

***Tmco6* Cas9-KO Strategy**

Designer: Zihe Cui

Reviewer: Xueting Zhang

Design Date: 2020-10-19

Project Overview

Project Name

Tmco6

Project type

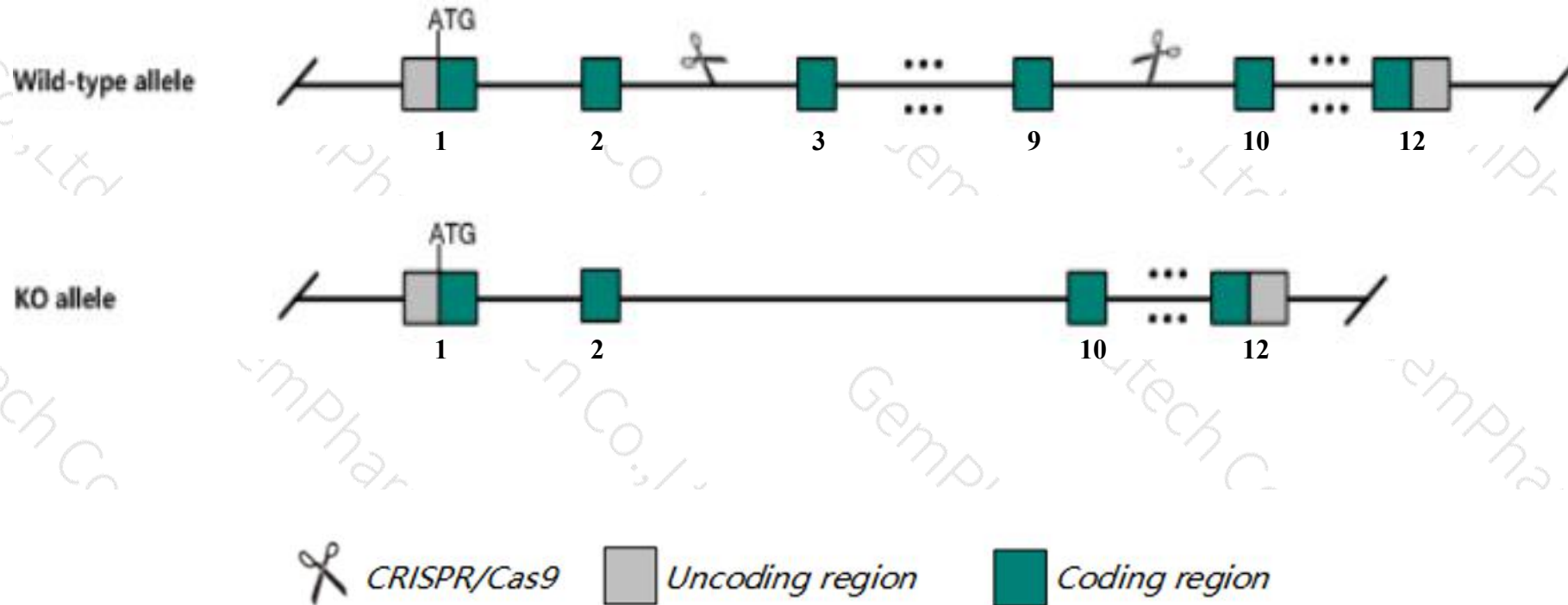
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tmco6* gene. The schematic diagram is as follows:



- The *Tmco6* gene has 6 transcripts. According to the structure of *Tmco6* gene, exon3-exon9 of *Tmco6*-201(ENSMUST00000007046.8) transcript is recommended as the knockout region. The region contains 907bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Tmco6* gene. The brief process is as follows: CRISPR/Cas9 system 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.

- Transcript *Tmco6*-206 may not be affected.
- The *Tmco6* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Tmco6 transmembrane and coiled-coil domains 6 [*Mus musculus* (house mouse)]

Gene ID: 71983, updated on 25-Sep-2020

Summary

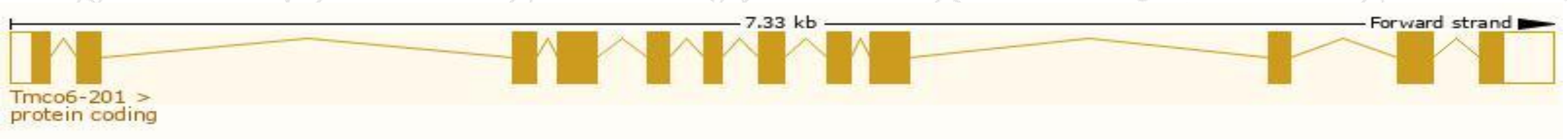
Official Symbol	Tmco6 provided by MGI
Official Full Name	transmembrane and coiled-coil domains 6 provided by MGI
Primary source	MGI:MGI:1919233
See related	Ensembl:ENSMUSG00000006850
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2410015B03Rik
Expression	Ubiquitous expression in spleen adult (RPKM 10.8), thymus adult (RPKM 10.8) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

