

Cd300a Cas9-KO Strategy

Designer:

JiaYu

Reviewer:

Xiaojing Li

Design Date:

2020-2-13

Project Overview

Project Name

Cd300a

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cd300a* gene. The schematic diagram is as follows:



- The *Cd300a* gene has 3 transcripts. According to the structure of *Cd300a* gene, exon2-exon3 of *Cd300a-202* (ENSMUST00000106582.8) transcript is recommended as the knockout region. The region contains 478bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Cd300a* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for a knock-out allele exhibit decreased susceptibility to cecal ligation and puncture with increased production of chemoattractants by mast cells.
- The *Cd300a* 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)

Cd300a CD300A molecule [Mus musculus (house mouse)]

Gene ID: 217303, updated on 31-Jan-2019

Summary



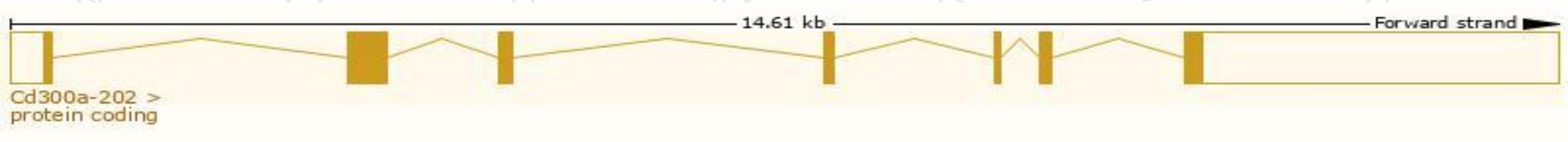
Official Symbol	Cd300a provided by MGI
Official Full Name	CD300A molecule provided by MGI
Primary source	MGI:MGI:2443411
See related	Ensembl:ENSMUSG00000034652
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	B230315M08Rik, Clm8, LMIR1, MAIR-1, MAIR-I, MAIR-Ia, MMAC8, Pigr4, mcpir1
Expression	Broad expression in spleen adult (RPKM 4.3), liver E18 (RPKM 1.5) and 21 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

