

Rnf186 Cas9-KO Strategy

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Project Overview

Project Name

Rnf186

Project type

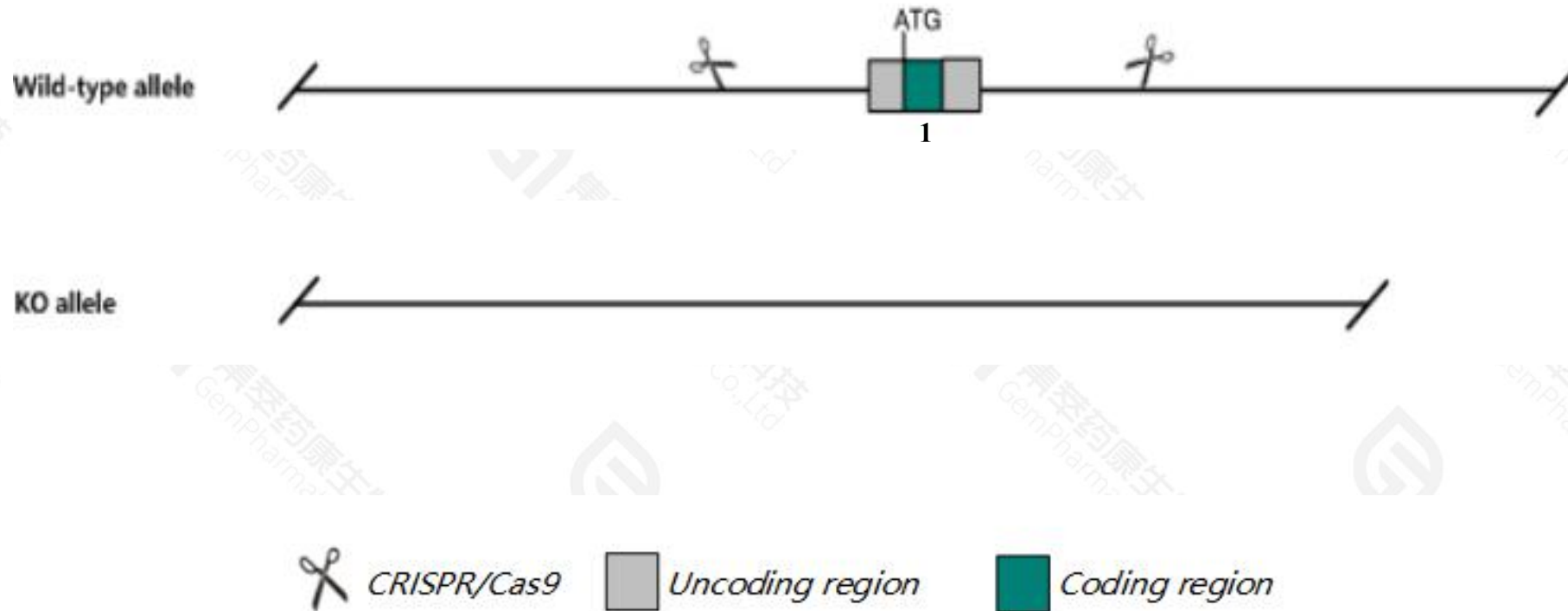
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rnf186* gene. The schematic diagram is as follows:



- The *Rnfl86* gene has 2 transcripts. According to the structure of *Rnfl86* gene, exon1 of *Rnfl86*-202(ENSMUST00000239443.2) transcript is recommended as the knockout region. The region contains all of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Rnfl86* gene. The brief process is as follows: CRISPR/Cas9 system were microinjected into the fertilized eggs of C57BL/6JGpt mice. Fertilized eggs were transplanted to obtain positive F0 mice which were confirmed by PCR and sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.

