

Tnpo2 Cas9-KO Strategy

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Project Overview



Project Name

Tnpo2

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tnpo2* gene. The schematic diagram is as follows:



- The *Tnpo2* gene has 7 transcripts. According to the structure of *Tnpo2* gene, exon3-exon4 of *Tnpo2-202* (ENSMUST00000166592.1) transcript is recommended as the knockout region. The region contains 226bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Tnpo2* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

- Transcript 204 may not be affected.
- The *Tnpo2* gene is located on the Chr8. 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)

Tnpo2 transportin 2 (importin 3, karyopherin beta 2b) [*Mus musculus* (house mouse)]

Gene ID: 212999, updated on 24-Oct-2019

Summary

Official Symbol	Tnpo2 provided by MGI
Official Full Name	transportin 2 (importin 3, karyopherin beta 2b) provided by MGI
Primary source	MGI:MGI:2384849
See related	Ensembl:ENSMUSG000000031691
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	IPO3; TRN2; Knpb2b; Kpnb2b; AA414969; AI464345; AI852433; 1110034O24Rik
Expression	Ubiquitous expression in ovary adult (RPKM 27.2), thymus adult (RPKM 27.1) and 28 other tissues See more
Orthologs	human all

Genomic context

Location: 8; 8 C3

Exon count: 26

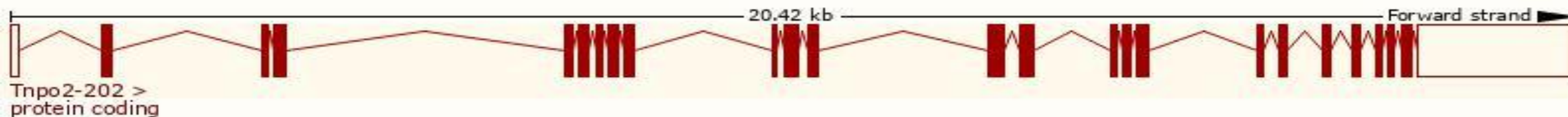
See Tnpo2 in [Genome Data Viewer](#)

Transcript information (Ensembl)

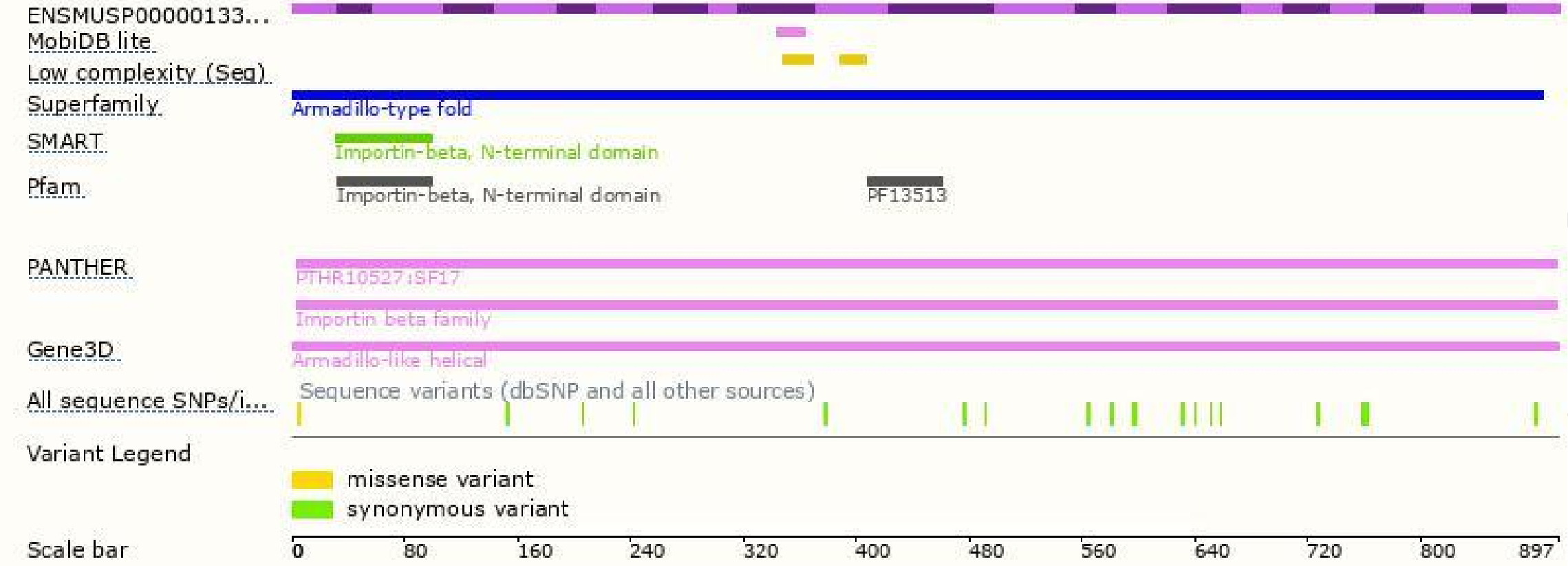
The gene has 7 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tnpo2-202	ENSMUST00000166592.1	4884	897aa	Protein coding	CCDS22491	E9PV58	TSL:5 GENCODE basic APPRIS P2
Tnpo2-201	ENSMUST00000093360.11	4863	897aa	Protein coding	CCDS22491	E9PV58	TSL:1 GENCODE basic APPRIS P2
Tnpo2-207	ENSMUST00000211601.1	2941	887aa	Protein coding	-	Q99LG2	TSL:1 GENCODE basic APPRIS ALT 1
Tnpo2-206	ENSMUST00000210945.1	451	137aa	Protein coding	-	A0A1B0GT37	CDS 3' incomplete TSL:5
Tnpo2-205	ENSMUST00000210576.1	5669	No protein	Retained intron	-	-	TSL:1
Tnpo2-204	ENSMUST00000210461.1	356	No protein	Retained intron	-	-	TSL:3
Tnpo2-203	ENSMUST00000210117.1	799	No protein	lncRNA	-	-	TSL:3

