

***Traf4* Cas9-KO Strategy**

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Project Overview

Project Name

Traf4

Project type

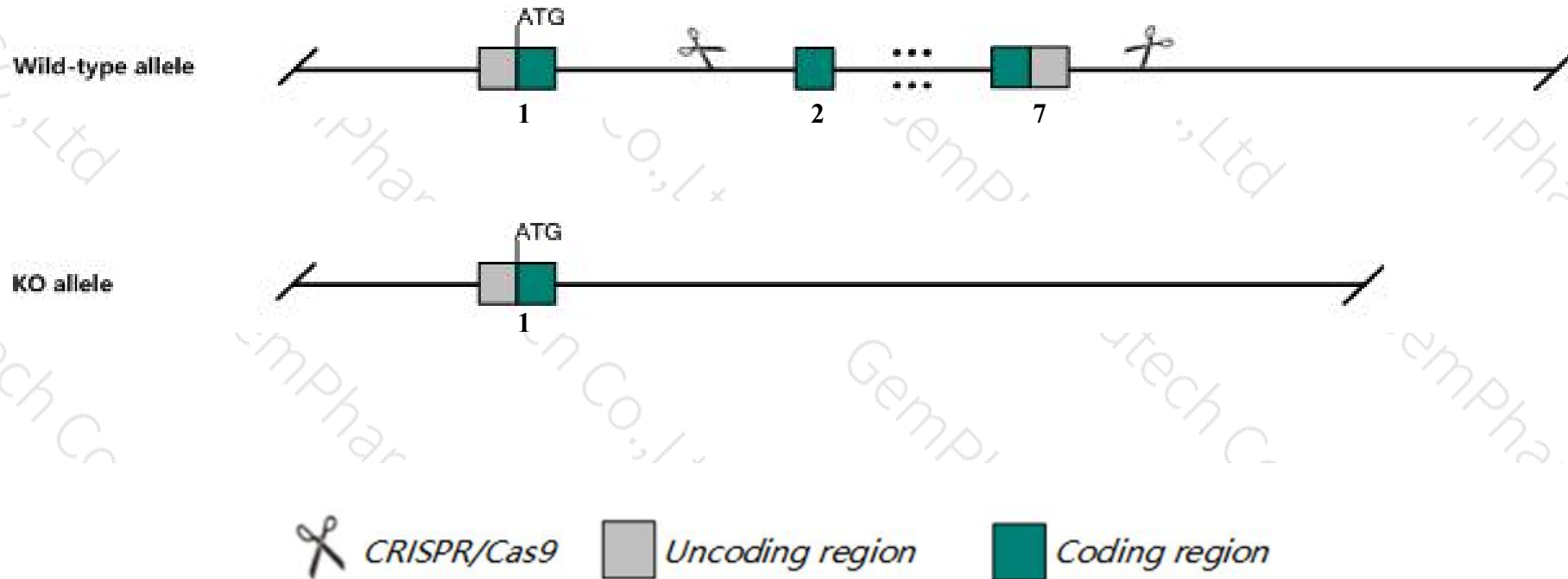
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Traf4* gene. The schematic diagram is as follows:



- The *Traf4* gene has 3 transcripts. According to the structure of *Traf4* gene, exon2-exon7 of *Traf4-201* (ENSMUST00000017530.3) transcript is recommended as the knockout region. The region contains 1270bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Traf4* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygotes for targeted null mutations show respiratory problems, various skeletal defects, spina bifida and partial lethality around embryonic day 14. Homozygotes for an ENU-induced mutation exhibit postnatal lethality and hypopigmentation.
- The knockout region is about 1.7 kb from the 3' end of *Fam22b3* and about 8.9 kb from the 5' end of *Gm12571*, which may affect the regulation of these two genes.
- The *Traf4* gene is located on the Chr11. 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)

Traf4 TNF receptor associated factor 4 [Mus musculus (house mouse)]

