

Tnfsf11 Cas9-KO Strategy

Designer:

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Design Date:

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Project Overview

Project Name

Tnfsf11

Project type

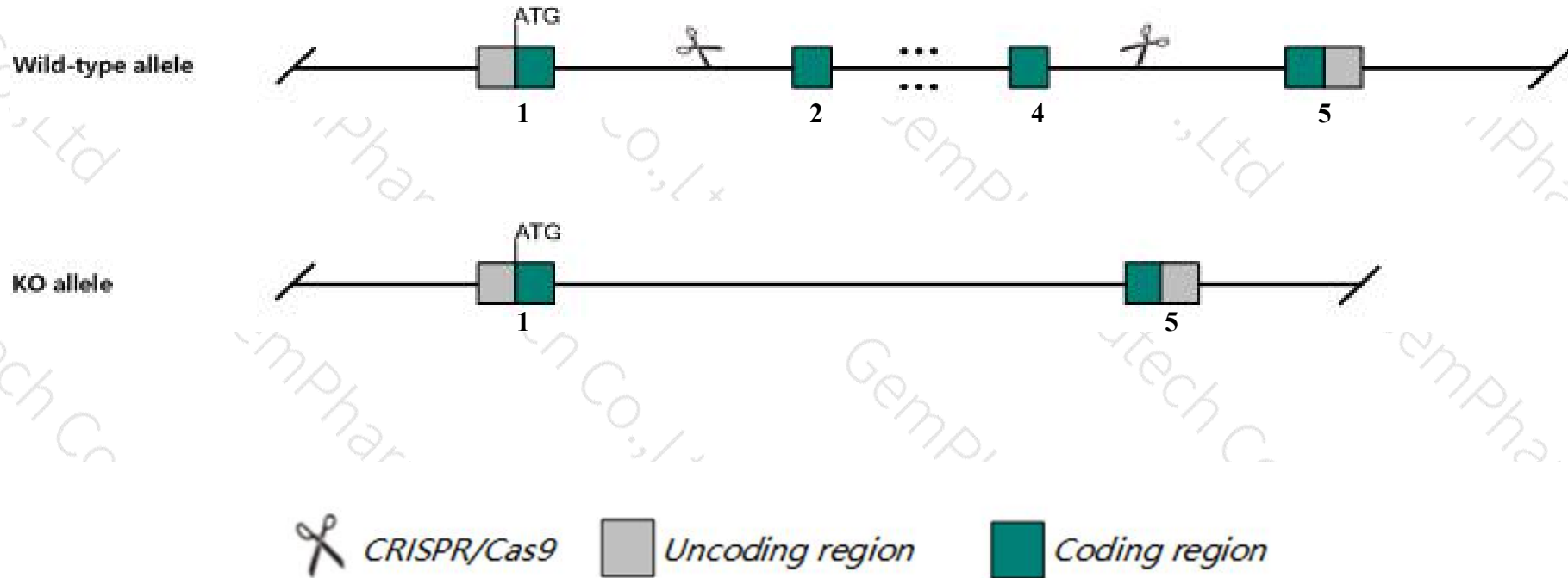
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tnfsf11* gene. The schematic diagram is as follows:



- The *Tnfsf11* gene has 1 transcript. According to the structure of *Tnfsf11* gene, exon2-exon4 of *Tnfsf11-201* (ENSMUST00000022592.7) transcript is recommended as the knockout region. The region contains 307bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Tnfsf11* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for a null allele exhibit a failure of tooth eruption, osteopetrosis, failure to lactate and arrested alveolar bud differentiation during pregnancy.
- The *Tnfsf11* gene is located on the Chr14. 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)

Tnfsf11 tumor necrosis factor (ligand) superfamily, member 11 [Mus musculus (house mouse)]

