

Ltbp1 Cas9-KO Strategy

Designer:

Huan Fan

Reviewer:

Huan Wang

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Project Overview

Project Name

Ltbp1

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Ltbp1* gene has 10 transcripts. According to the structure of *Ltbp1* gene, exon6-exon7 of *Ltbp1-201* (ENSMUST00000001927.11) transcript is recommended as the knockout region. The region contains 500bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ltbp1* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for a null allele exhibit embryonic and neonatal lethality associated with defects in the aortic arch and outflow tract.
- Transcript *Ltbpl-209* may not be affected.
- The *Ltbpl* 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)

Ltbp1 latent transforming growth factor beta binding protein 1 [Mus musculus (house mouse)]

Gene ID: 268977, updated on 3-Feb-2019

Summary



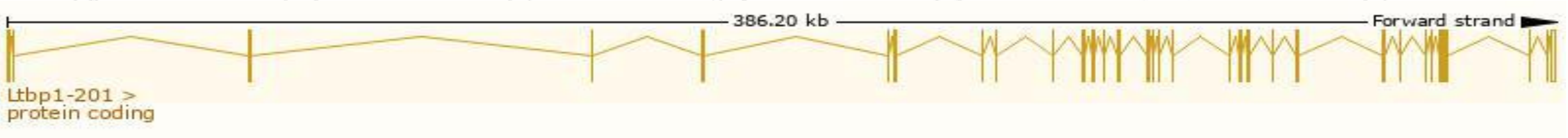
Official Symbol	Ltbp1 provided by MGI
Official Full Name	latent transforming growth factor beta binding protein 1 provided by MGI
Primary source	MGI:MGI:109151
See related	Ensembl:ENSMUSG000000001870
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	9430031G15Rik, 9830146M04, Ltbp-1, Ltbp1L, TGF-beta1-BP-1, Tgfb, b2b1000Clo
Expression	Broad expression in ovary adult (RPKM 29.6), limb E14.5 (RPKM 18.7) and 16 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ltbp1-201	ENSMUST0000001927.11	6671	1712aa	Protein coding	CCDS28973	Q8CG19	TSL:5 GENCODE basic
Ltbp1-203	ENSMUST00000112516.7	5140	1394aa	Protein coding	CCDS37694	Q8CG19	TSL:5 GENCODE basic
Ltbp1-202	ENSMUST00000112514.1	4870	1341aa	Protein coding	CCDS84336	Q8CG19	TSL:5 GENCODE basic APPRIS P1
Ltbp1-210	ENSMUST00000234490.1	6235	1713aa	Protein coding	-	-	GENCODE basic
Ltbp1-205	ENSMUST00000135447.7	3114	980aa	Protein coding	-	B1B1E2	CDS 3' incomplete TSL:1
Ltbp1-209	ENSMUST00000234327.1	246	82aa	Protein coding	-	-	5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete
Ltbp1-206	ENSMUST00000135750.1	3277	No protein	Retained intron	-	-	TSL:1
Ltbp1-204	ENSMUST00000127458.1	1905	No protein	Retained intron	-	-	TSL:1
Ltbp1-208	ENSMUST00000234008.1	823	No protein	lncRNA	-	-	
Ltbp1-207	ENSMUST00000146839.1	519	No protein	lncRNA	-	-	TSL:2