Gene ID: 22032, updated on 31-Jan-2019

Summary



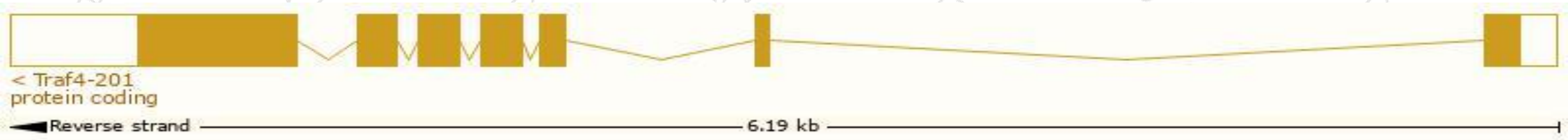
Official Symbol	Traf4 provided by MGI
Official Full Name	TNF receptor associated factor 4 provided by MGI
Primary source	MGI:MGI:1202880
See related	Ensembl:ENSMUSG00000017386
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	A530032M13Rik, CART1, msp2
Expression	Ubiquitous expression in thymus adult (RPKM 49.0), whole brain E14.5 (RPKM 41.4) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

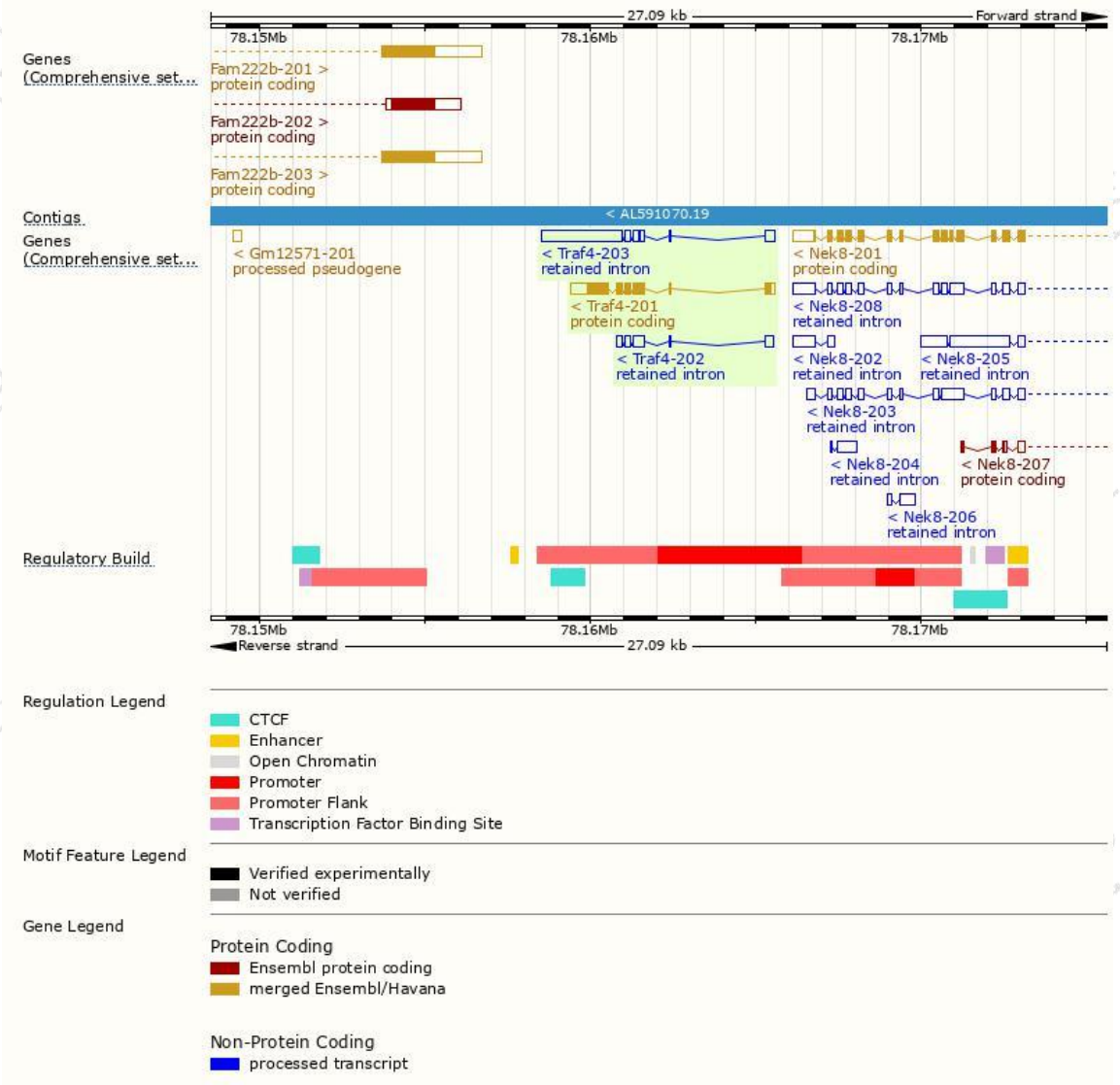
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Traf4-201	ENSMUST00000017530.3	2078	470aa	Protein coding	CCDS25090	Q61382	TSL:1 GENCODE basic APPRIS P1
Traf4-203	ENSMUST00000149437.7	3223	No protein	Retained intron	-	-	TSL:1
Traf4-202	ENSMUST00000148218.1	925	No protein	Retained intron	-	-	TSL:5

