

***Tor1b* Cas9-KO Strategy**

Designer: Xueting Zhang

Reviewer: Yanhua Shen

Design Date: 2020-4-28

Project Overview

Project Name

Tor1b

Project type

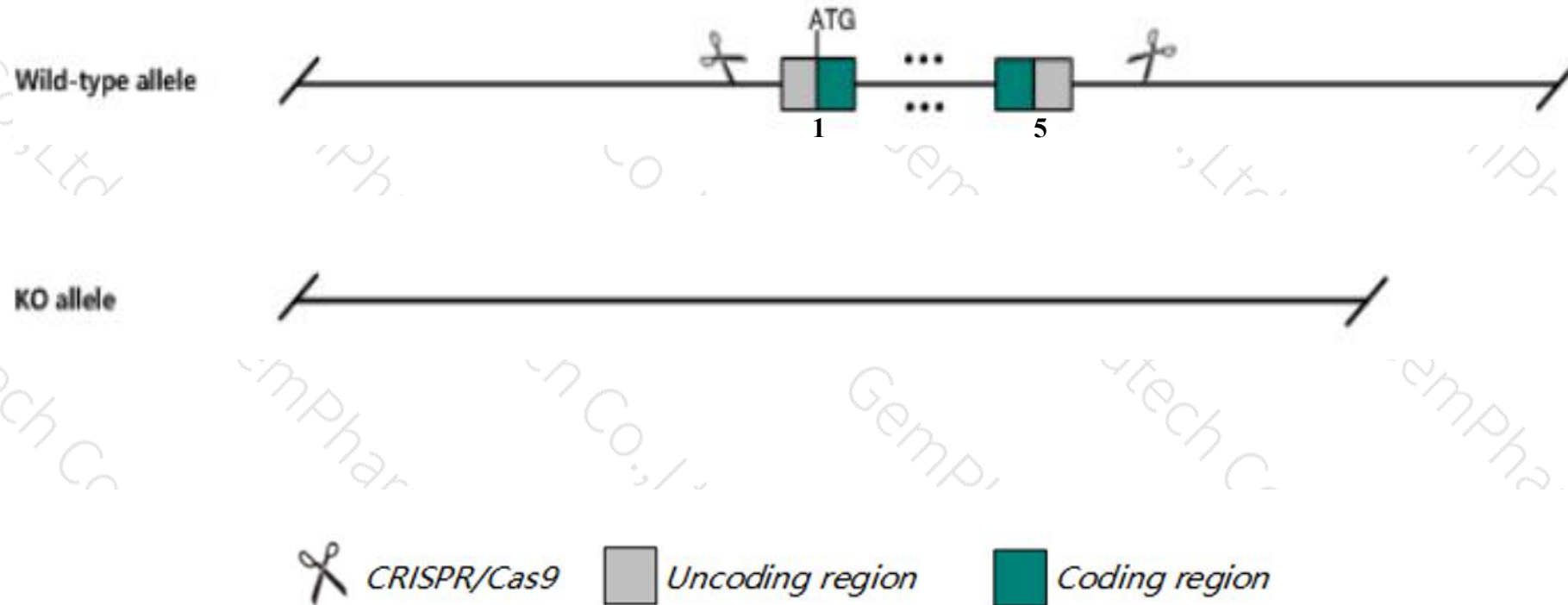
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tor1b* gene. The schematic diagram is as follows:



- The *Tor1b* gene has 7 transcripts. According to the structure of *Tor1b* gene, exon1-exon5 of *Tor1b-201* (ENSMUST00000028199.11) 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 *Tor1b* gene. The brief process is as follows: CRISPR/Cas9 system

- The knockout region is near to the C-terminal of *Tor1a* gene ,this strategy may influence the regulatory function of the C-terminal of *Tor1a* gene.
- The *Tor1b* 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)

Tor1b torsin family 1, member B [Mus musculus (house mouse)]

Gene ID: 30934, updated on 13-Mar-2020

Summary



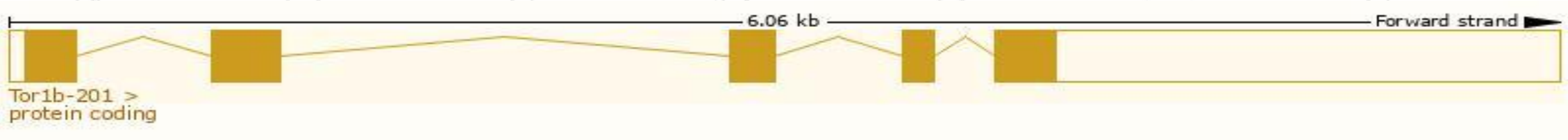
Official Symbol	Tor1b provided by MGI
Official Full Name	torsin family 1, member B provided by MGI
Primary source	MGI:MGI:1353605
See related	Ensembl:ENSMUSG00000026848
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2610016F05Rik, DQ1, torsinB
Expression	Ubiquitous expression in adrenal adult (RPKM 17.0), bladder adult (RPKM 14.3) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

