Tnfaip1 Cas9-KO Strategy

Designer:Xueting Zhang
Reviewer:Yanhua Shen
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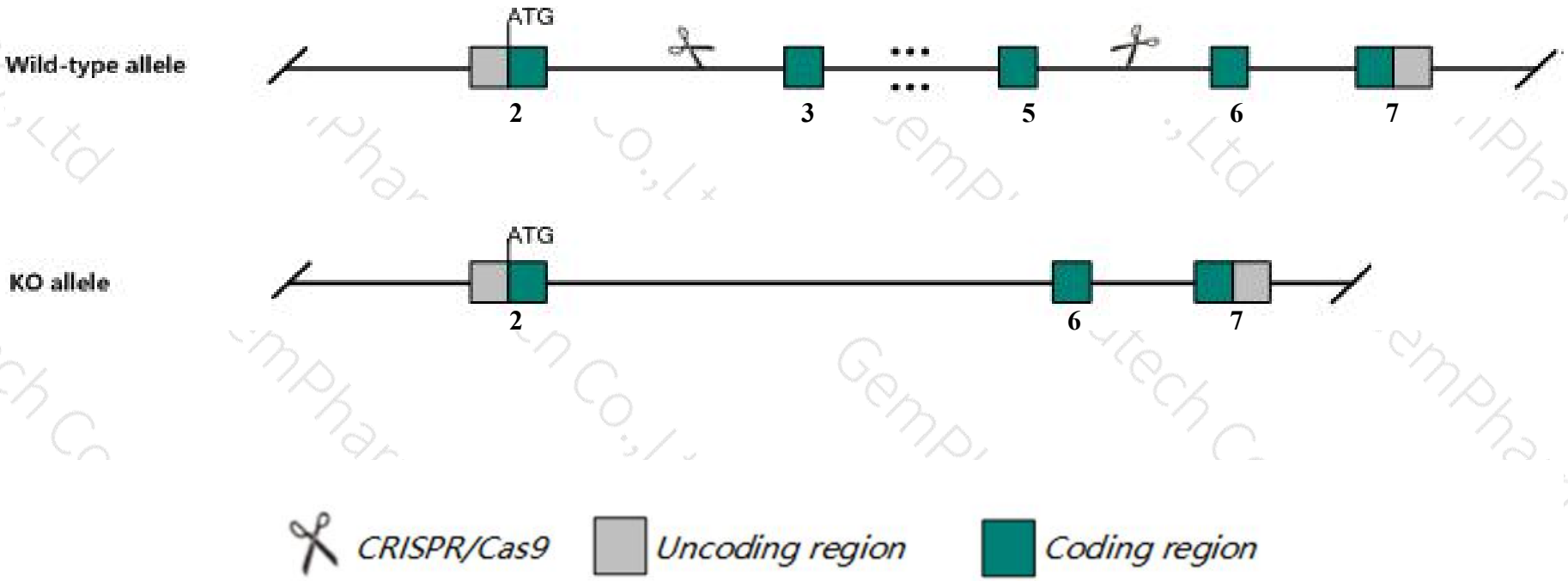
Project Overview

Project Name	***Tnfaip1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tnfaip1* gene. The schematic diagram is as follows:



Technical routes

➢ The *Tnfaip1* gene has 2 transcripts. According to the structure of *Tnfaip1* gene, exon3-exon5 of *Tnfaip1-202* (ENSMUST00000108277.2) transcript is recommended as the knockout region.The region contains 313bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Tnfaip1* gene. The brief process is as follows: CRISPR/Cas9 syste

Notice

➢ The floxed region is near to the N-terminal of *Ift20* gene,this strategy may influence the regulatory function of the N-terminal of *Ift20* gene.

➢ The *Tnfaip1* 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）

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Tnfaip1 tumor necrosis factor, alpha-induced protein 1 (endothelial) [*Mus musculus* (house mouse)]

Gene ID: 21927, updated on 10-Oct-2019

Summary

Official Symbol	Tnfaip1 provided by MGI
Official Full Name	tumor necrosis factor, alpha-induced protein 1 (endothelial) provided by MGI
Primary source	MGI:MGI:104961
See related	Ensembl:ENSMUSG00000017615
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	Edp1; Edp-1; Tnfip1; Bacurd2
Expression	Ubiquitous expression in lung adult (RPKM 35.5), large intestine adult (RPKM 31.2) and 28 other tissues See more
Orthologs	human all

Genomic context

Location: 11 B5; 11 46.74 cM

See Tnfaip1 in Genome Data Viewer

Exon count: 7

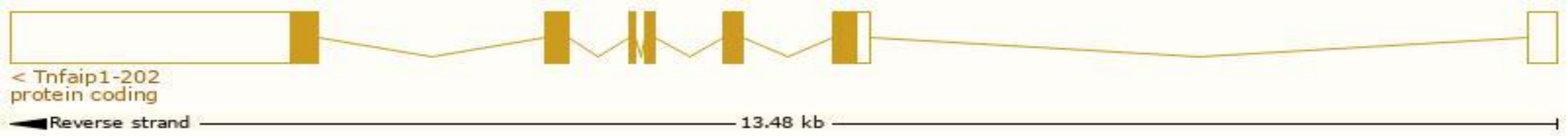
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	11	NC_000077.6 (78522850..78536270, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	11	NC_000077.5 (78336352..78349762, complement)