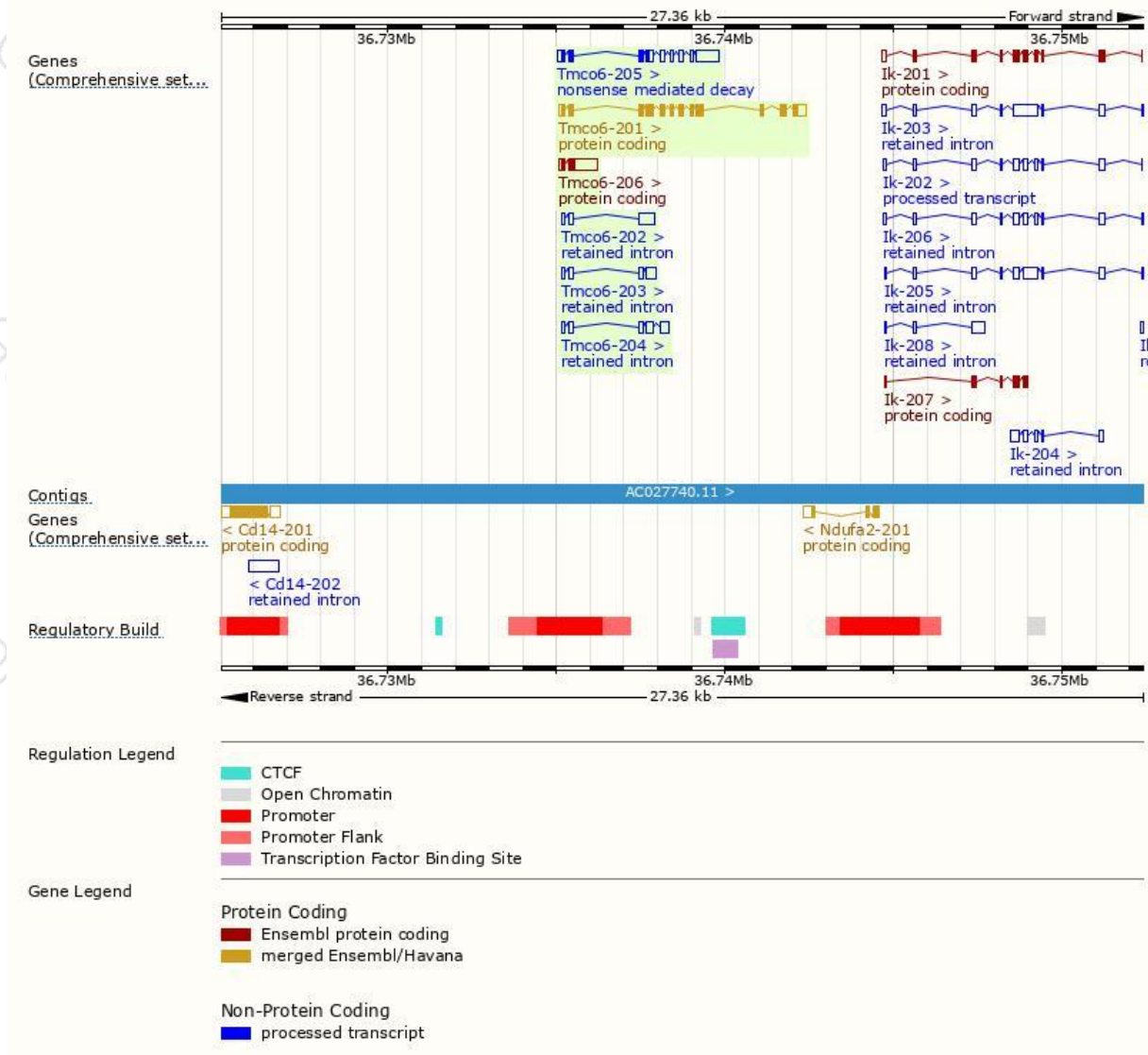
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tmco6-201	ENSMUST00000007046.8	1823	494aa	Protein coding	CCDS37772	Q8BQX5	TSL:1 GENCODE basic APPRIS P1
Tmco6-206	ENSMUST00000237870.1	992	74aa	Protein coding	-	A0A494BAJ1	GENCODE basic
Tmco6-205	ENSMUST00000237727.1	1736	128aa	Nonsense mediated decay	-	Q8BQX5	
Tmco6-204	ENSMUST00000237559.1	732	No protein	Retained intron	-	-	
Tmco6-202	ENSMUST00000237079.1	665	No protein	Retained intron	-	-	
Tmco6-203	ENSMUST00000237255.1	613	No protein	Retained intron	-	-	