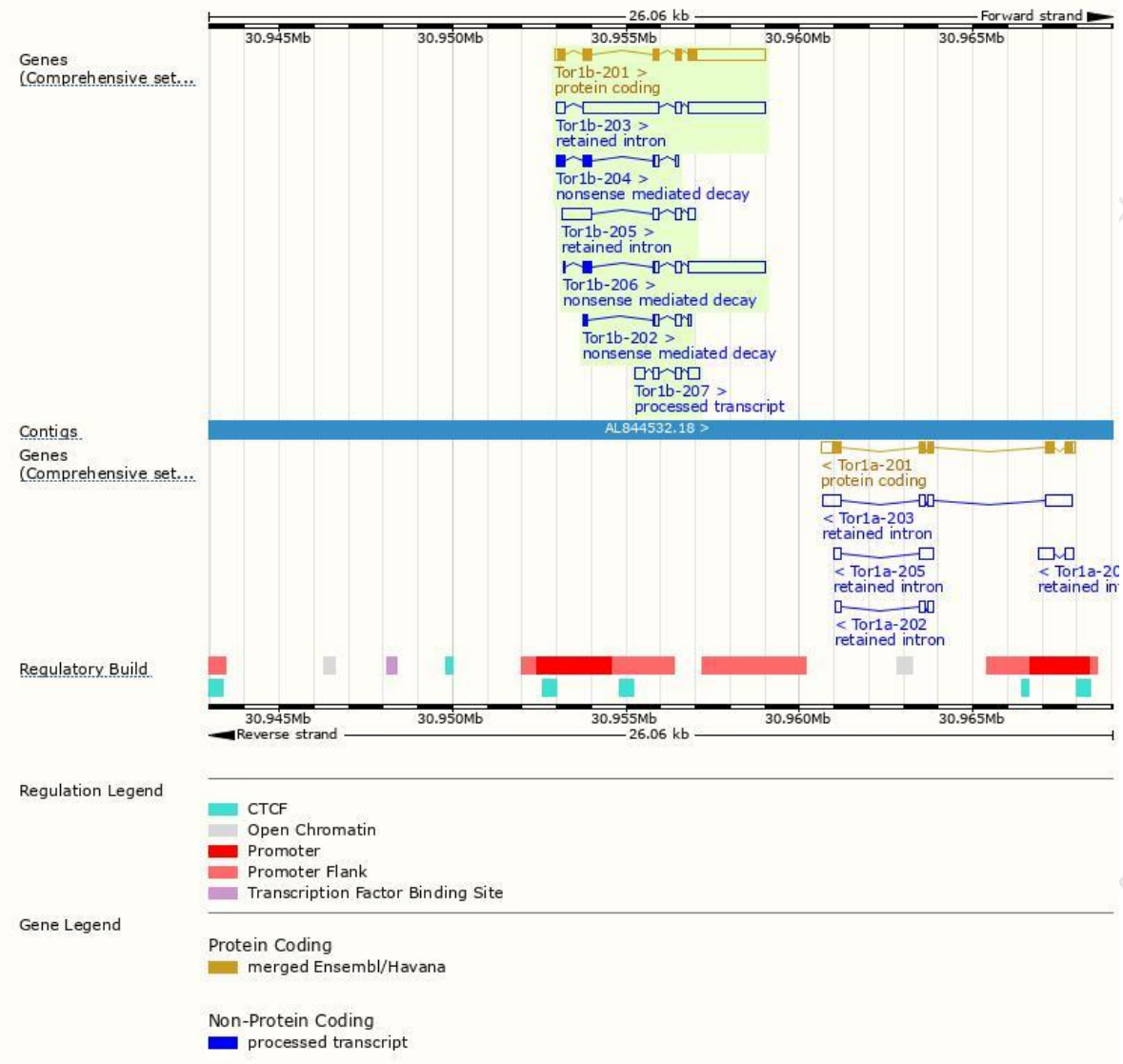
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tor1b-201	ENSMUST00000028199.11	3039	336aa	Protein coding	CCDS15890	Q9ER41	TSL:1 GENCODE basic APPRIS is a system to annotate alternatively spliced transcripts based on a range of computational methods to identify the most functionally important transcript(s) of a gene. APPRIS P1
Tor1b-206	ENSMUST00000015671.1.7	2809	122aa	Nonsense mediated decay	-	F6VK94	CDS 5' incomplete TSL:1
Tor1b-204	ENSMUST00000013550.7.7	732	179aa	Nonsense mediated decay	-	D6REF0	TSL:3
Tor1b-202	ENSMUST00000013251.4.6	507	68aa	Nonsense mediated decay	-	F6ZDX6	CDS 5' incomplete TSL:5
Tor1b-207	ENSMUST00000019501.0.1	892	No protein	Processed transcript	-	-	TSL:3
Tor1b-203	ENSMUST00000013354.4.7	4775	No protein	Retained intron	-	-	TSL:1
Tor1b-205	ENSMUST00000015521.3.7	1324	No protein	Retained intron	-	-	TSL:2

