

Ccr7 Cas9-KO Strategy

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Reviewer:

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Project Overview

Project Name

Ccr7

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ccr7* gene. The schematic diagram is as follows:



- The *Ccr7* gene has 1 transcript. According to the structure of *Ccr7* gene, exon3 of *Ccr7-201* (ENSMUST00000103134.3) transcript is recommended as the knockout region. The region contains most 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 *Ccr7* gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, Homozygous mice exhibit an impaired primary immune response. Dendritic cells, B, T and T regulatory cells show impaired migration to the lymph nodes and secondary lymph organs exhibit morphological abnormalities. Lymphocytic infiltrates to the pancreas, lung and stomach are observed in aged mice.
- The *Ccr7* 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)

Ccr7 chemokine (C-C motif) receptor 7 [*Mus musculus* (house mouse)]

Gene ID: 12775, updated on 12-Aug-2019

Summary



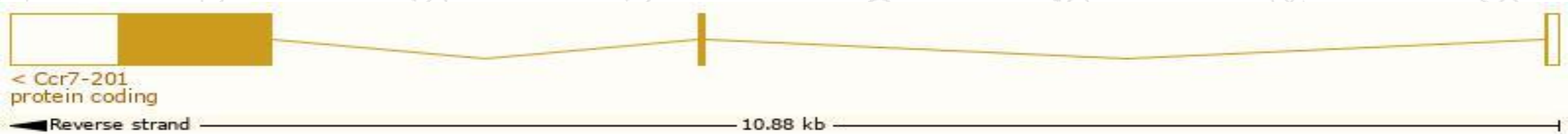
Official Symbol	Ccr7 provided by MGI
Official Full Name	chemokine (C-C motif) receptor 7 provided by MGI
Primary source	MGI:MGI:103011
See related	Ensembl:ENSMUSG00000037944
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	EBI1; CCR-7; CD197; Ebi1h; Cdw197; Cmkbr7; CC-CKR-7
Expression	Biased expression in spleen adult (RPKM 74.8), thymus adult (RPKM 70.1) and 2 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

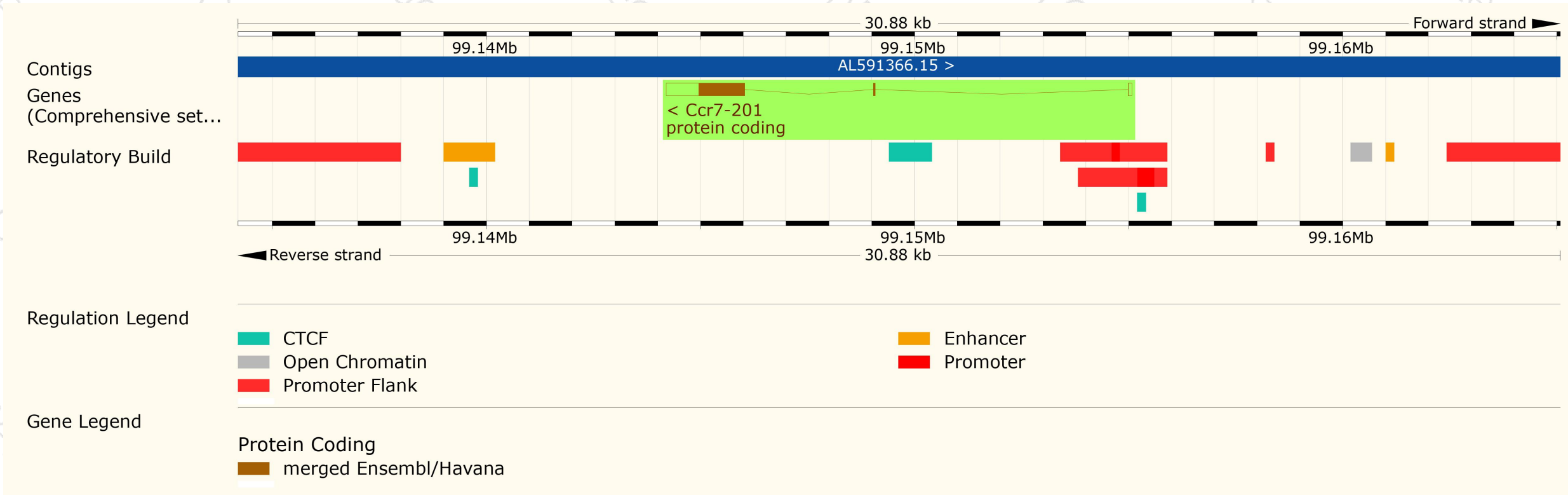
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ccr7-201	ENSMUST00000103134.3	1978	378aa	Protein coding	CCDS25373	P47774	TSL:1 GENCODE basic APPRIS P1