- According to the existing MGI data, although mice homozygous for a null allele do not develop spontaneous colitis, they show increased permeability of organic solutes in the colon, disturbed protein homeostasis and enhanced endoplasmic reticulum stress in colonic epithelia, and increased susceptibility to induced colitis.
- The KO region is close to *Tmco4* gene. Knockout the region may affect the function of *Tmco4* gene.
- The *Rnf186* gene is located on the Chr4. 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)

Rnf186 ring finger protein 186 [Mus musculus (house mouse)]

Gene ID: 66825, updated on 25-Sep-2020

Summary



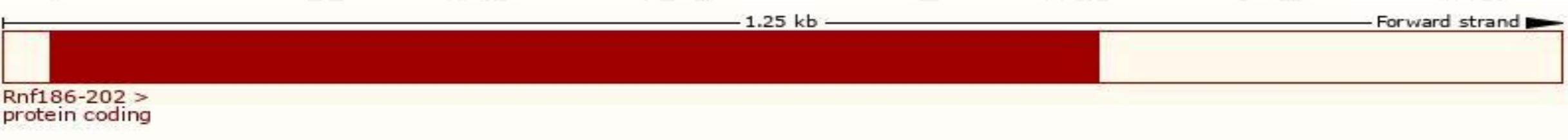
Official Symbol	Rnf186 provided by MGI
Official Full Name	ring finger protein 186 provided by MGI
Primary source	MGI:MGI:1914075
See related	Ensembl:ENSMUSG00000070661
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	9130020G10Rik
Orthologs	human all

Transcript information (Ensembl)

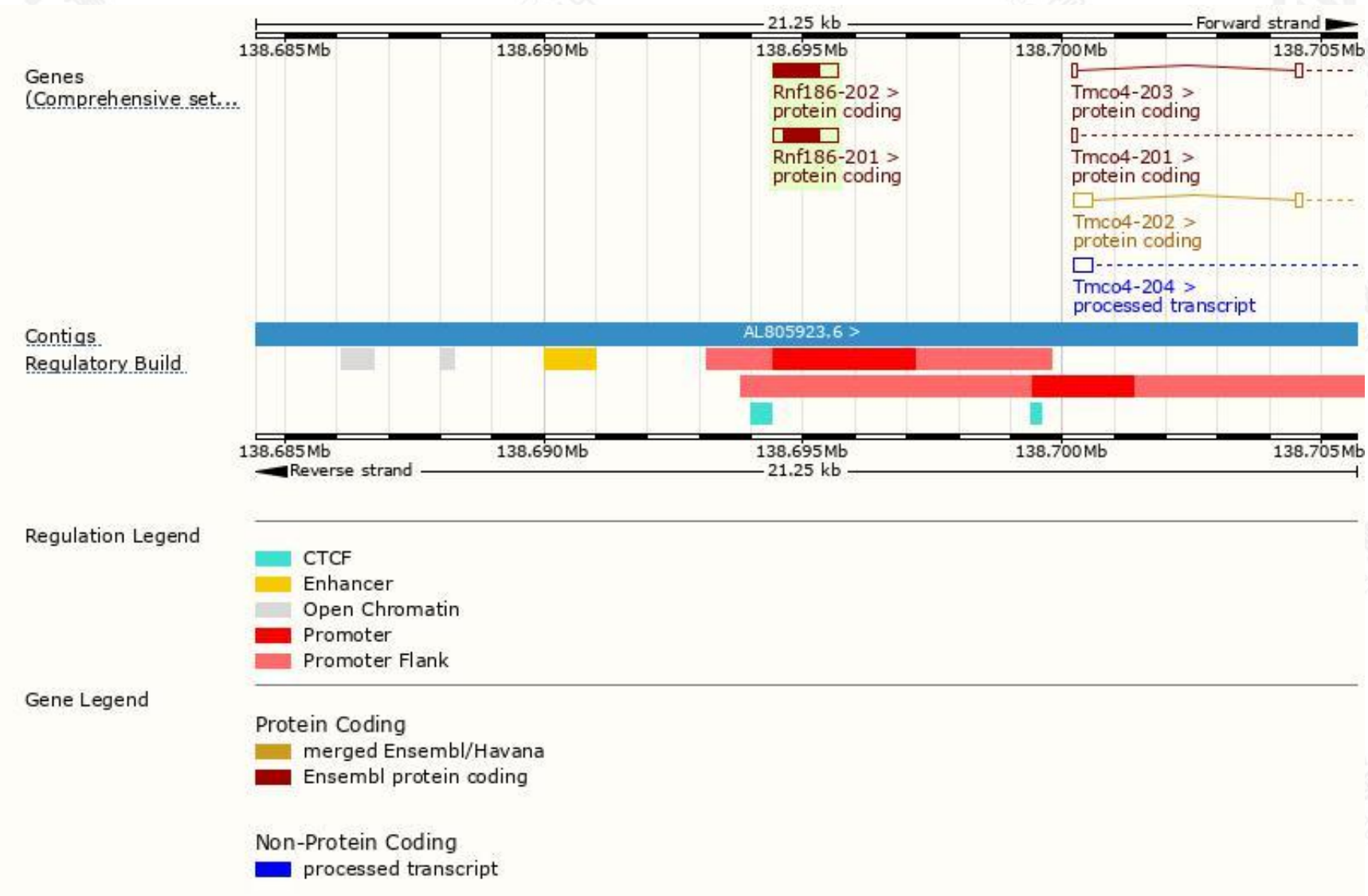
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rnf186-202	ENSMUST00000239443.2	1254	280aa	Protein coding	CCDS51338		GENCODE basic , APPRIS P2 ,
Rnf186-201	ENSMUST00000116094.5	1249	226aa	Protein coding	-		TSL:NA , GENCODE basic , APPRIS ALT2 ,

