

Ccr4 Cas9-KO Strategy

Designer: Ruirui Zhang

Reviewer: Xueting Zhang

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Overview

Target Gene Name

- Ccr4

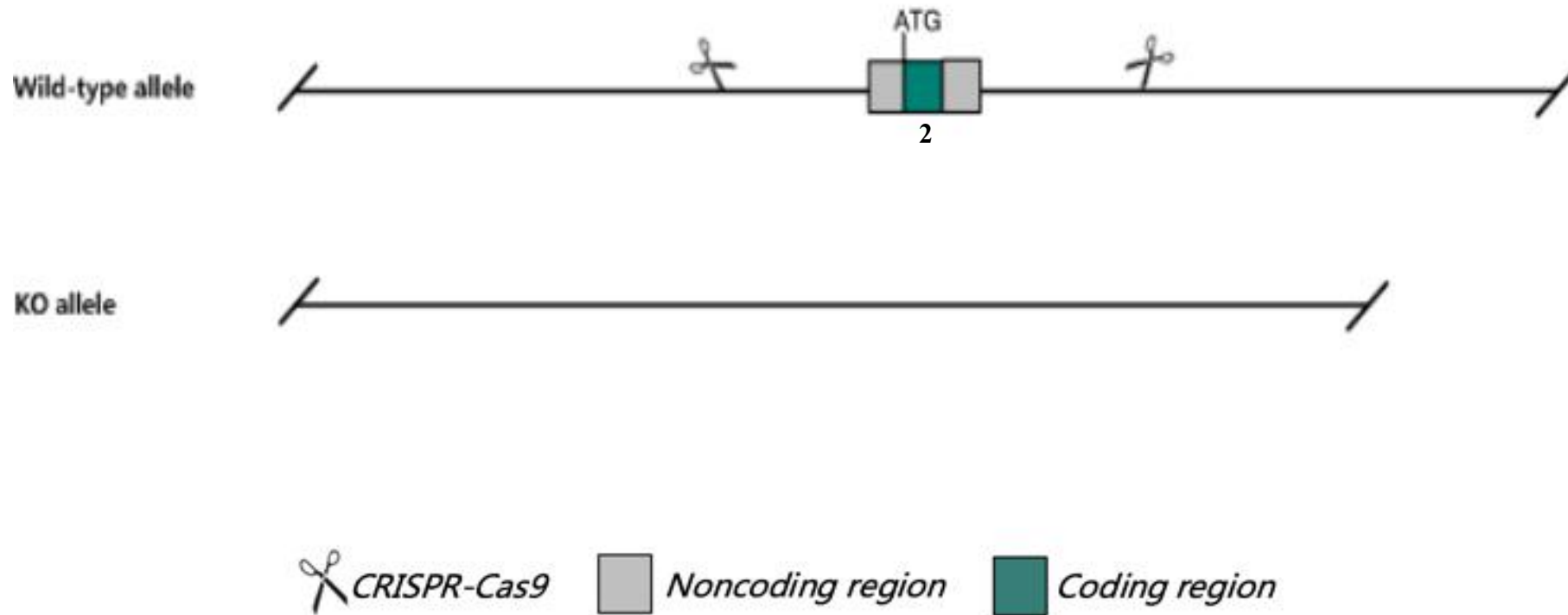
Project Type

- Cas9-KO

Genetic Background

- C57BL/6JGpt

Strain Strategy



Technical Information

- The *Ccr4* gene has 3 transcripts. According to the structure of *Ccr4* gene, exon2 of *Ccr4-201* (ENSMUST00000054414.5) transcript is recommended as the knockout region. The region contains all of the coding sequence. Knocking out the region will result in disruption of protein function.
- In this project we use CRISPR-Cas9 technology to modify *Ccr4* 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

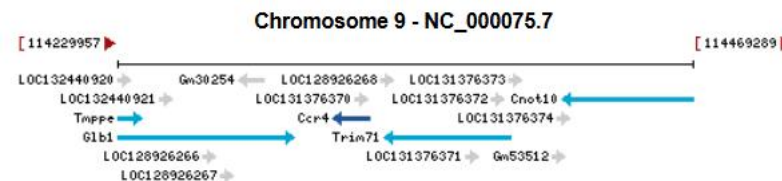
Ccr4 C-C motif chemokine receptor 4 [*Mus musculus* (house mouse)]

[Download Datasets](#)

Gene ID: 12773, updated on 7-Apr-2025

Summary

Official Symbol Ccr4 provided by [MGI](#)
Official Full Name C-C motif chemokine receptor 4 provided by [MGI](#)
Primary source [MGI:MGI:107824](#)
See related [Ensembl:ENSMUSG00000047898](#) [AllianceGenome.MGI:107824](#)
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 LESTR; Sdf1r; CHEMR1; Cmkbr4; C-C CKR-4
Summary Enables C-C chemokine receptor activity. Acts upstream of or within several processes, including homeostasis of number of cells; interneuron migration; and tolerance induction. Located in external side of plasma membrane. Is expressed in several structures, including central nervous system; gut; limb; liver and biliary system; and reproductive system. Orthologous to human CCR4 (C-C motif chemokine receptor 4). [provided by Alliance of Genome Resources, Apr 2025]
Expression Biased expression in thymus adult (RPKM 10.4), testis adult (RPKM 1.5) and 2 other tissues [See more](#)
Orthologs [human](#) [all](#)