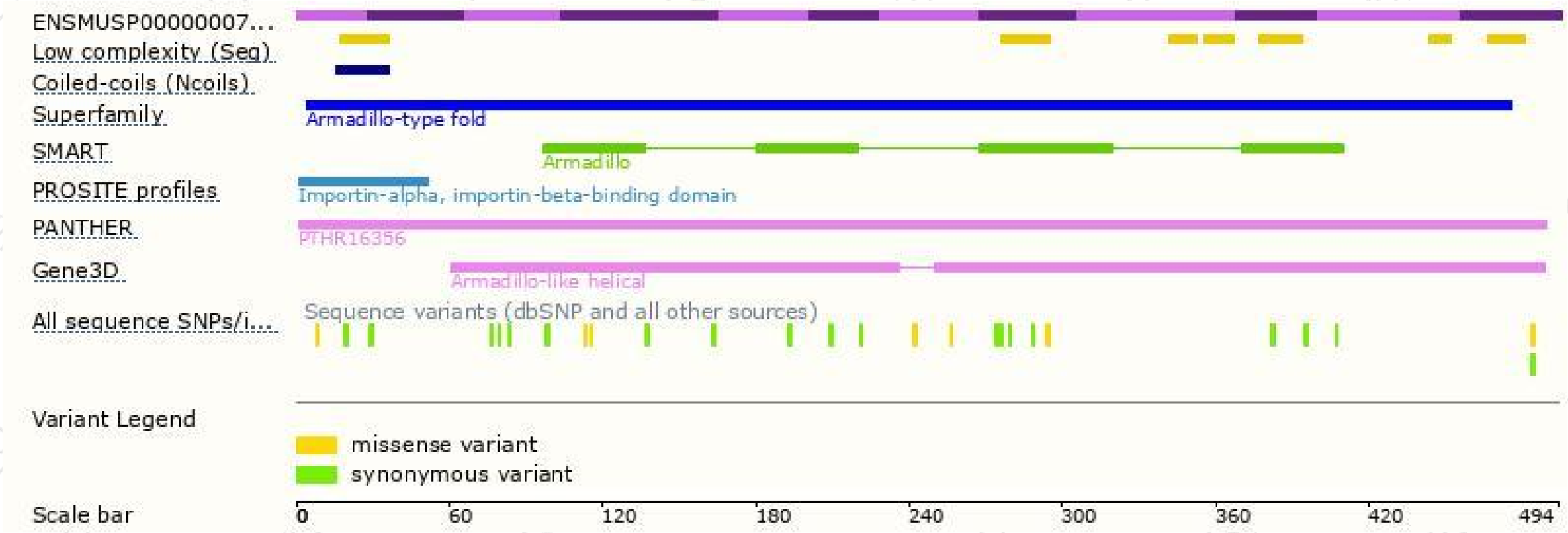
The strategy is based on the design of *Tmco6-201* transcript,the transcription is shown below:



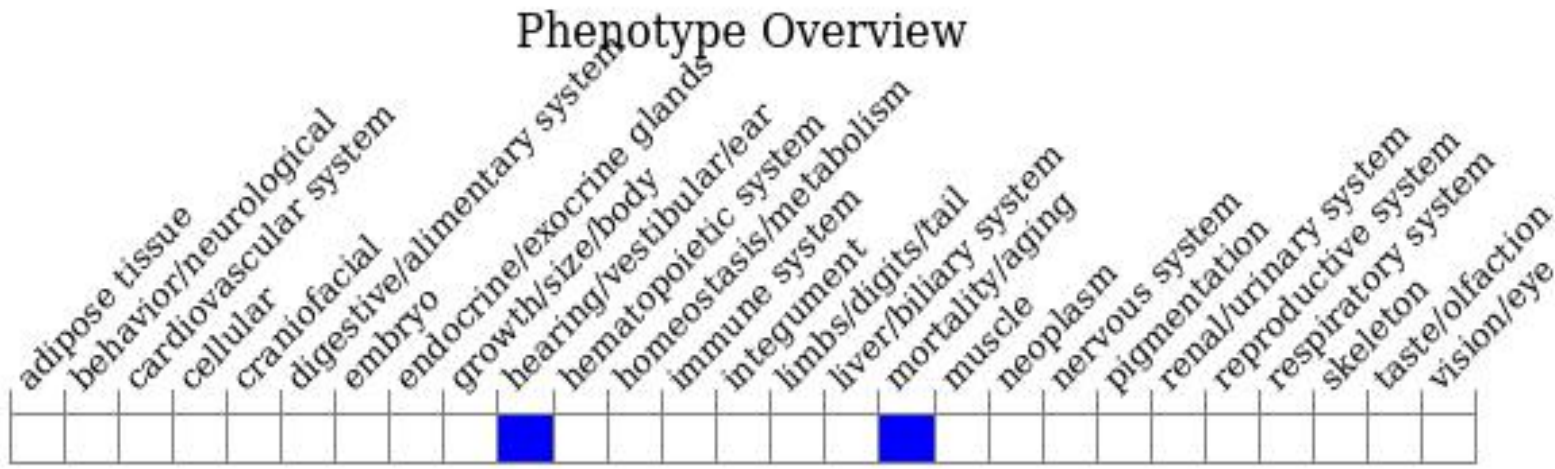
Genomic location distribution



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/>).

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

Tel: 400-9660890

