

***Relt* Cas9-KO Strategy**

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Project Overview

Project Name

Relt

Project type

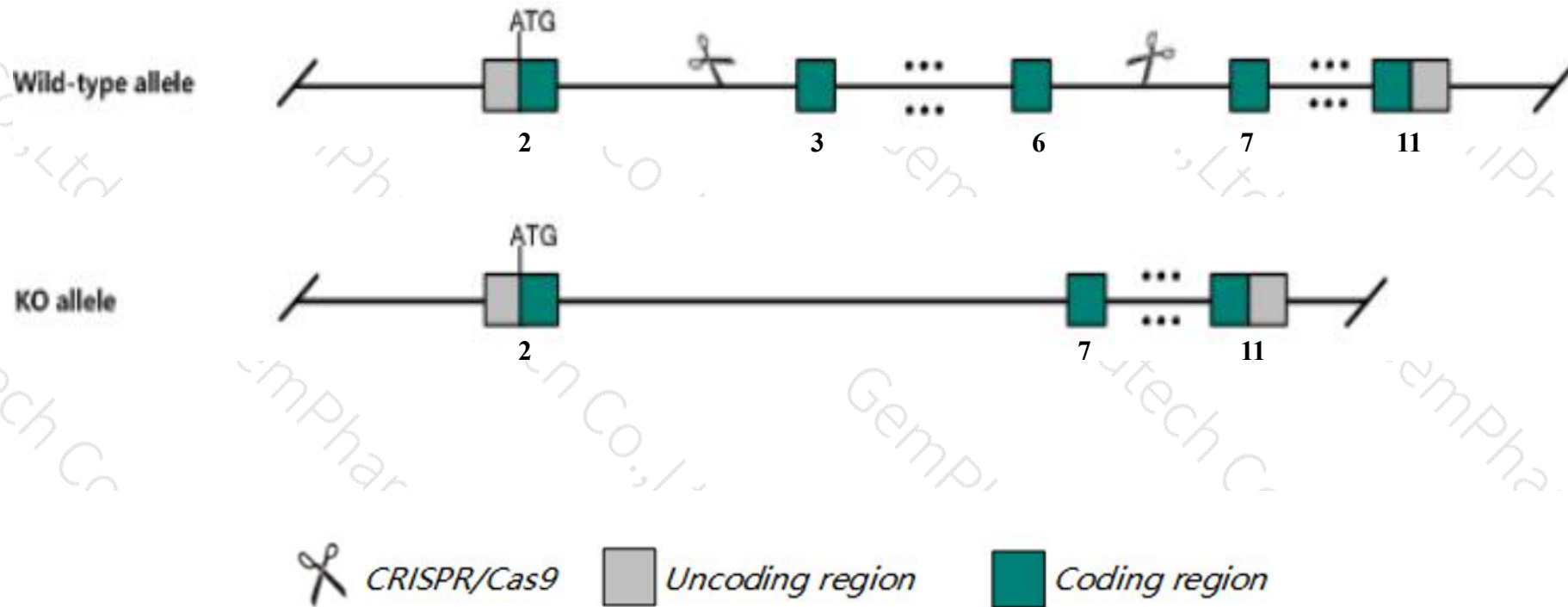
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Relt* gene has 6 transcripts. According to the structure of *Relt* gene, exon3-exon6 of *Relt-201* (ENSMUST00000008462.10) transcript is recommended as the knockout region. The region contains 580bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Relt* gene. The brief process is as follows: CRISPR/Cas9 system w

- According to the existing MGI data, mice with a premature termination codon resulting in a null allele exhibit incisor and molar enamel malformations. homozygous knockout affects t cell proliferation and reduces tumor growth.
- Transcript *Relt-204* may not be affected.
- The *Relt* gene is located on the Chr7. 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)

Relt RELT tumor necrosis factor receptor [Mus musculus (house mouse)]

