

Il25 Cas9-KO Strategy

Designer: Shilei Zhu

Reviewer: Linyan Wu

Design Date: 2020-8-14

Project Overview

Project Name

IL25

Project type

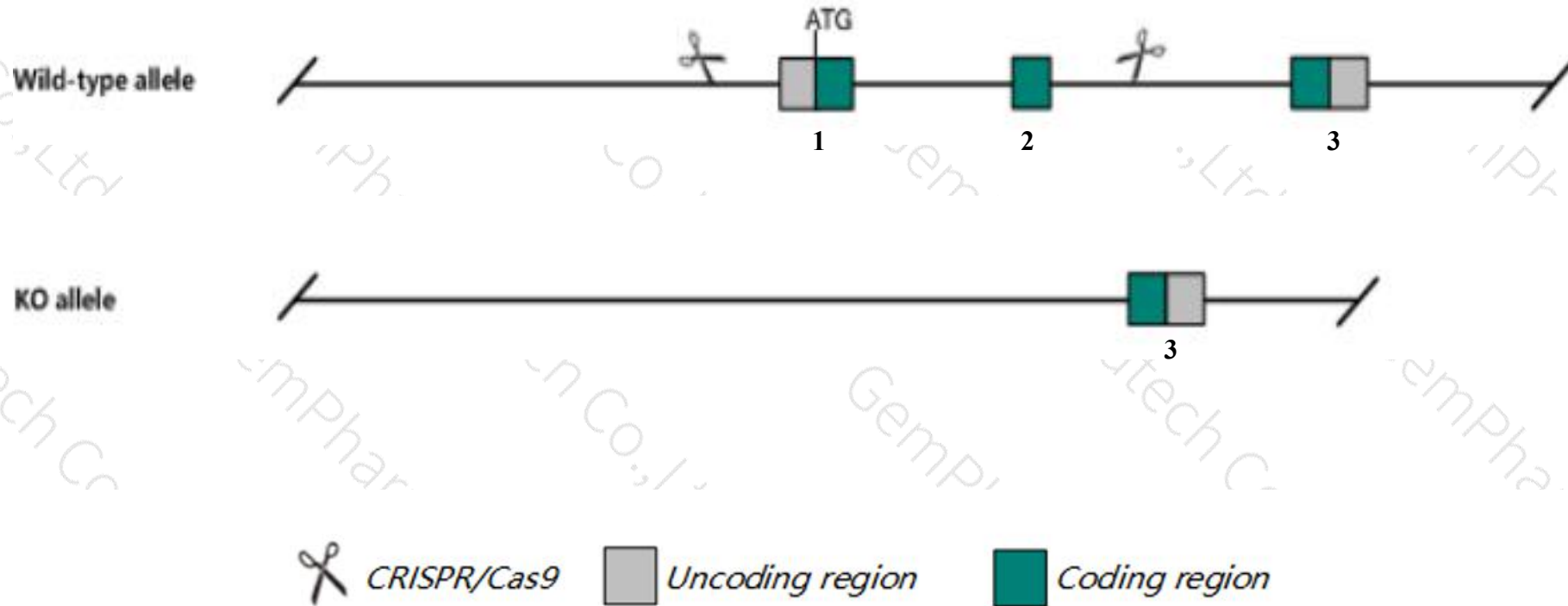
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Il25* gene. The schematic diagram is as follows:



- The *Il25* gene has 1 transcript. According to the structure of *Il25* gene, exon1-exon2 of *Il25-201*(ENSMUST00000037863.5) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Il25* 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, mice homozygous for a null allele have increased susceptibility to parasitic infection. Male homozygous mutant mice exhibit notably increased mean serum triglyceride levels in another null allele.
- The *Il25* 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.
- The gene deletion regions in this strategy may affect the 5' end regulation of adjacent genes *Efs* and *Cmtm5*.

Gene information (NCBI)

Il25 interleukin 25 [Mus musculus (house mouse)]

Gene ID: 140806, updated on 15-Mar-2020

Summary



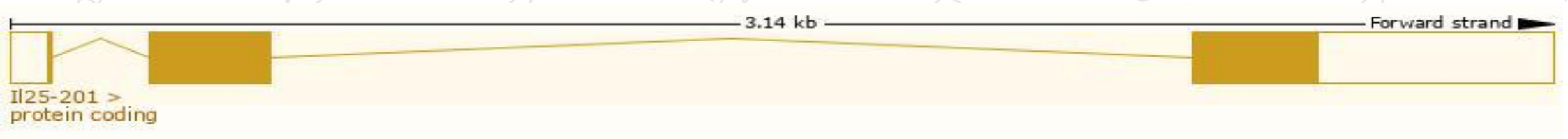
Official Symbol	Il25 provided by MGI
Official Full Name	interleukin 25 provided by MGI
Primary source	MGI:MGI:2155888
See related	Ensembl:ENSMUSG00000040770
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	IL-17e, Il17e
Expression	Low expression observed in reference dataset See more
Orthologs	human all