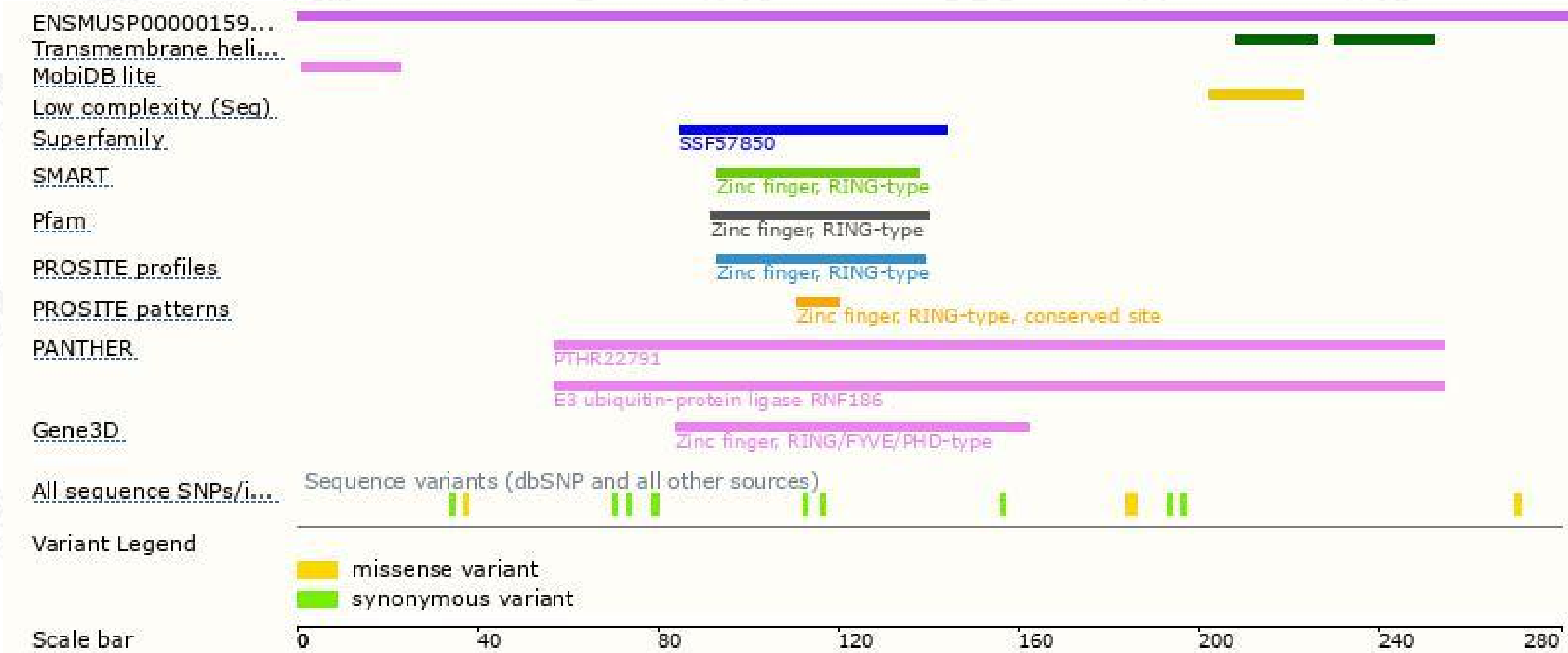
The strategy is based on the design of *Rnf186-202* transcript,the transcription is shown below:



