

Txk Cas9-KO Strategy

Designer:

Daohua Xu

Reviewer:

Huimin Su

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Project Overview

Project Name

Txk

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Txk* gene has 8 transcripts. According to the structure of *Txk* gene, exon2-exon5 of *Txk-202* (ENSMUST00000169534.5) transcript is recommended as the knockout region. The region contains 427bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Txk* gene. The brief process is as follows: CRISPR/Cas9 system w

- According to the existing MGI data, Homozygous mutation of this gene results in increased susceptibility to parasitic (*Toxoplasma gondii*) infection and decreased cytokine secretion in stimulated splenocytes.
- The KO region contains functional region of the *Gm43717* gene. Knockout the region will affect the function of *Gm43717* gene.
- The *Txk* gene is located on the Chr5. 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)

Txk TXK tyrosine kinase [Mus musculus (house mouse)]

Gene ID: 22165, updated on 31-Jan-2019

Summary



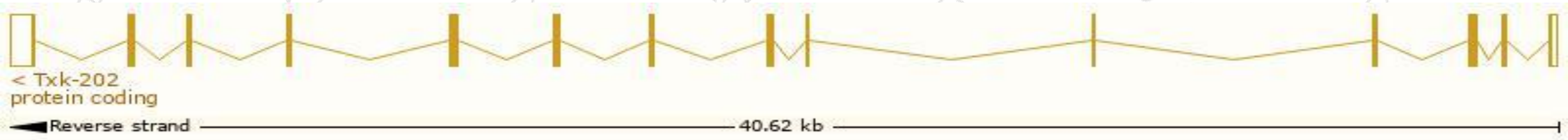
Official Symbol	Txk provided by MGI
Official Full Name	TXK tyrosine kinase provided by MGI
Primary source	MGI:MGI:102960
See related	Ensembl:ENSMUSG00000054892
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	A130089B16Rik, Btkl, PTK-RL-18, PTK4, Rik
Expression	Biased expression in thymus adult (RPKM 5.4), spleen adult (RPKM 1.6) and 3 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Txk-202	ENSMUST00000169534.5	2344	527aa	Protein coding	CCDS19334	B2RQ20	TSL:1 GENCODE basic APPRIS P3
Txk-206	ENSMUST00000198464.2	2271	473aa	Protein coding	CCDS80298	P42682	TSL:1 GENCODE basic
Txk-201	ENSMUST00000113604.9	2260	527aa	Protein coding	CCDS51514	P42682	TSL:1 GENCODE basic APPRIS ALT2
Txk-203	ENSMUST00000197313.4	2190	505aa	Protein coding	CCDS80299	A0A0G2JG94	TSL:1 GENCODE basic
Txk-204	ENSMUST00000197843.2	5303	No protein	Retained intron	-	-	TSL:2
Txk-205	ENSMUST00000197923.2	4210	No protein	Retained intron	-	-	TSL:NA
Txk-208	ENSMUST00000198970.4	2439	No protein	lncRNA	-	-	TSL:1
Txk-207	ENSMUST00000198798.4	2276	No protein	lncRNA	-	-	TSL:1