Gene ID: 21943, updated on 19-Mar-2019

Summary



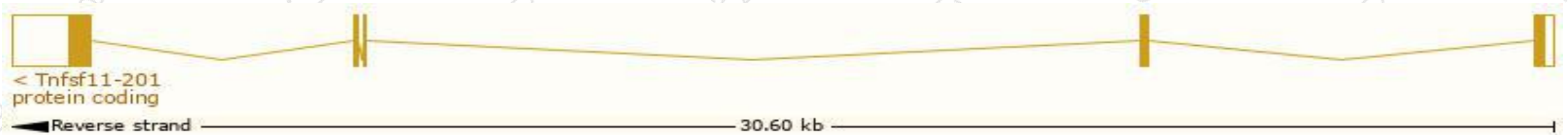
Official Symbol	Tnfsf11 provided by MGI
Official Full Name	tumor necrosis factor (ligand) superfamily, member 11 provided by MGI
Primary source	MGI:MGI:1100089
See related	Ensembl:ENSMUSG00000022015
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Ly109l, ODF, OPGL, RANKL, Trance
Expression	Biased expression in thymus adult (RPKM 1.0), mammary gland adult (RPKM 0.5) and 8 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

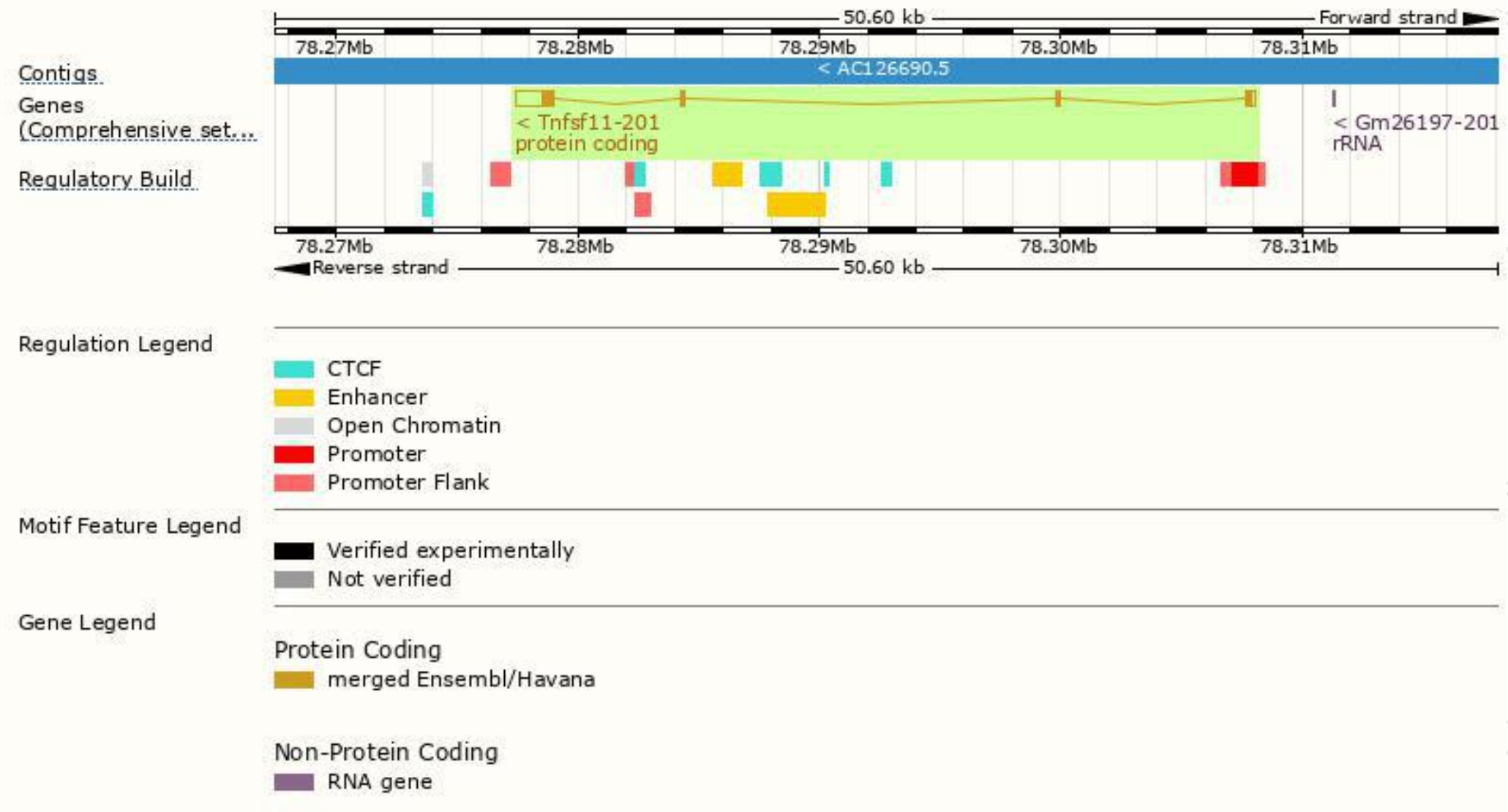
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tnfsf11-201	ENSMUST00000022592.7	2236	316aa	Protein coding	CCDS27294	O35235	TSL:1 GENCODE basic APPRIS P1