Transcript information (Ensembl)

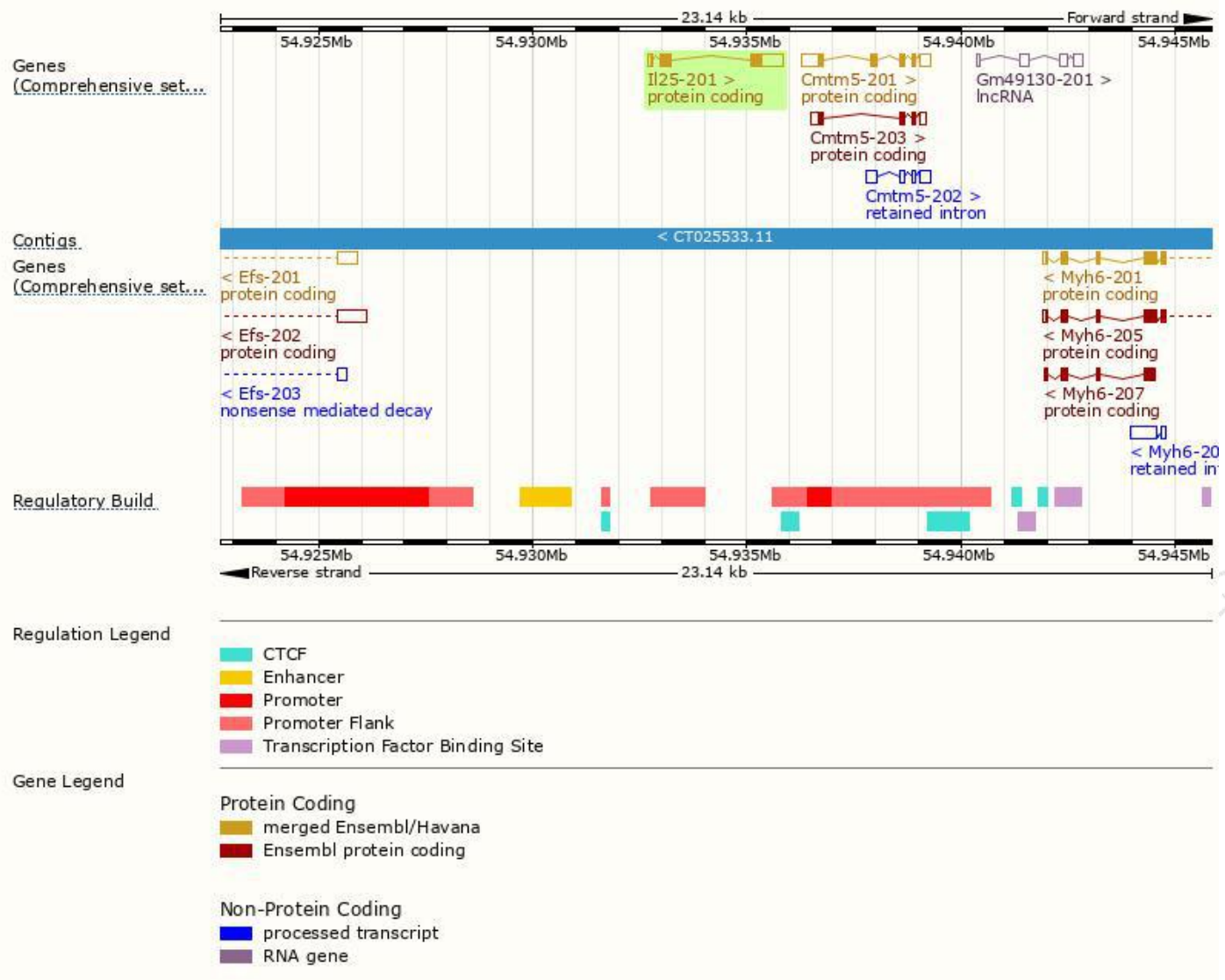
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
IL25-201	ENSMUST00000037863.5	1064	169aa	Protein coding	CCDS36926	Q8VHH8	TSL:1 GENCODE basic APPRIS P1

