

Ccl22 Cas9-CKO Strategy

Designer:

Yang Zeng

Reviewer:

Xiaojing Li

Design Date:

2019-11-26

Project Overview

Project Name

Ccl22

Project type

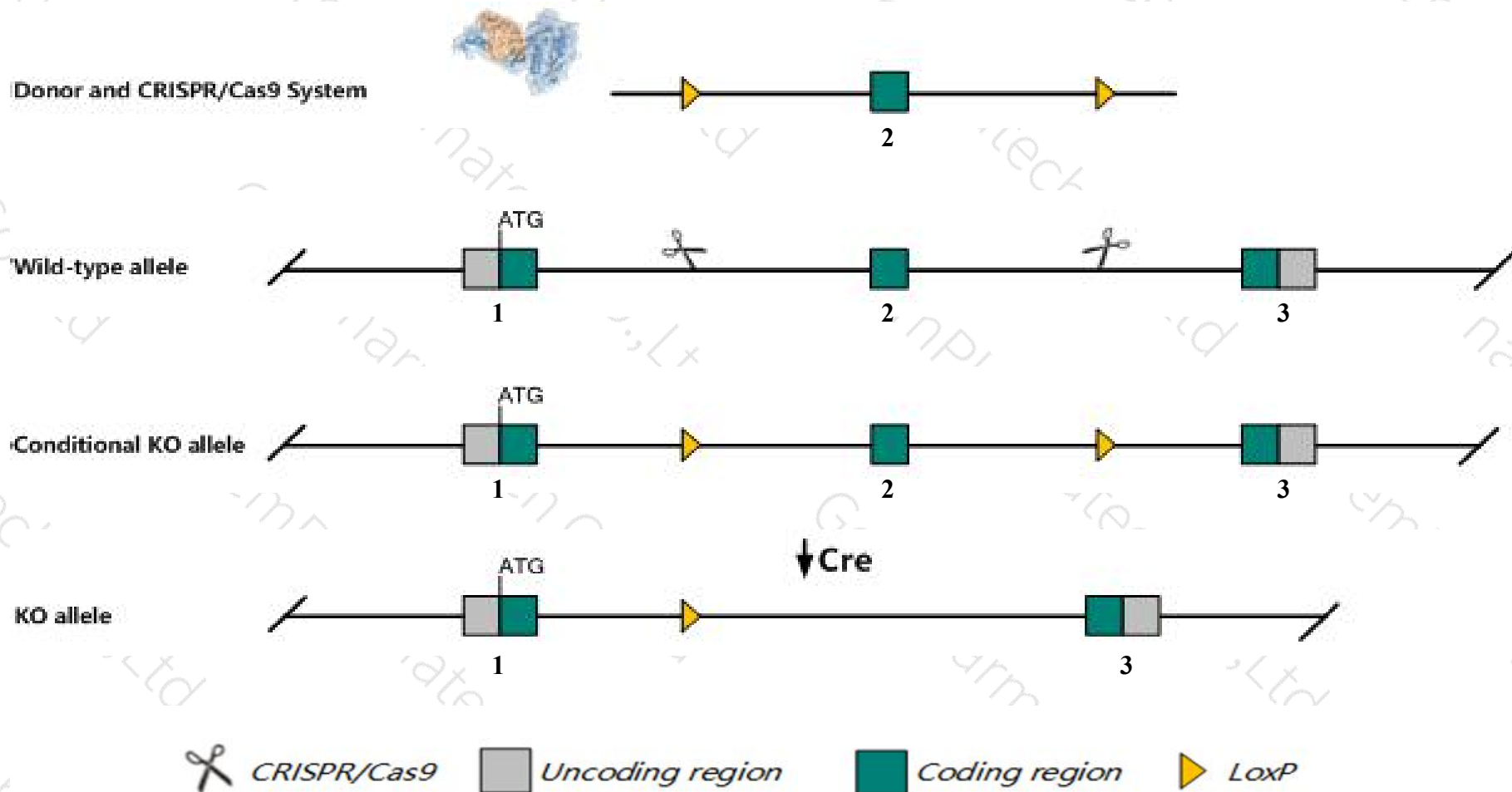
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ccl22* gene. The schematic diagram is as follows:



Technical routes

- The *Ccl22* gene has 2 transcripts. According to the structure of *Ccl22* gene, exon2 of *Ccl22-201* (ENSMUST00000034231.3) transcript is recommended as the knockout region. The region contains 124bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ccl22* gene. The brief process is as follows: CRISPR/Cas9 system and Donor 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.
- The flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

- According to the existing MGI data, Mice homozygous for a knock out allele exhibit dendritic cell physiology relating to CCR4-mediated cell contacts between dendritic cells and cytotoxic T cells.
- The *Ccl22* gene is located on the Chr8. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

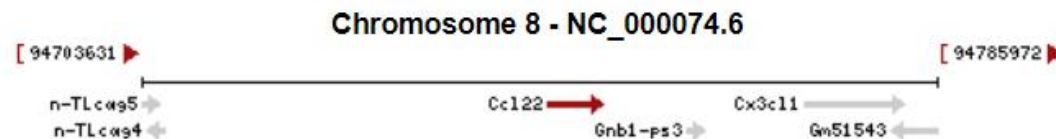
Gene information (NCBI)

Ccl22 chemokine (C-C motif) ligand 22 [*Mus musculus* (house mouse)]

Gene ID: 20299, updated on 10-Oct-2019

Summary

Official Symbol	Ccl22 provided by MGI
Official Full Name	chemokine (C-C motif) ligand 22 provided by MGI
Primary source	MGI:MGI:1306779
See related	Ensembl:ENSMUSG00000031779
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	MDC; DCBCK; ABCD-1; Scya22
Expression	Biased expression in thymus adult (RPKM 44.5), mammary gland adult (RPKM 25.2) and 5 other tissues See more
Orthologs	human all

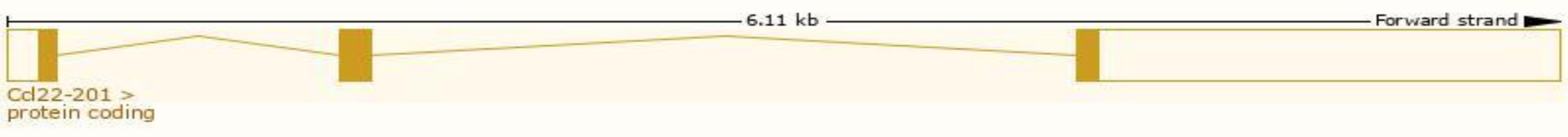


Transcript information (Ensembl)

