

Csf2rb Cas9-KO Strategy

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Overview

Target Gene Name

- Csf2rb

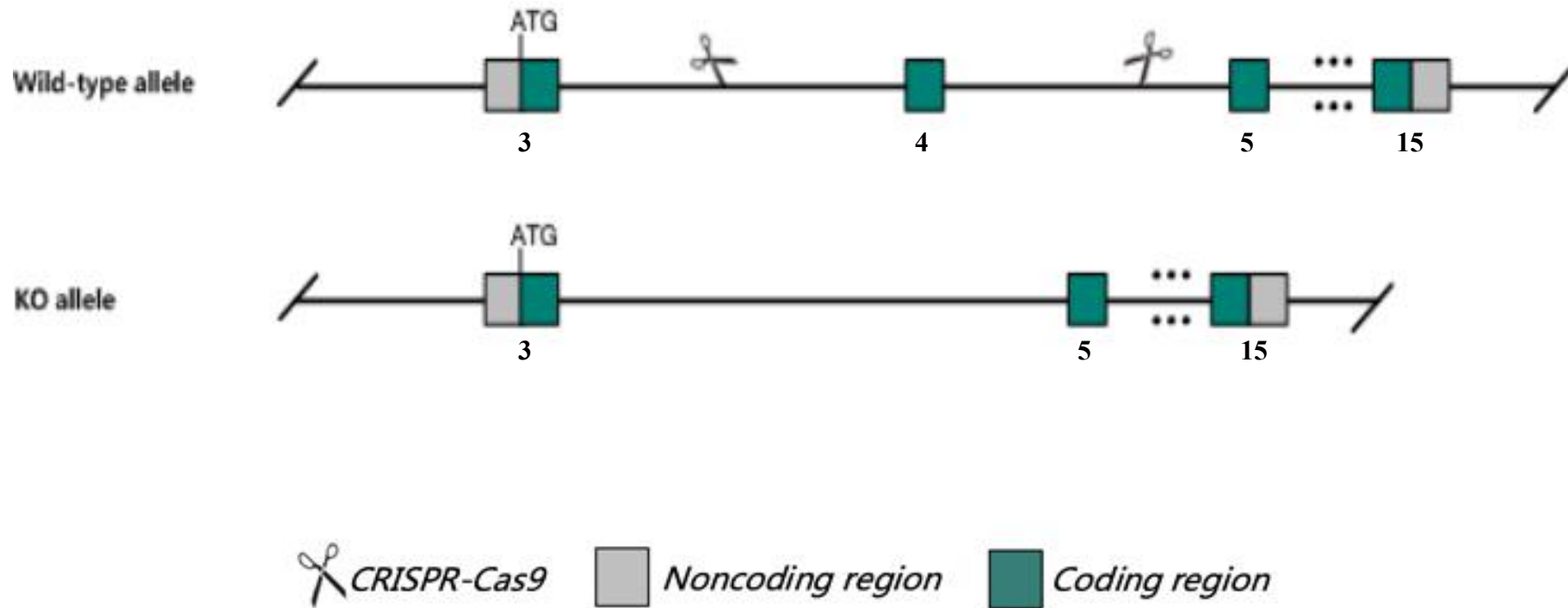
Project Type

- Cas9-KO

Genetic Background

- C57BL/6JGpt

Strain Strategy



Technical Information

- The *Csf2rb* gene has 8 transcripts. According to the structure of *Csf2rb* gene, exon4 of *Csf2rb*-206 (ENSMUST00000230264.3) transcript is recommended as the knockout region. The region contains 124bp coding sequence. Knocking out the region will result in disruption of protein function.
- In this project we use CRISPR-Cas9 technology to modify *Csf2rb* gene. The brief process is as follows: gRNAs were transcribed in vitro. Cas9 and gRNAs 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 on-target amplicon sequencing. A stable F1-generation mouse strain was obtained by mating positive F0-generation mice with C57BL/6JGpt mice and confirmation of the desired mutant allele was carried out by PCR and on-target amplicon sequencing.