The strategy is based on the design of *Tnfsf11-201* transcript, The transcription is shown below



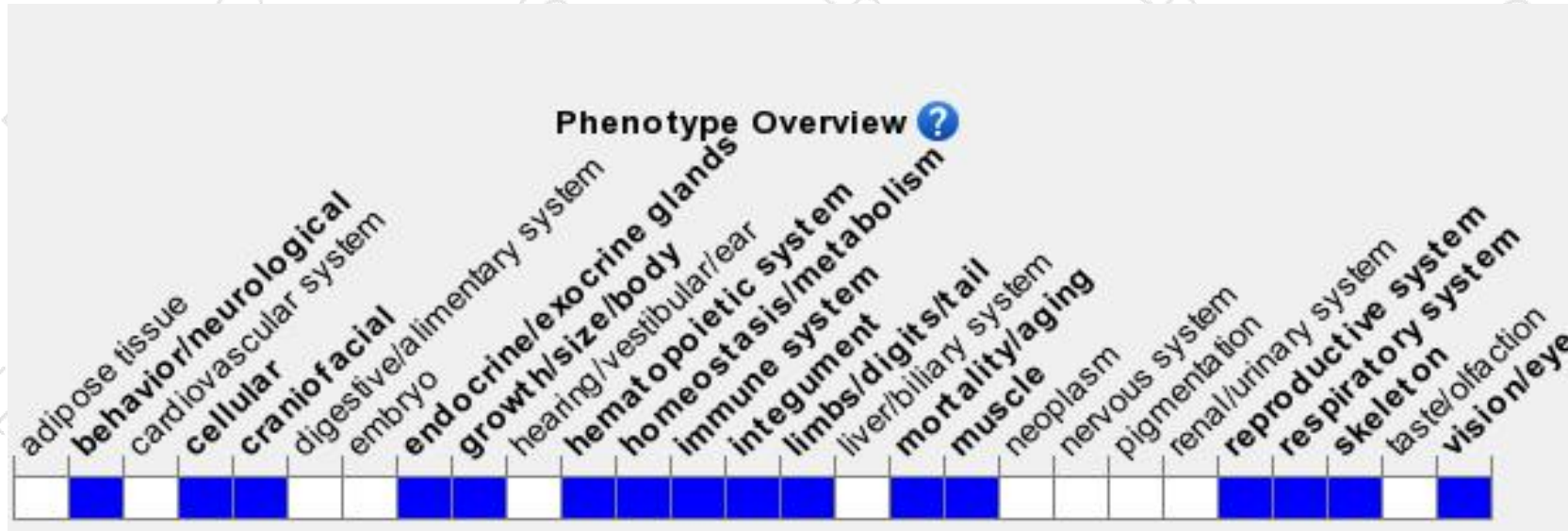
Genomic location distribution



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, Mice homozygous for a null allele exhibit a failure of tooth eruption, osteopetrosis, failure to lactate and arrested alveolar bud differentiation during pregnancy.

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

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