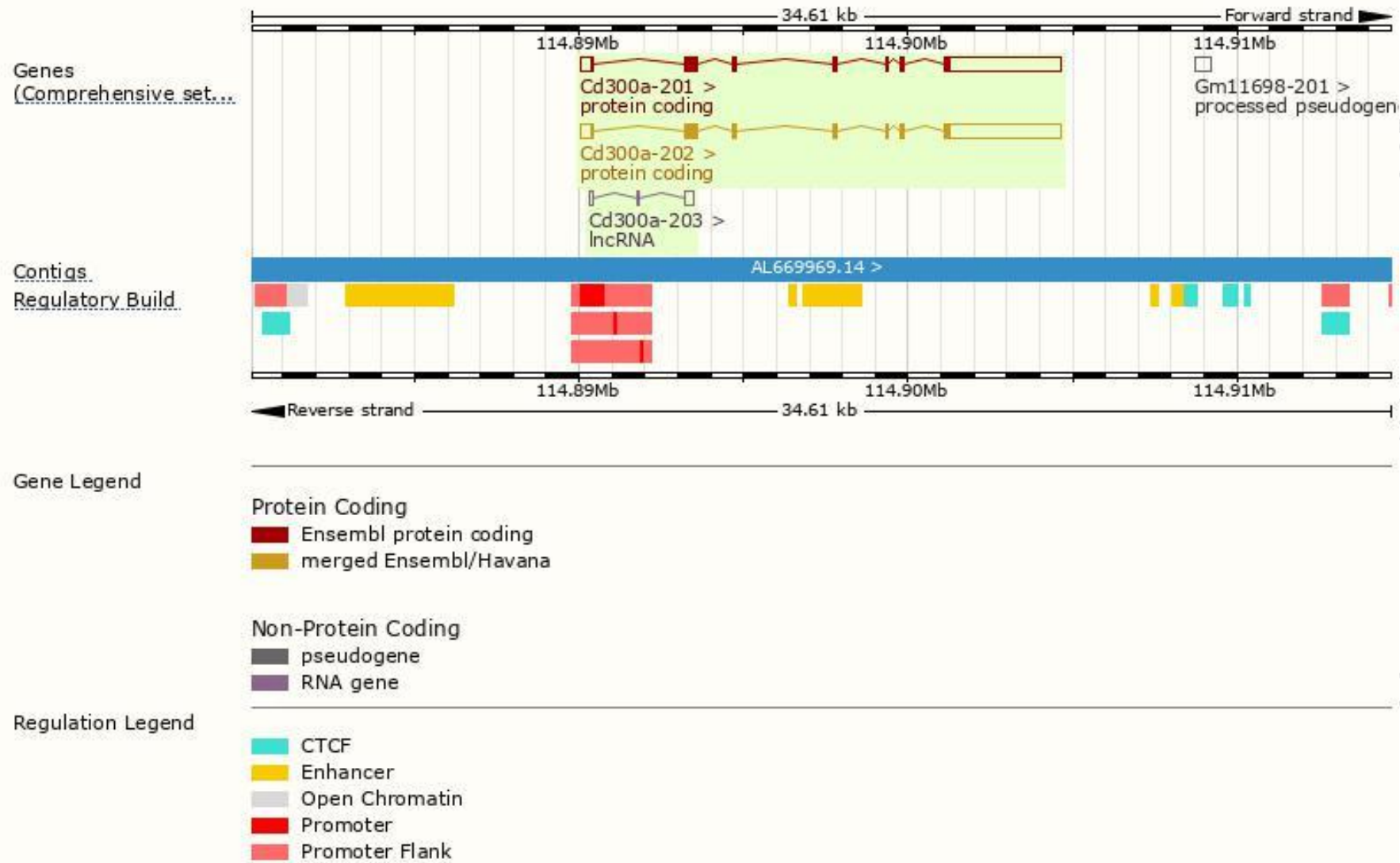
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cd300a-202	ENSMUST00000106582.8	4645	318aa	Protein coding	CCDS25613	Q6SJQ0	TSL:1 GENCODE basic APPRIS P3
Cd300a-201	ENSMUST00000045151.5	4633	314aa	Protein coding	CCDS83923	Q6SJQ0	TSL:1 GENCODE basic APPRIS ALT2
Cd300a-203	ENSMUST00000153245.1	467	No protein	Processed transcript	-	-	TSL:3