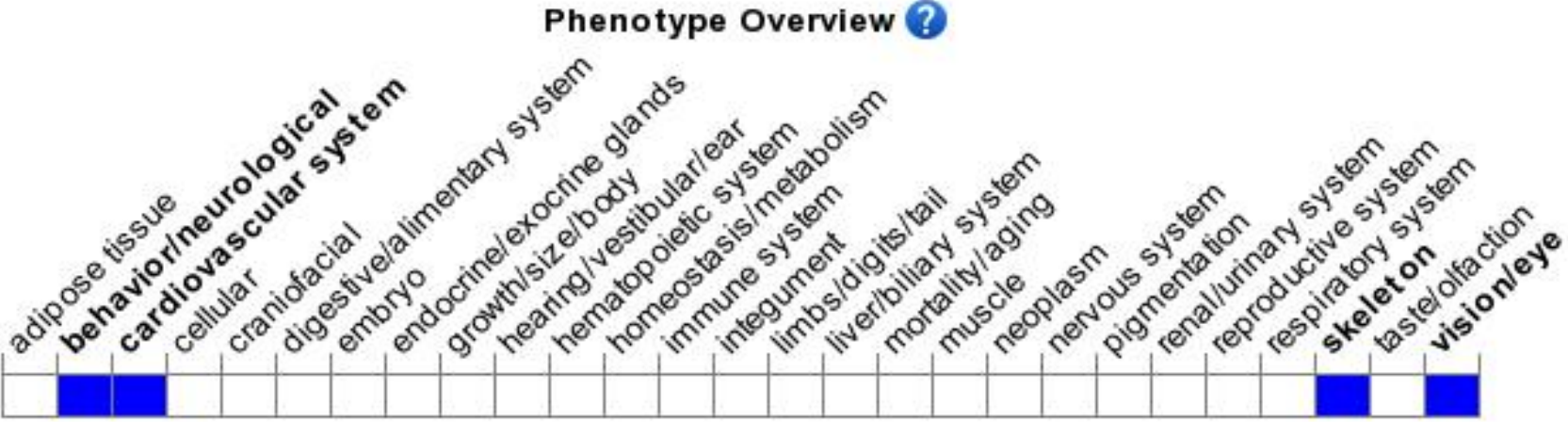
The strategy is based on the design of *Tnpo2-202* transcript, The transcription is shown below



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.

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