Gene ID: 320100, updated on 13-Mar-2020

Summary



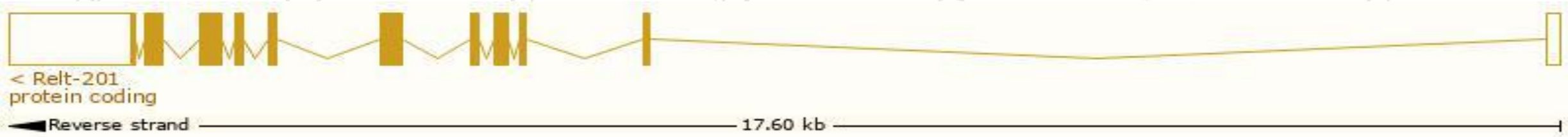
Official Symbol	Relt provided by MGI
Official Full Name	RELT tumor necrosis factor receptor provided by MGI
Primary source	MGI:MGI:2443373
See related	Ensembl:ENSMUSG000000008318
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	E430021K24Rik, Tnfrsf19l
Expression	Broad expression in spleen adult (RPKM 9.5), thymus adult (RPKM 6.5) and 24 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

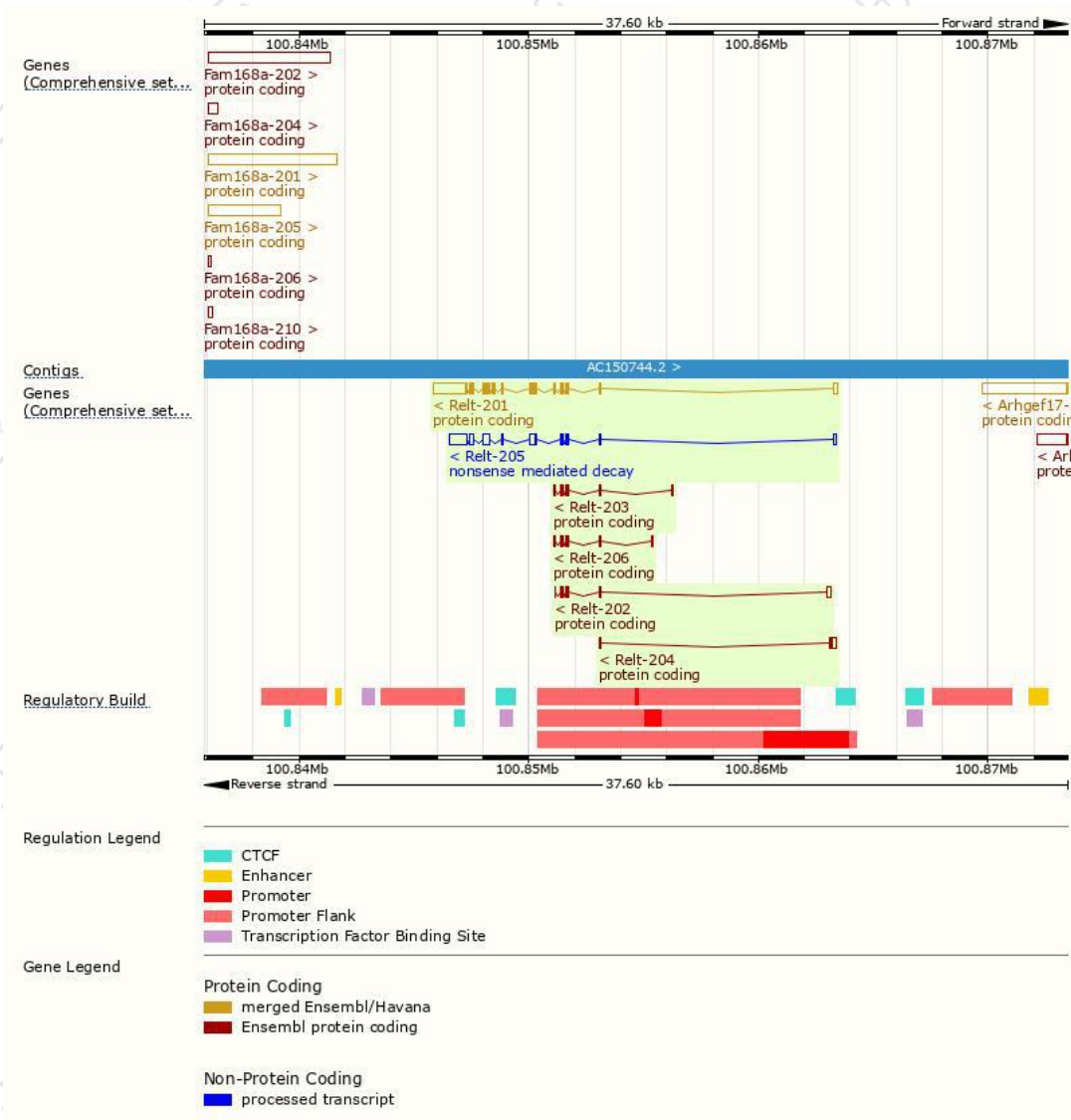
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Relt-201	ENSMUST00000008462.10	2851	436aa	Protein coding	CCDS21506	Q8BX43	TSL:1 GENCODE basic APPRIS P1
Relt-202	ENSMUST00000136231.1	516	119aa	Protein coding	-	D3Z306	CDS 3' incomplete TSL:2
Relt-203	ENSMUST00000139604.7	459	123aa	Protein coding	-	D3YWL9	CDS 3' incomplete TSL:5
Relt-206	ENSMUST00000156855.7	428	123aa	Protein coding	-	D3YWL9	CDS 3' incomplete TSL:5
Relt-204	ENSMUST00000142885.1	346	58aa	Protein coding	-	D3YTN8	CDS 3' incomplete TSL:3
Relt-205	ENSMUST00000155413.8	1966	119aa	Nonsense mediated decay	-	D6RIM1	TSL:1