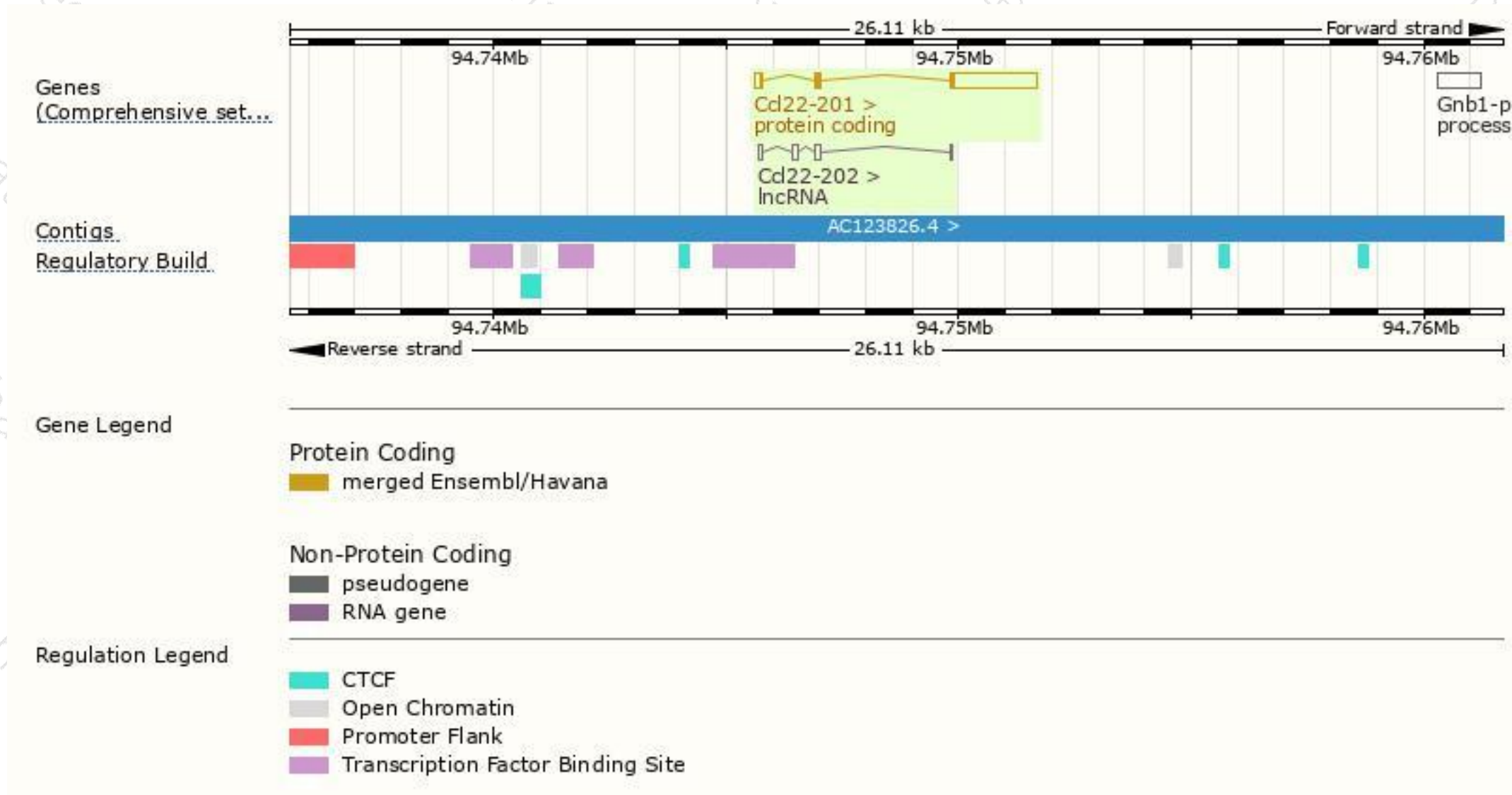
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Ccl22-201	ENSMUST00000034231.3	2216	92aa	ENSMUSP00000034231.3	Protein coding	CCDS40441	O88430 Q546S6	TSL:1 GENCODE basic APPRIS P1
Ccl22-202	ENSMUST00000156137.1	409	No protein	-	lncRNA	-	-	TSL:3