Gene Information

Csf2rb colony stimulating factor 2 receptor, beta, low-affinity (granulocyte-macrophage) [*Mus musculus* (house mouse)]

[Download Datasets](#)

Gene ID: 12983, updated on 28-May-2024

Summary



Official Symbol Csf2rb provided by [MGI](#)

Official Full Name colony stimulating factor 2 receptor, beta, low-affinity (granulocyte-macrophage) provided by [MGI](#)

Primary source [MGI:MGI:1339759](#)

See related [Ensembl:ENSMUSG00000071713](#) [AllianceGenome:MGI:1339759](#)

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

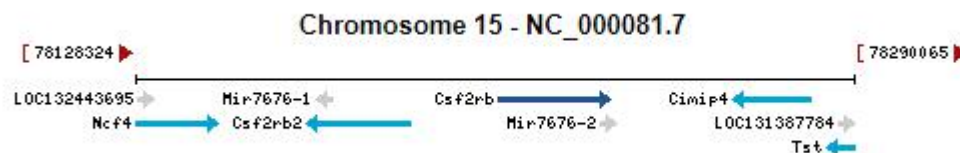
Also known as Bc; Il3r; AIC2B; Il3rb; Il5rb; CDw131; Il3rb1; Csf2rb1; Csfgrb

Summary Predicted to enable cytokine receptor activity. Acts upstream of or within cytokine-mediated signaling pathway and regulation of cell growth. Predicted to be located in membrane. Predicted to be integral component of membrane. Is expressed in several structures, including bone marrow; cardiovascular system mesenchyme; dorsal aorta; genitourinary system; and yolk sac. Used to study pulmonary alveolar proteinosis. Human ortholog(s) of this gene implicated in pulmonary alveolar proteinosis. Orthologous to human CSF2RB (colony stimulating factor 2 receptor subunit beta). [provided by Alliance of Genome Resources, Apr 2022]

Expression Broad expression in mammary gland adult (RPKM 30.9), spleen adult (RPKM 19.6) and 16 other tissues [See more](#)

Orthologs [human](#) [all](#)

NEW Try the new [Gene table](#)
Try the new [Transcript table](#)



Source: <https://www.ncbi.nlm.nih.gov/>

Transcript Information

The gene has 8 transcripts, all transcripts are shown below:

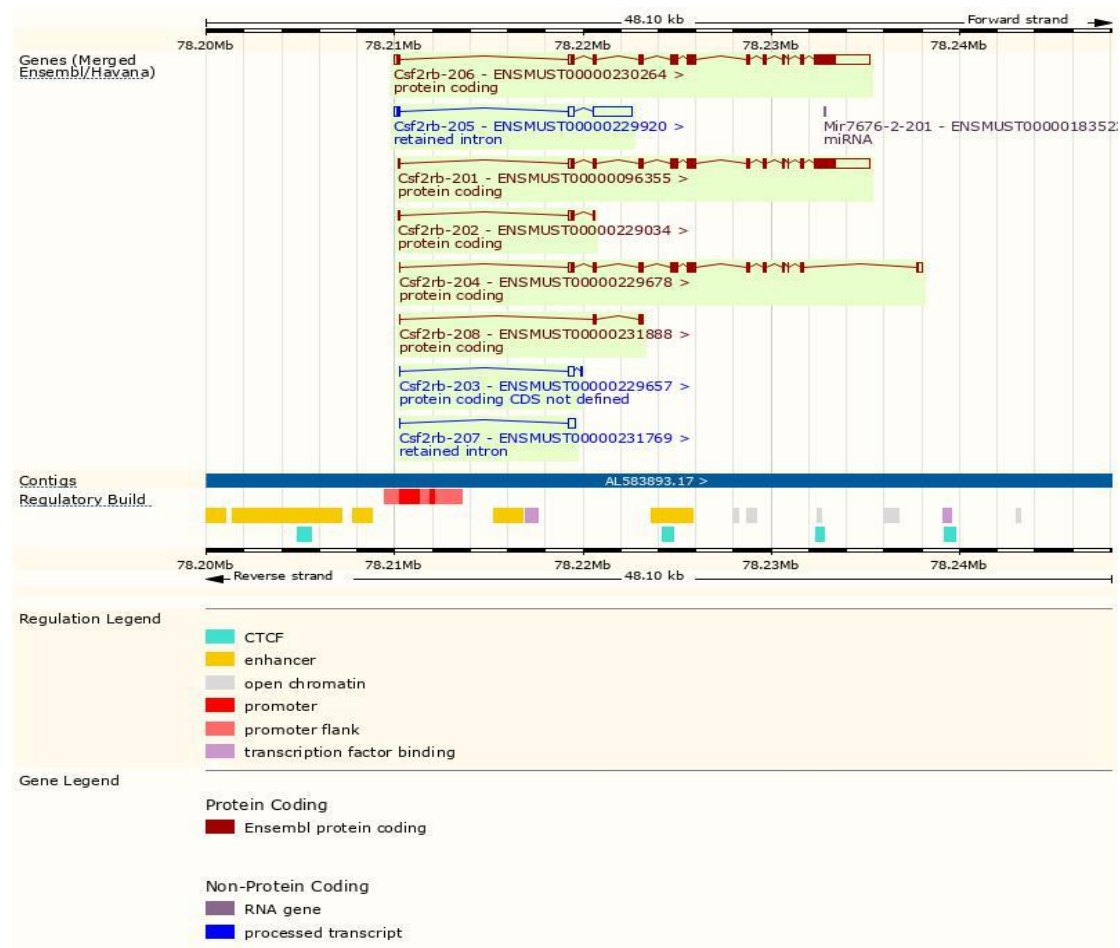
Transcript ID	Name	bp	Protein	Biotype	CCDS	UniProt Match	Flags
ENSMUST00000230264.3	Csf2rb-206	4900	896aa	Protein coding	CCDS27612	P26955	Ensembl Canonical Gencode basic APPRIS P2
ENSMUST00000096355.4	Csf2rb-201	4764	896aa	Protein coding	CCDS27612	P26955	Gencode basic APPRIS P2 TSL:1
ENSMUST00000229678.2	Csf2rb-204	2083	541aa	Protein coding		A0A2R8VK01	Gencode basic APPRIS ALT2
ENSMUST00000229034.2	Csf2rb-202	397	46aa	Protein coding		A0A2R8VHF2	CDS 3' incomplete
ENSMUST00000231888.2	Csf2rb-208	340	66aa	Protein coding		A0A338P6R9	CDS 3' incomplete
ENSMUST00000229657.2	Csf2rb-203	328	No protein	Protein coding CDS not defined		-	-
ENSMUST00000229920.2	Csf2rb-205	2470	No protein	Retained intron		-	-
ENSMUST00000231769.2	Csf2rb-207	370	No protein	Retained intron		-	-

The strategy is based on the design of *Csf2rb-206* transcript, the transcription is shown below:

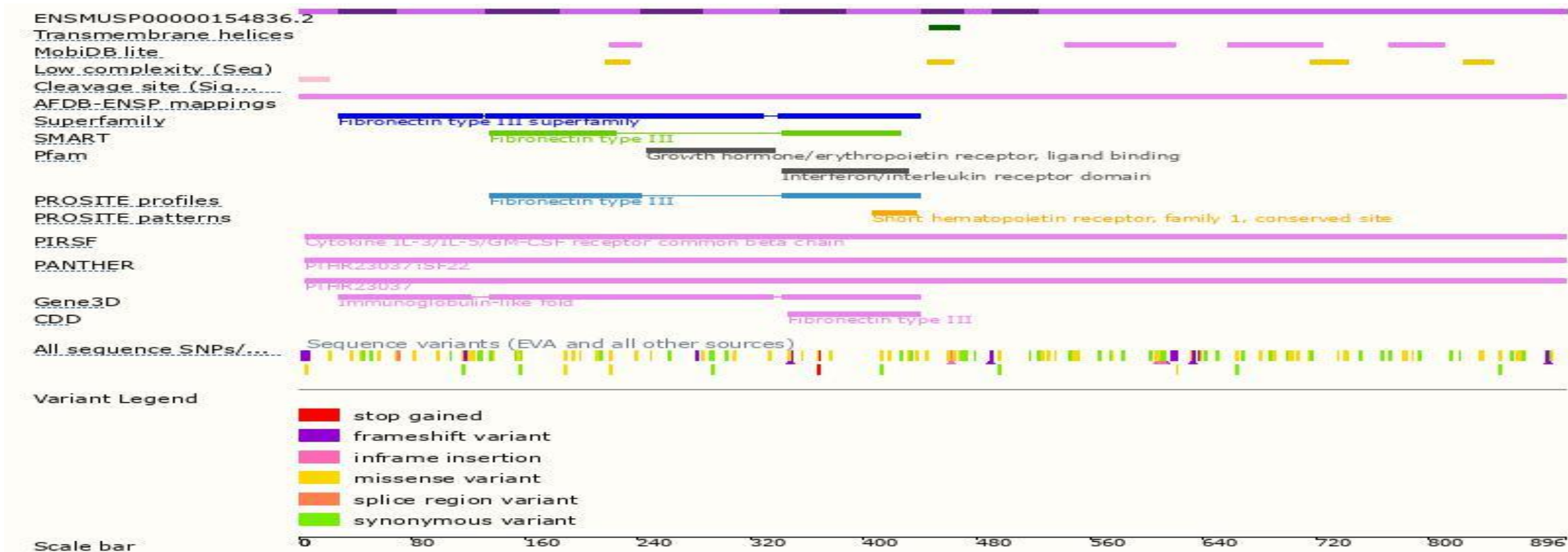


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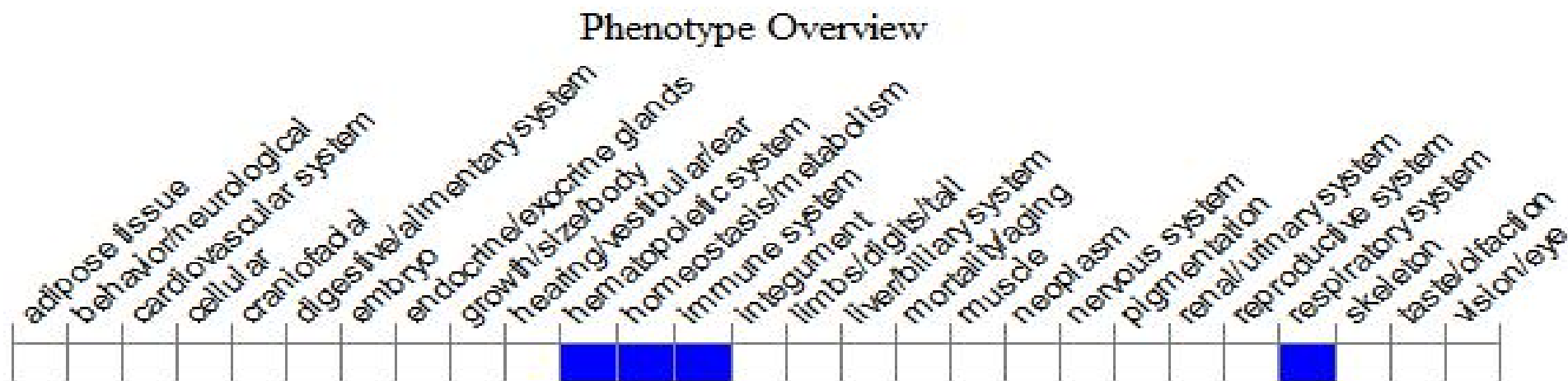
Genomic Information



Protein Information



Mouse Phenotype Information (MGI)



- Homozygotes for targeted null mutations exhibit lung pathology including lymphocytic infiltration, alveolar proteinosis-like areas, and increased saturated phosphatidylcholine pool sizes. Mutants also have low peripheral eosinophil numbers.

Important Information

- Homozygotes for targeted null mutations exhibit preweaning lethality, complete penetrance .
- *Csf2rb* is located on Chr15. If the knockout mice are crossed with other mouse strains to obtain double homozygous mutant offspring, please avoid the situation that the second gene is on the same chromosome.
- This Strategy is designed based on genetic information in existing databases. Due to the complexity of biological processes, all risks of the mutation on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.