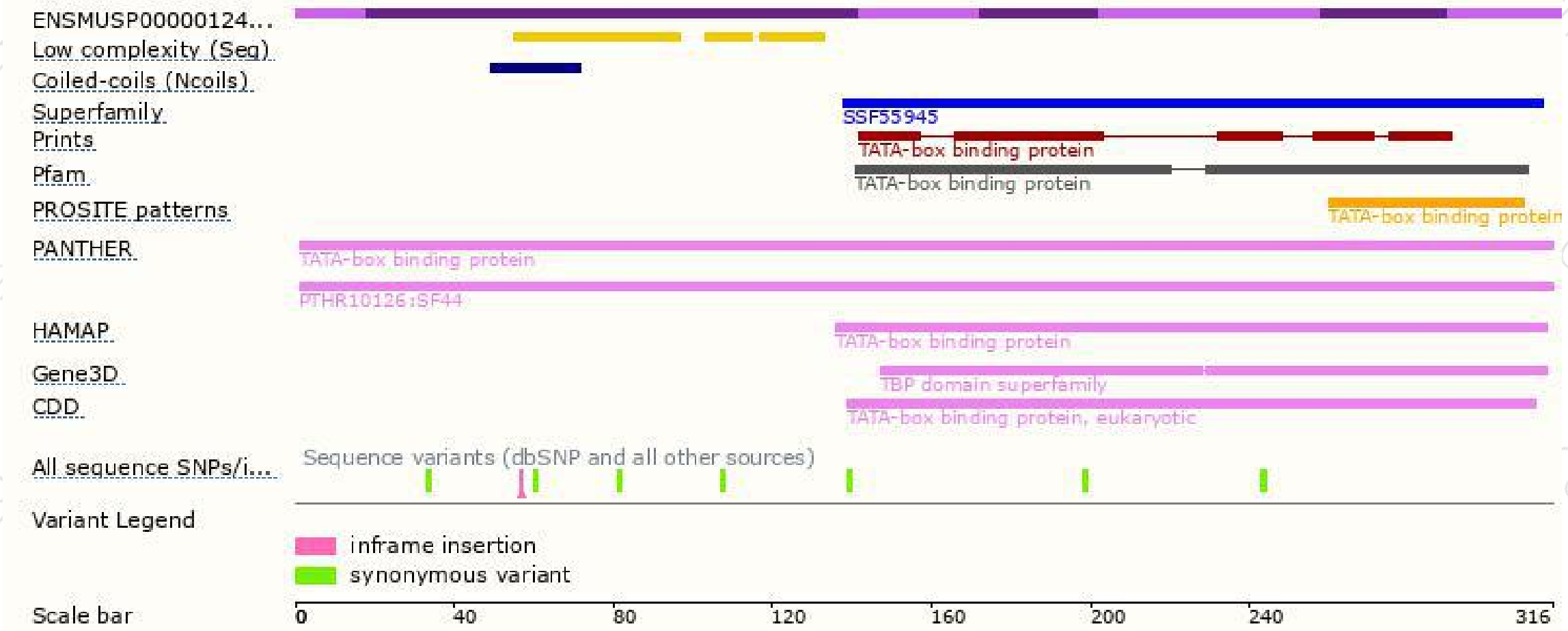
The strategy is based on the design of *Tbp-211* transcript,The transcription is shown below



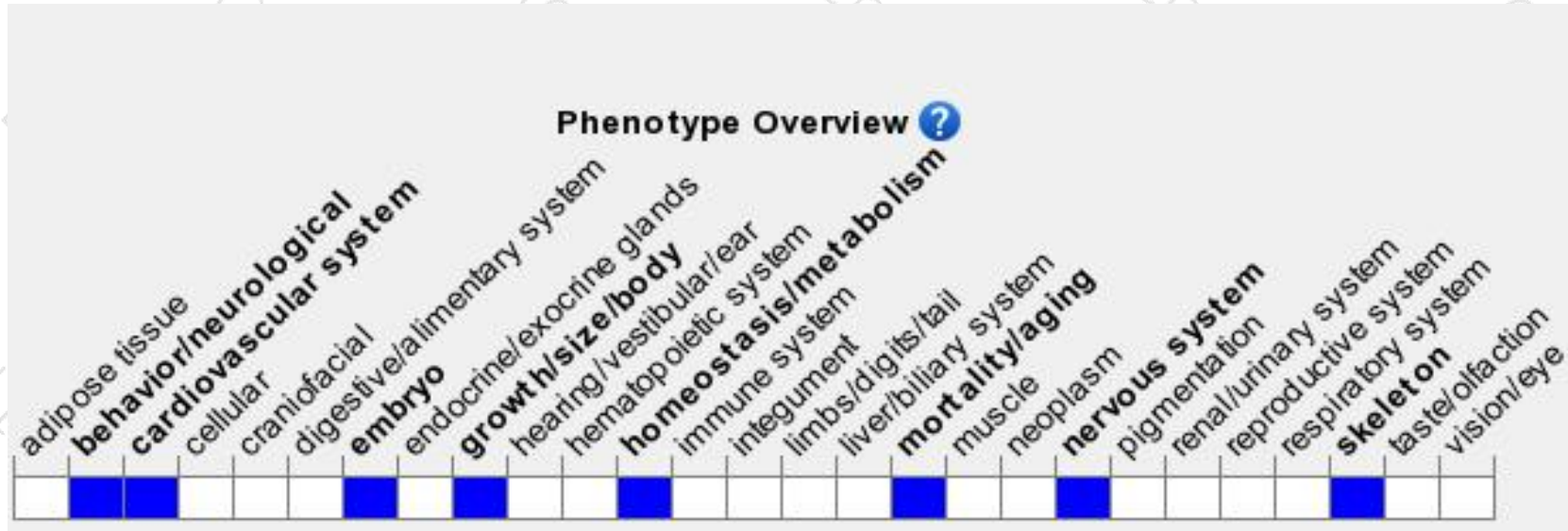
Genomic location distribution



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 one null allele exhibit embryonic lethality caused by hemorrhaging and clotting in the placenta and surviving embryos die prior to weaning. Mice homozygous for another null allele undergo growth arrest after hatching and apoptosis.

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

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