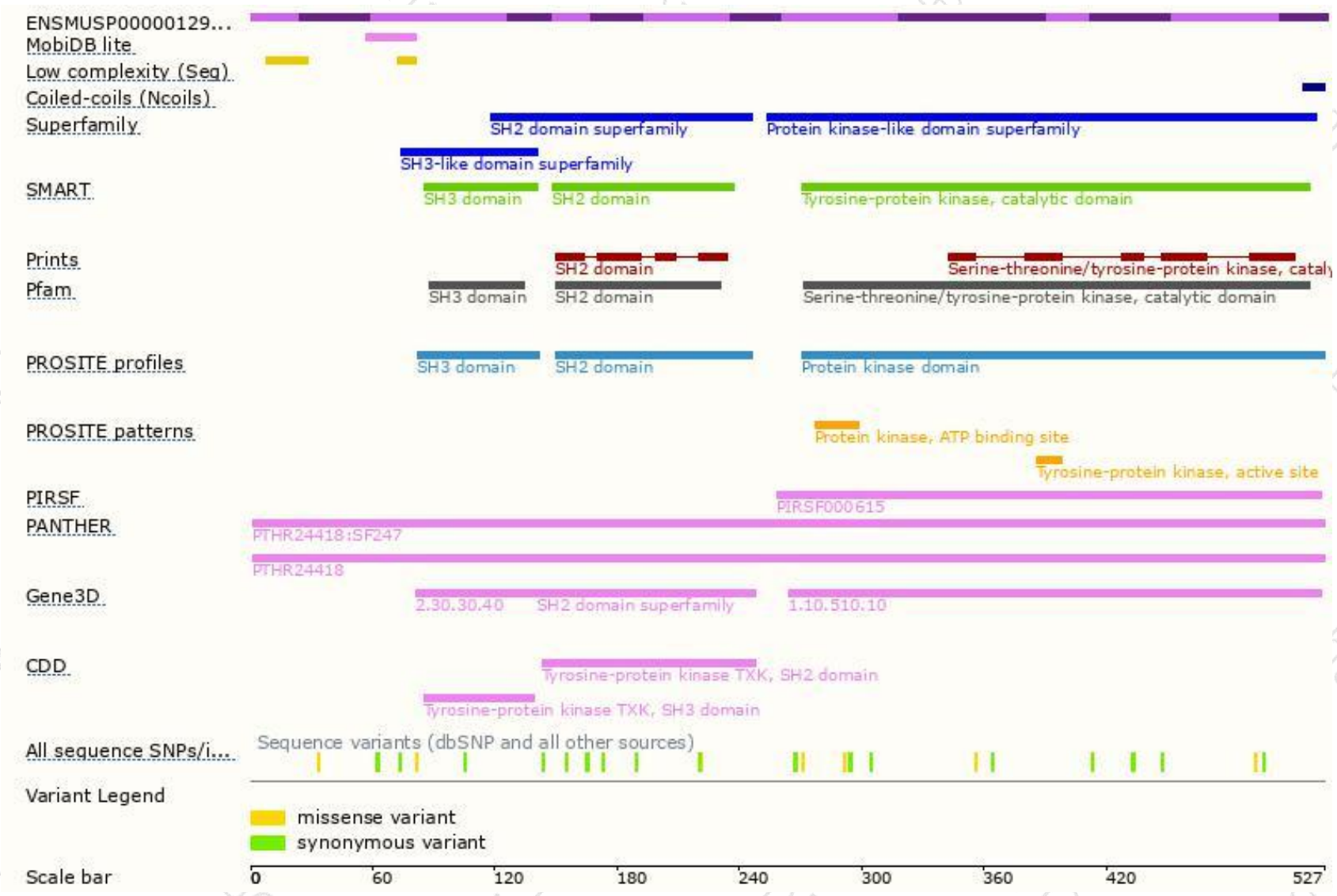
The strategy is based on the design of *Txk-202* transcript,The transcription is shown below



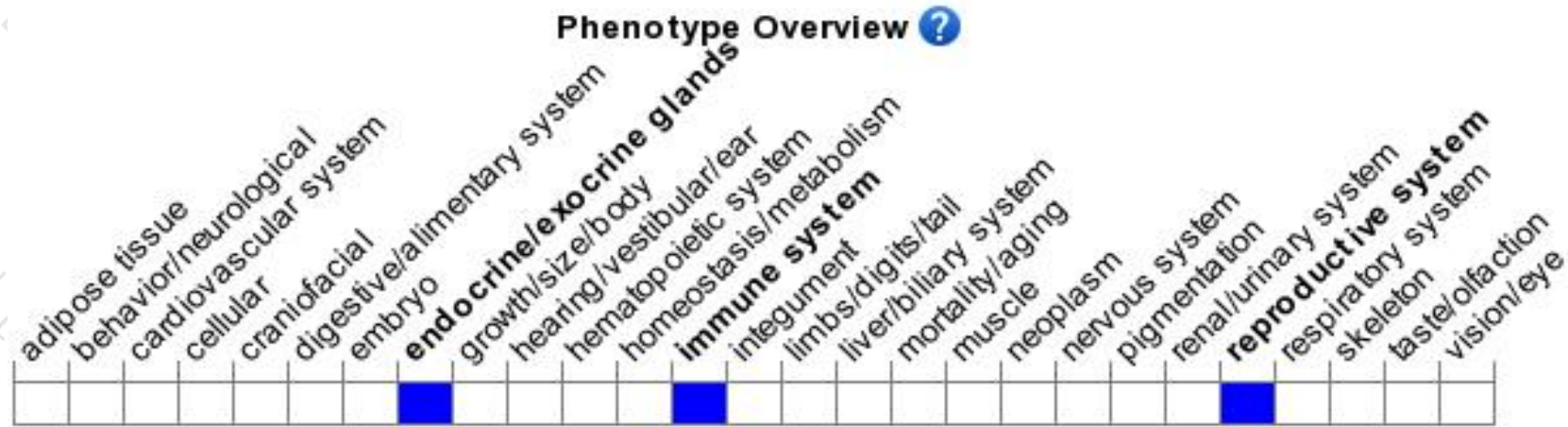
Genomic location distribution



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, Homozygous mutation of this gene results in increased susceptibility to parasitic (*Toxoplasma gondii*) infection and decreased cytokine secretion in stimulated splenocytes.

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

Tel: 400-9660890