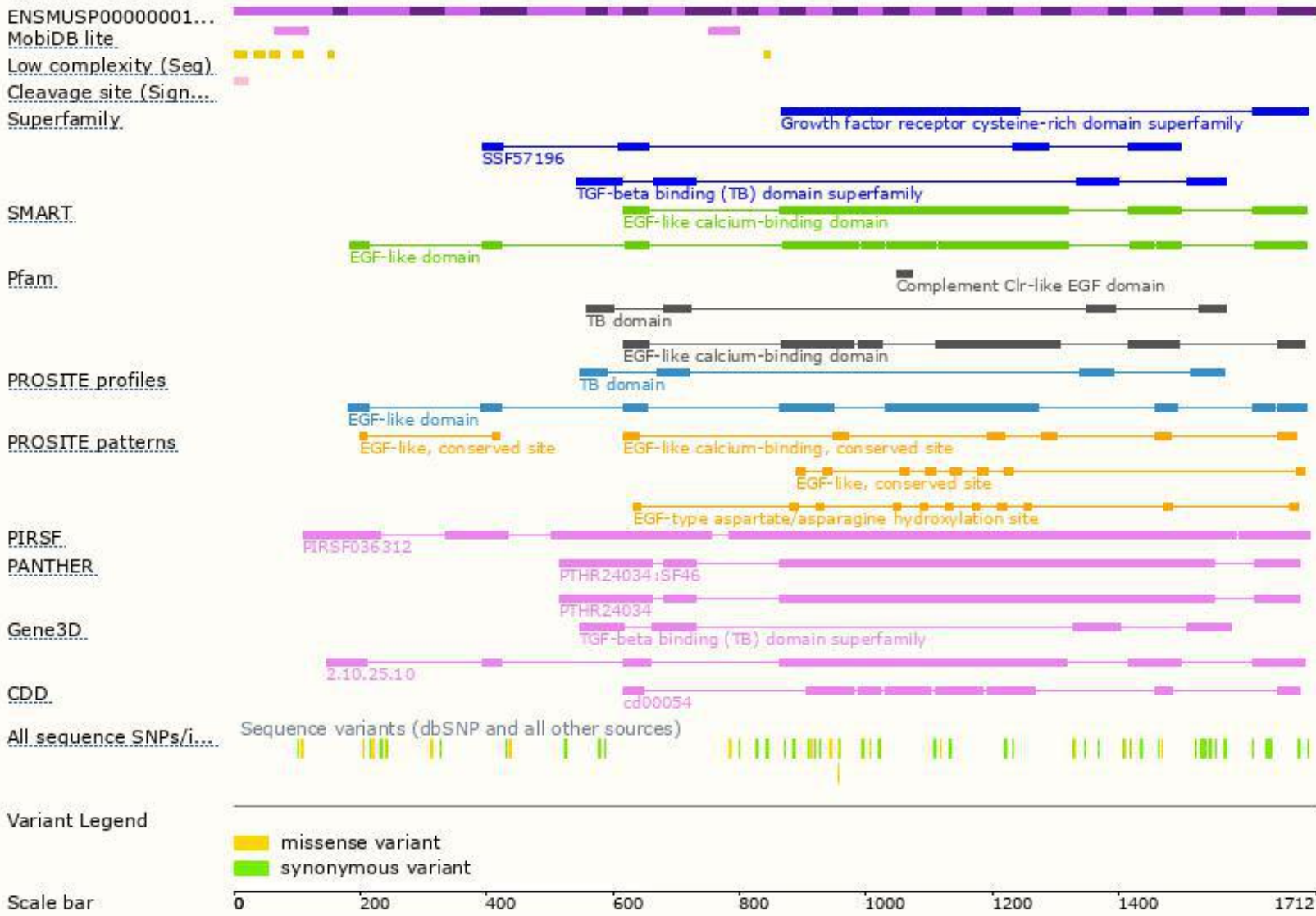
The strategy is based on the design of *Ltbp1-201* transcript,The transcription is shown below



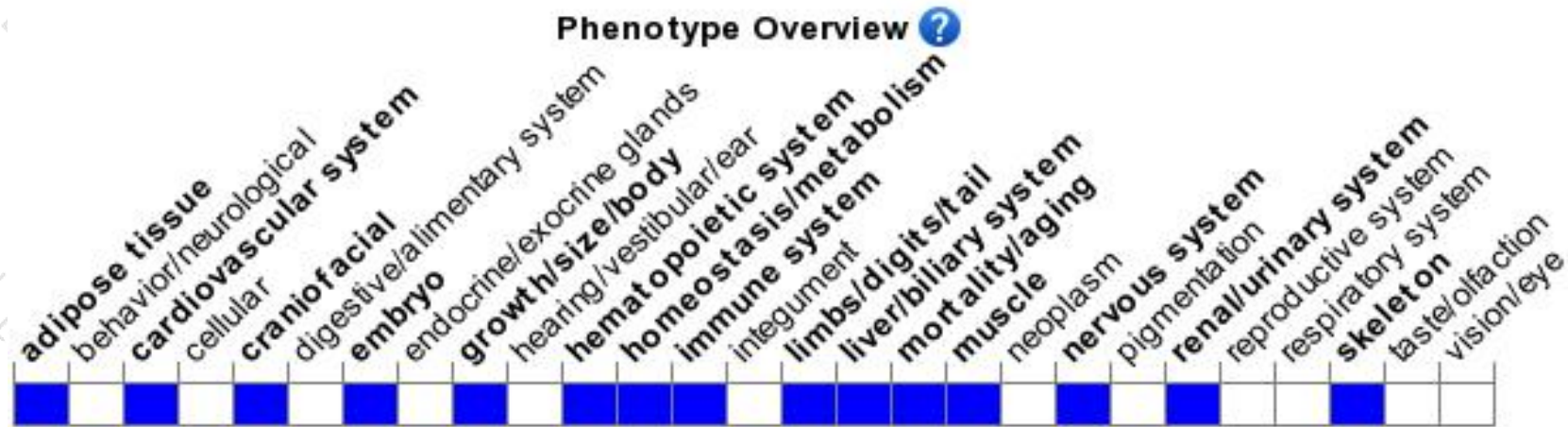
Genomic location distribution



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 null allele exhibit embryonic and neonatal lethality associated with defects in the aortic arch and outflow tract.

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

Tel: 400-9660890