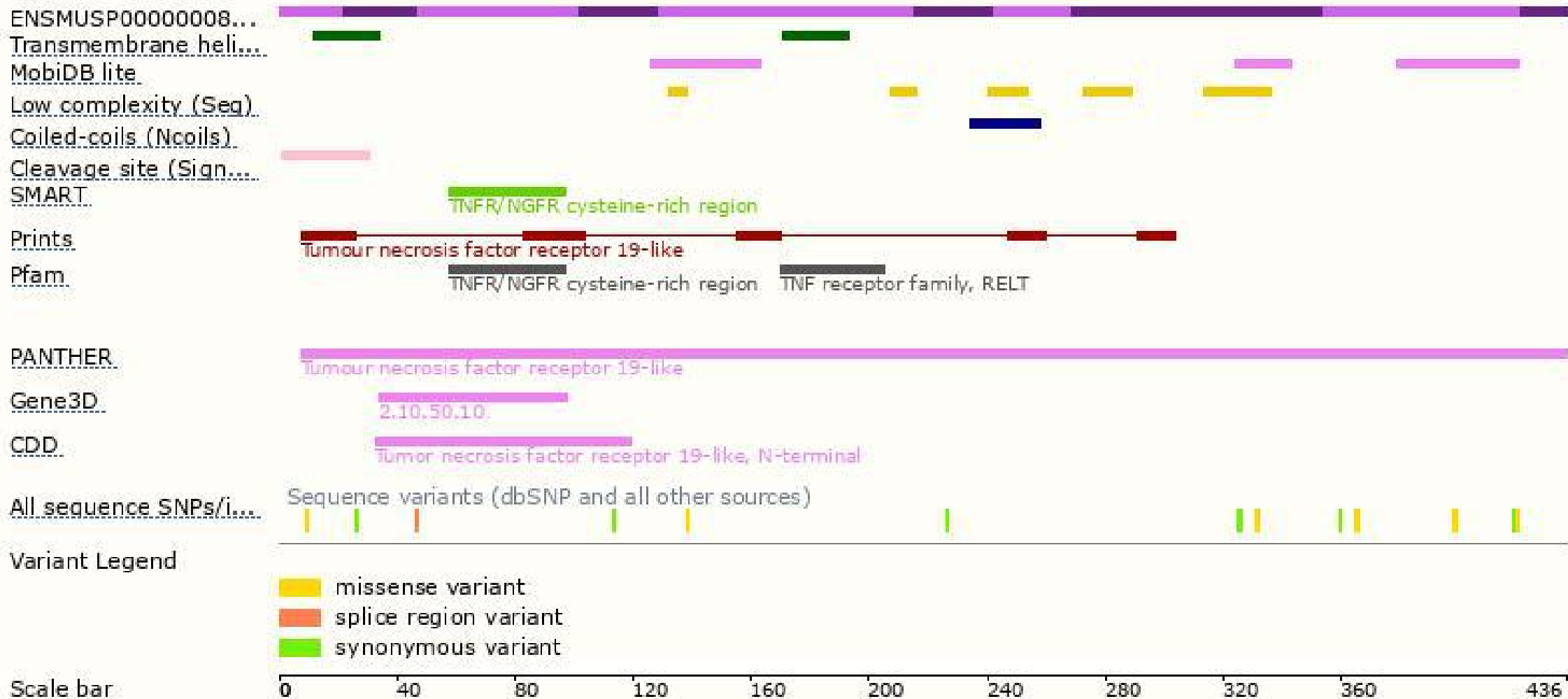
The strategy is based on the design of *Relt-201* transcript,the transcription is shown below:



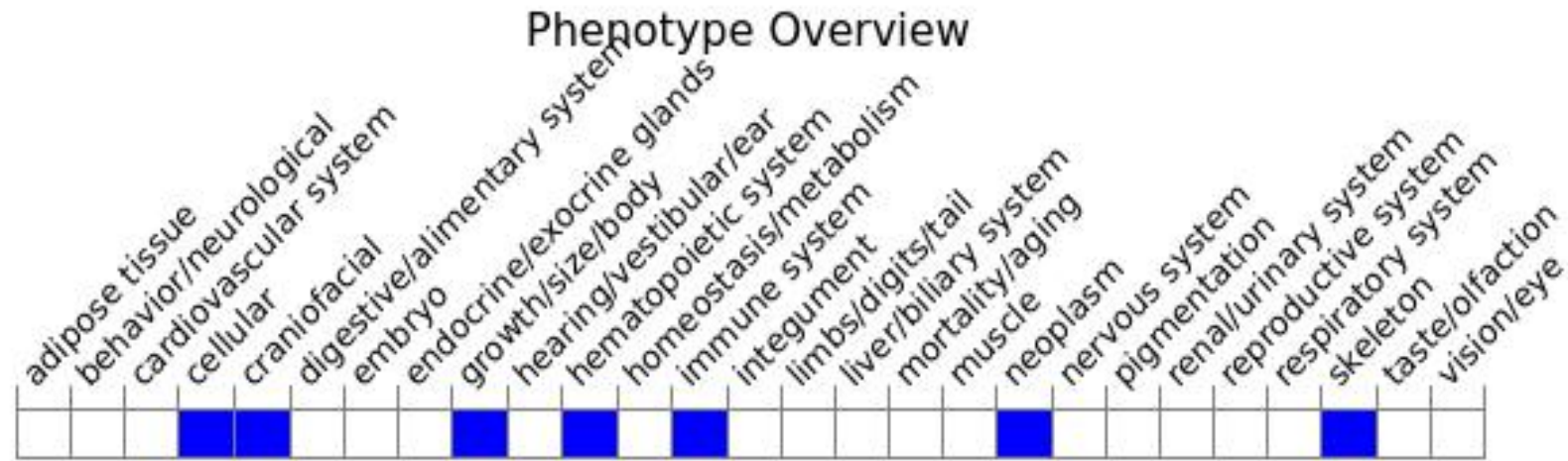
Genomic location distribution



集萃药康
GemPharmatech



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 with a premature termination codon resulting in a null allele exhibit incisor and molar enamel malformations. Homozygous knockout affects T cell proliferation and reduces tumor growth.

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

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