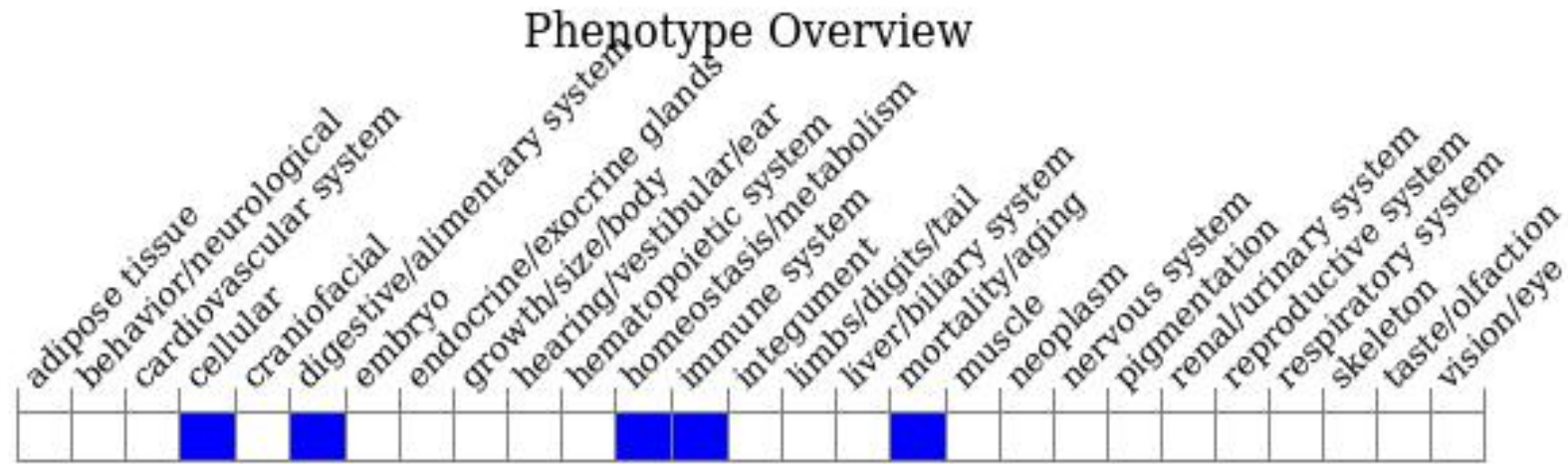
Genomic location distribution



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, although mice homozygous for a null allele do not develop spontaneous colitis, they show increased permeability of organic solutes in the colon, disturbed protein homeostasis and enhanced endoplasmic reticulum stress in colonic epithelia, and increased susceptibility to induced colitis.

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