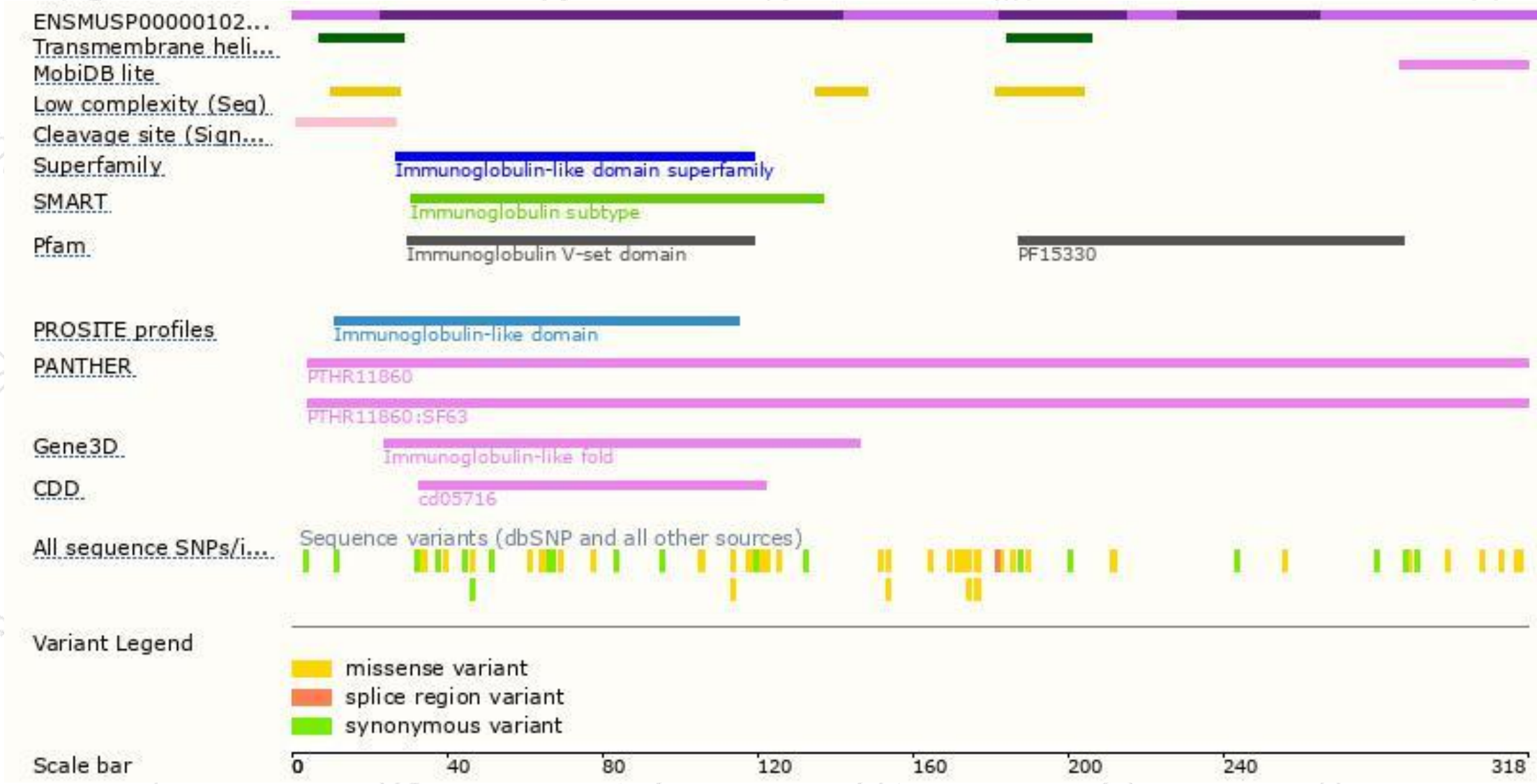
The strategy is based on the design of *Cd300a-202* transcript,The transcription is shown below



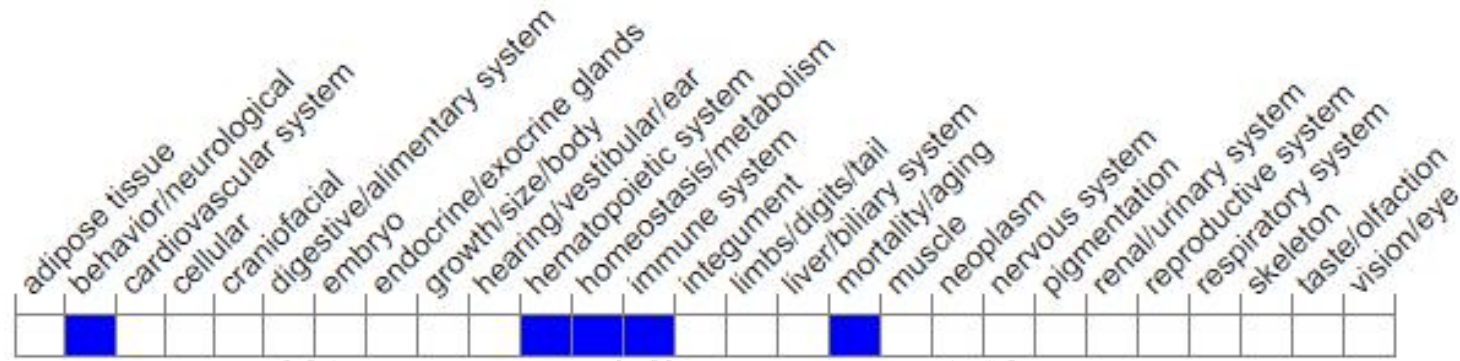
Genomic location distribution



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, Mice homozygous for a knock-out allele exhibit decreased susceptibility to cecal ligation and puncture with increased production of chemoattractants by mast cells.

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

Tel: 400-9660890