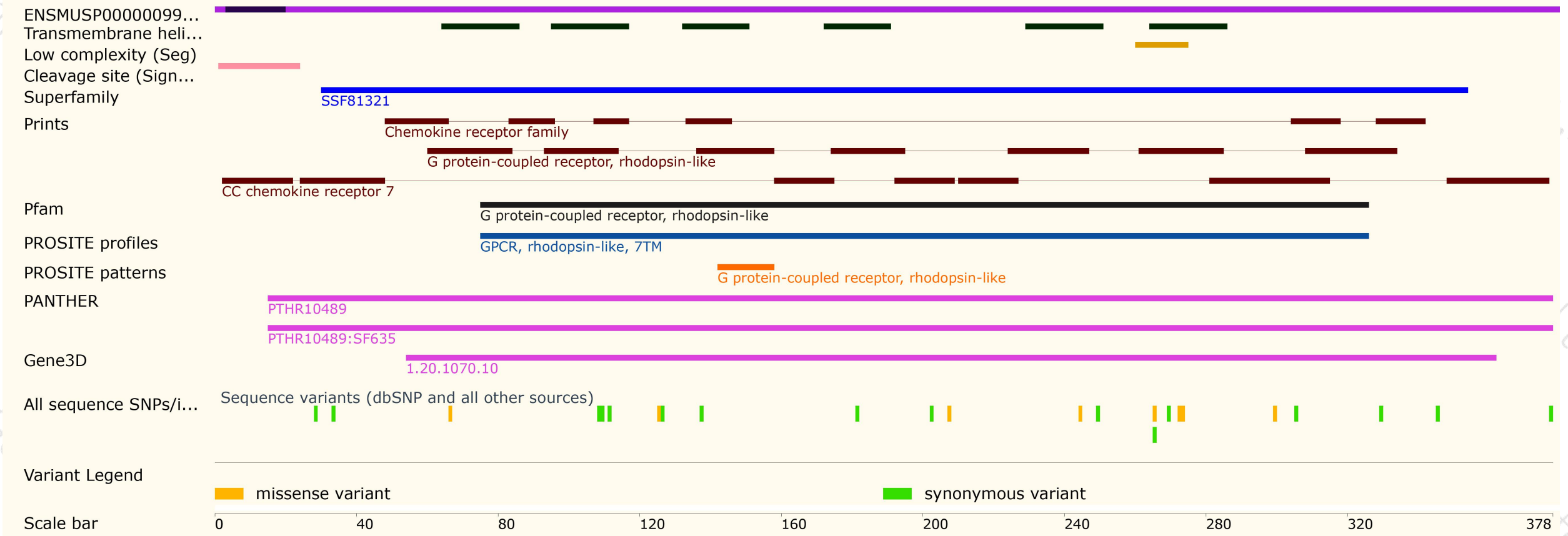
The strategy is based on the design of *Ccr7-201* transcript, The transcription is shown below



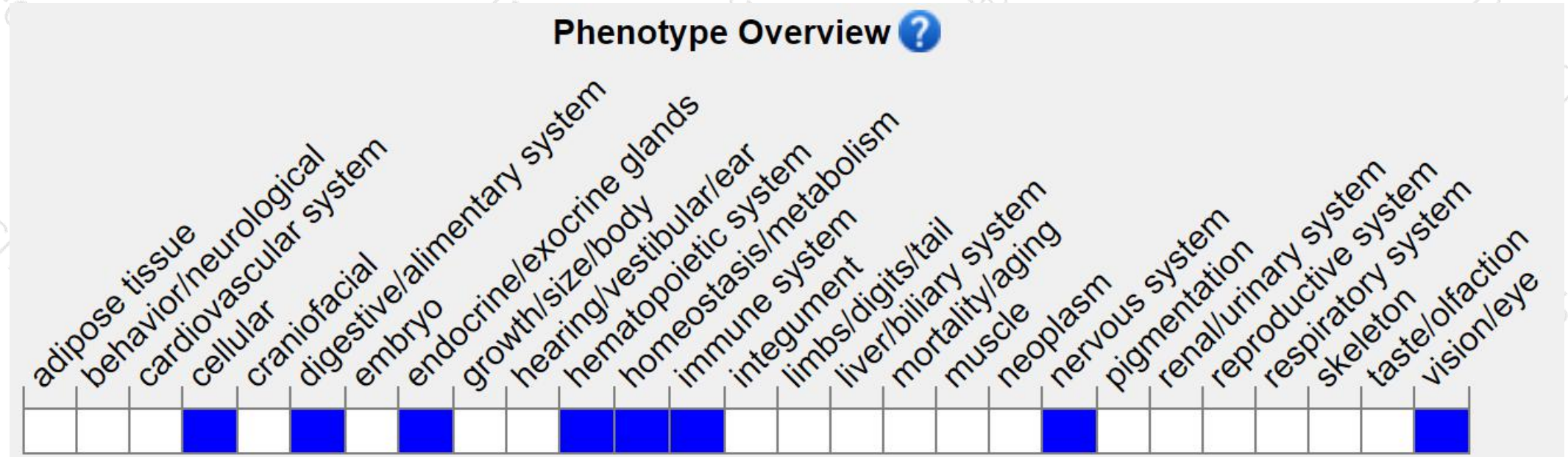
Genomic location distribution



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, Homozygous mice exhibit an impaired primary immune response. Dendritic cells, B, T and T regulatory cells show impaired migration to the lymph nodes and secondary lymph organs exhibit morphological abnormalities. Lymphocytic infiltrates to the pancreas, lung and stomach are observed in aged mice.

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

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