Transcript information（Ensembl）

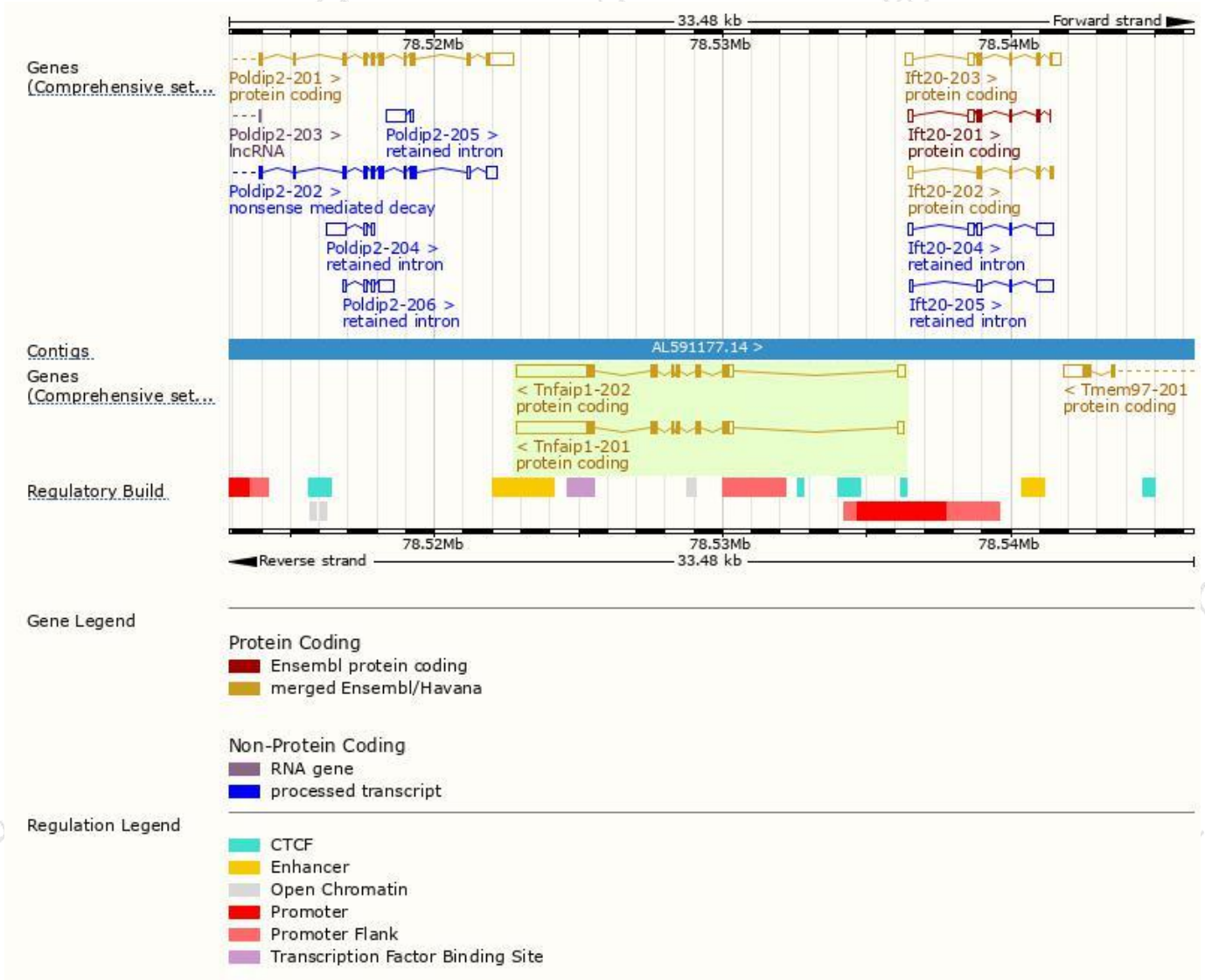
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tnfaip1-202	ENSMUST00000108277.2	3768	316aa	Protein coding	CCDS25110	O70479	TSL:1 GENCODE basic APPRIS P1
Tnfaip1-201	ENSMUST00000017759.8	3720	316aa	Protein coding	CCDS25110	O70479	TSL:1 GENCODE basic APPRIS P1