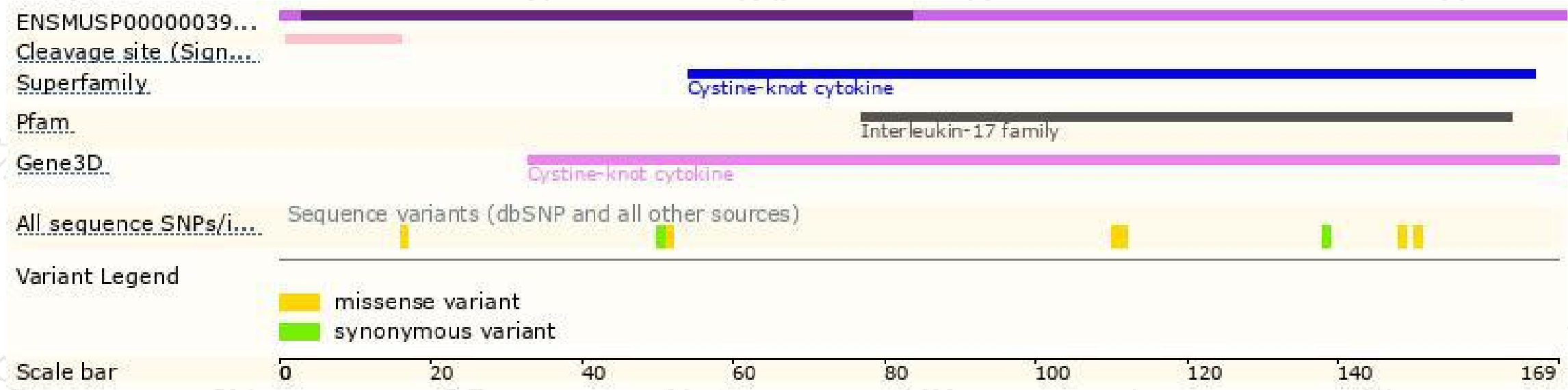
The strategy is based on the design of *IL25-201* transcript, the transcription is shown below:



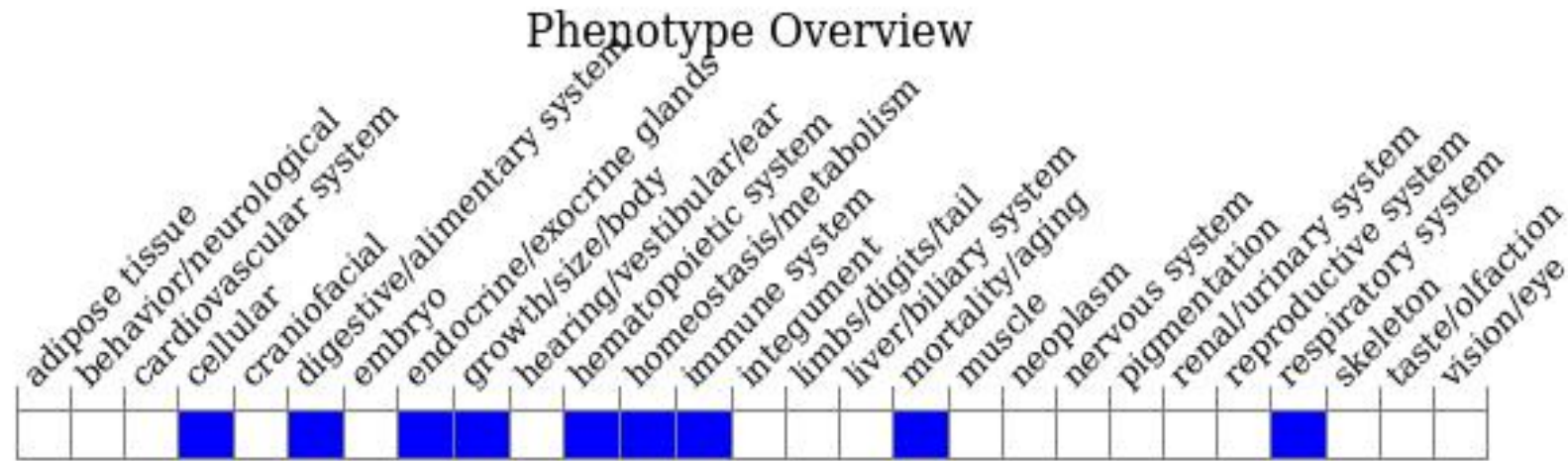
Genomic location distribution



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 have increased susceptibility to parasitic infection. Male homozygous mutant mice exhibit notably increased mean serum triglyceride levels in another null allele.

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

Tel: 400-9660890