The strategy is based on the design of *Traf4-201* transcript,The transcription is shown below



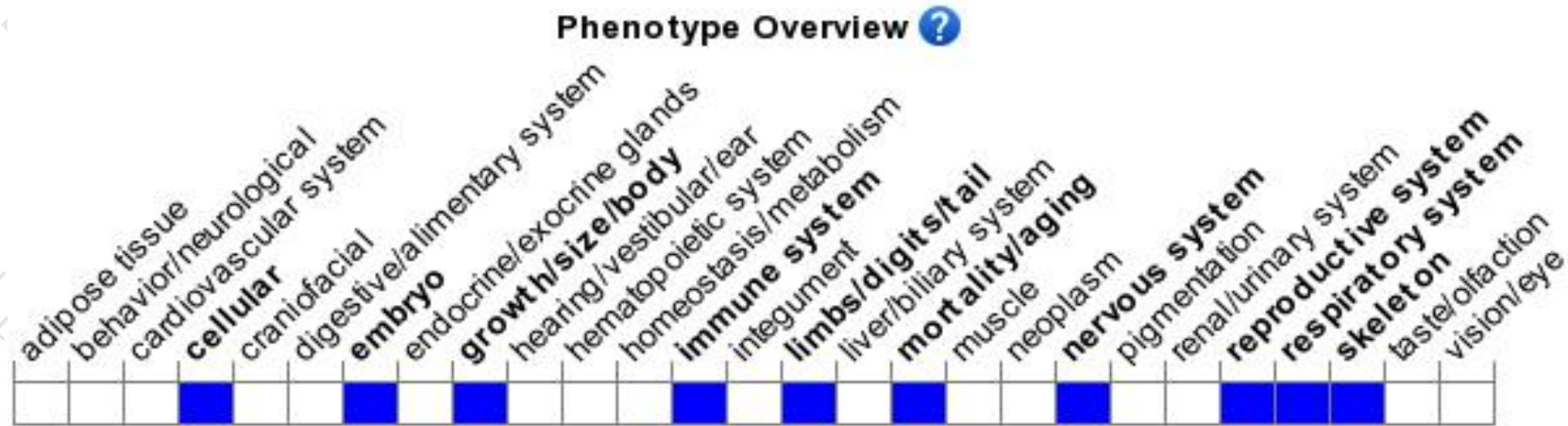
Genomic location distribution



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, Homozygotes for targeted null mutations show respiratory problems, various skeletal defects, spina bifida and partial lethality around embryonic day 14. Homozygotes for an ENU-induced mutation exhibit postnatal lethality and hypopigmentation.

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

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