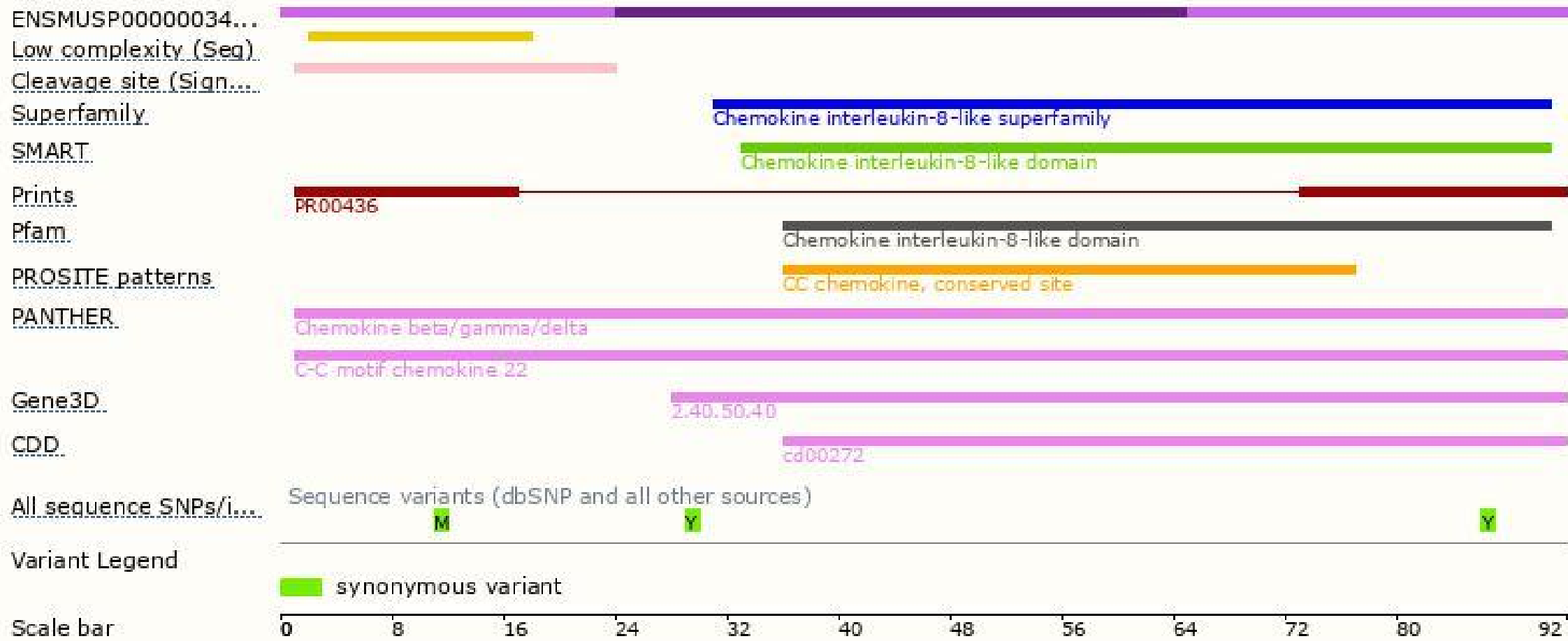
The strategy is based on the design of *Ccl22-201* transcript,The transcription is shown below



Genomic location distribution

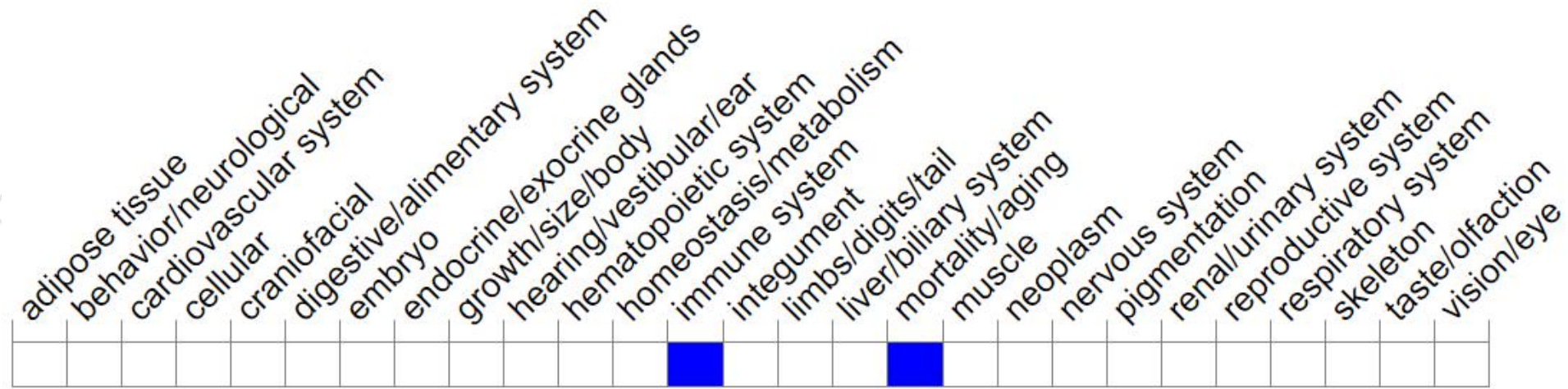


Protein domain



Mouse phenotype description(MGI)

Phenotype Overview ?



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 dendritic cell physiology relating to CCR4-mediated cell contacts between dendritic cells and cytotoxic T cells.

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

Tel: 400-9660890