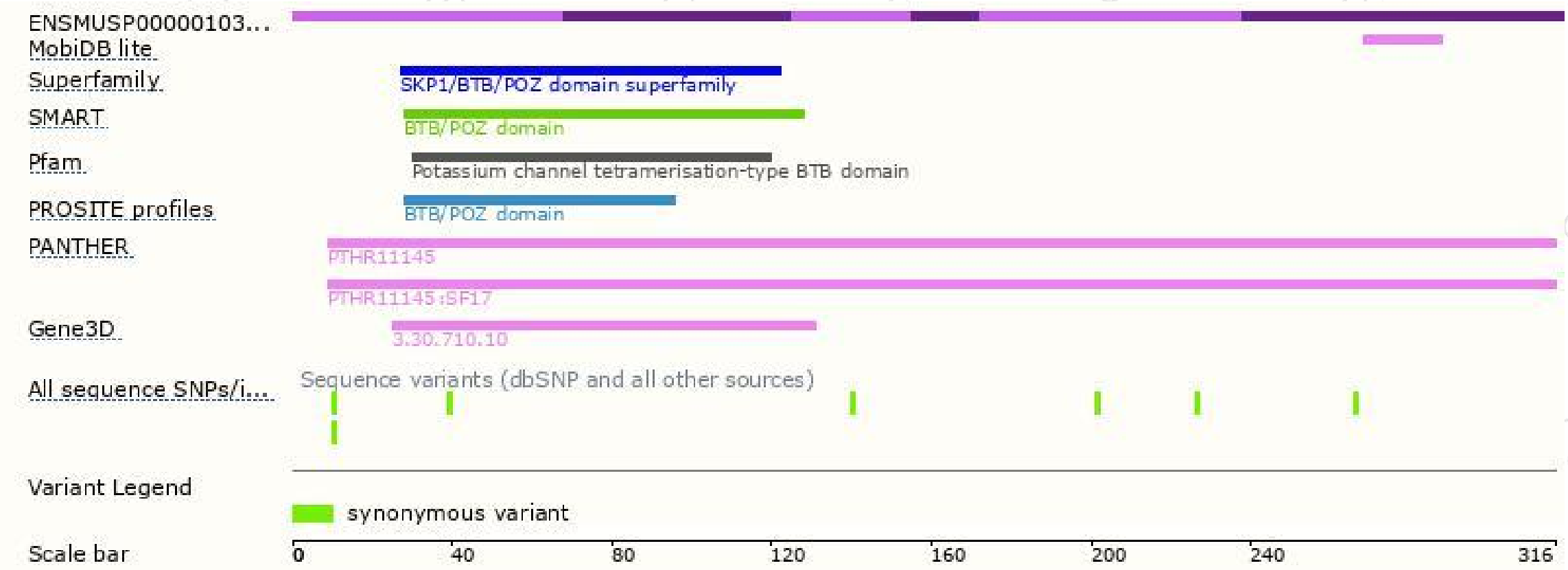
The strategy is based on the design of *Tnfaip1-202* transcript,The transcription is shown below



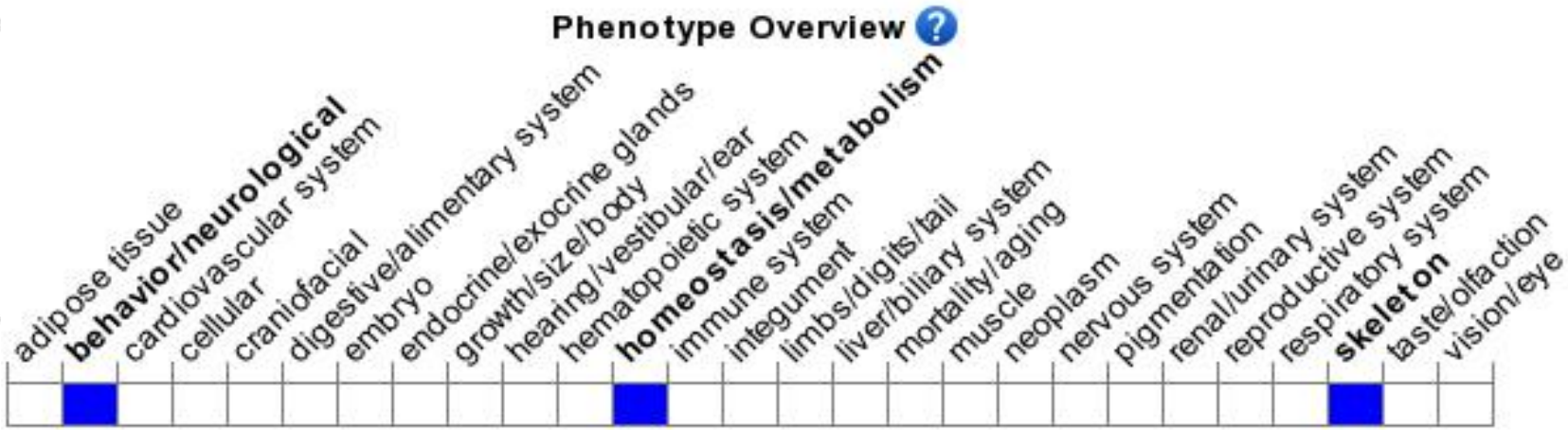
Genomic location distribution



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/).

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

Tel: 400-9660890

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