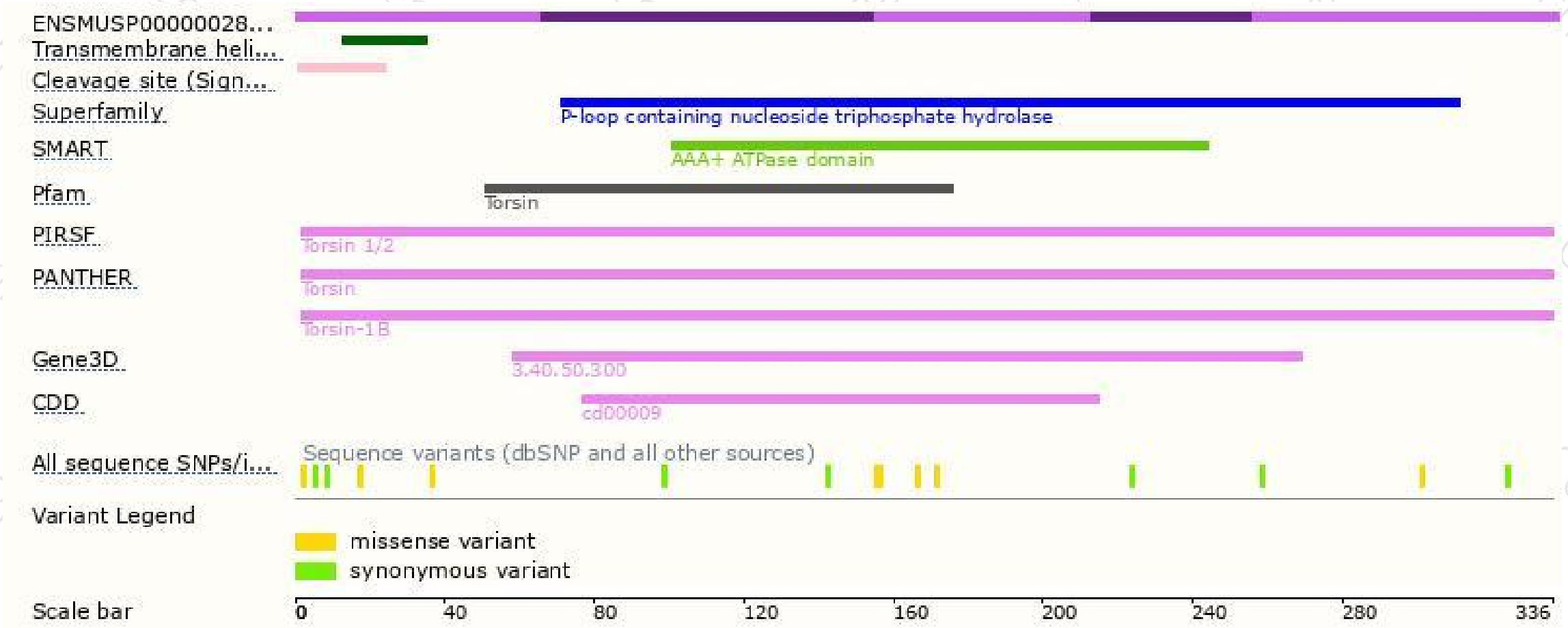
The strategy is based on the design of *Tor1b-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

Tel: 400-9660890