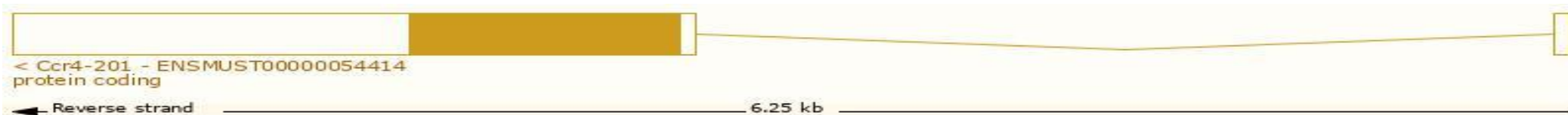
Source: <https://www.ncbi.nlm.nih.gov/>

Transcript Information

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

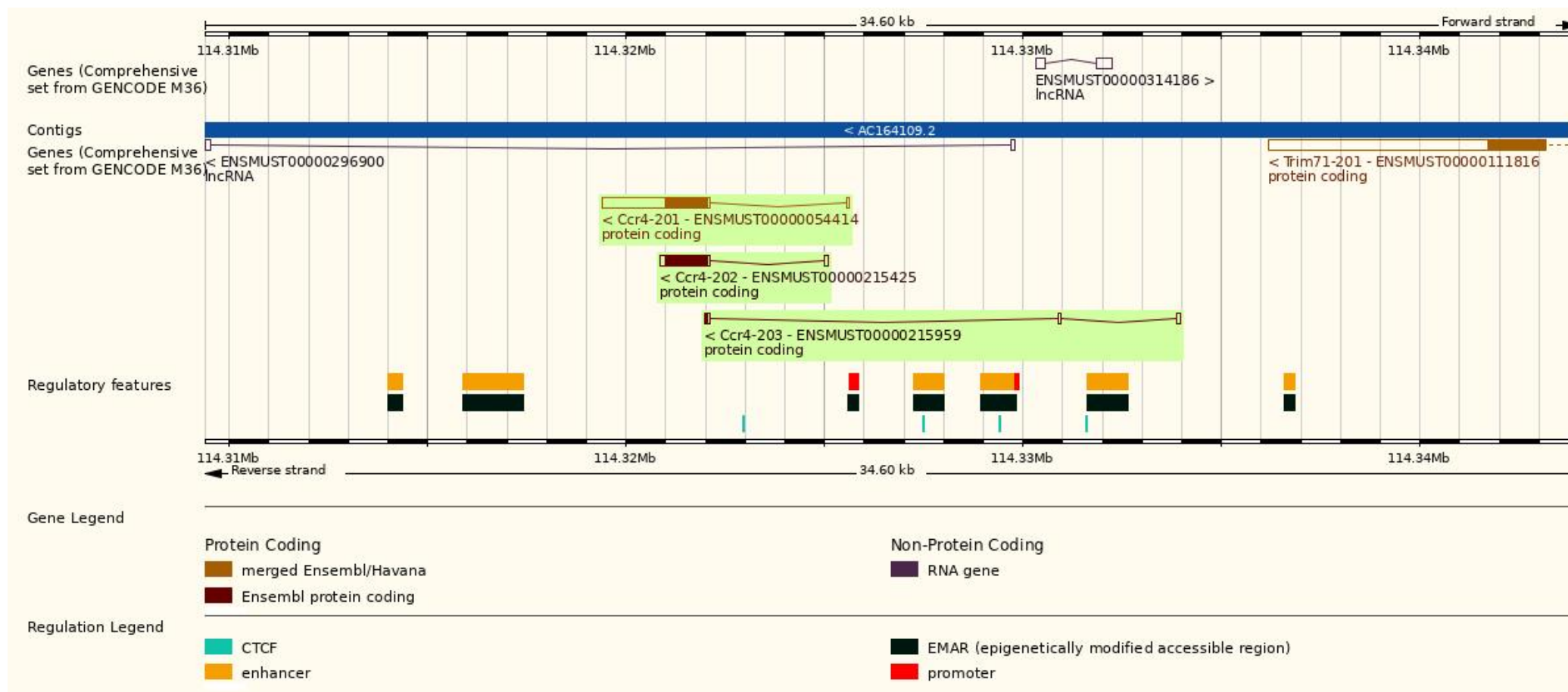
Transcript ID	Name	bp	Protein	Biotype	CCDS	UniProt Match	Flags
ENSMUST00000054414.5	Ccr4-201	2805	360aa	Protein coding	CCDS23594	P51680	Ensembl Canonical Gencode Basic APPRIS P1 TSL:1
ENSMUST00000215425.2	Ccr4-202	1382	360aa	Protein coding	CCDS23594	P51680	Gencode Basic APPRIS P1 TSL:1
ENSMUST00000215959.2	Ccr4-203	339	32aa	Protein coding		A0A1L1STS0	TSL:3 CDS 3' incomplete

The strategy is based on the design of *Ccr4-201* transcript, the transcription is shown below:



Source: <https://www.ensembl.org>

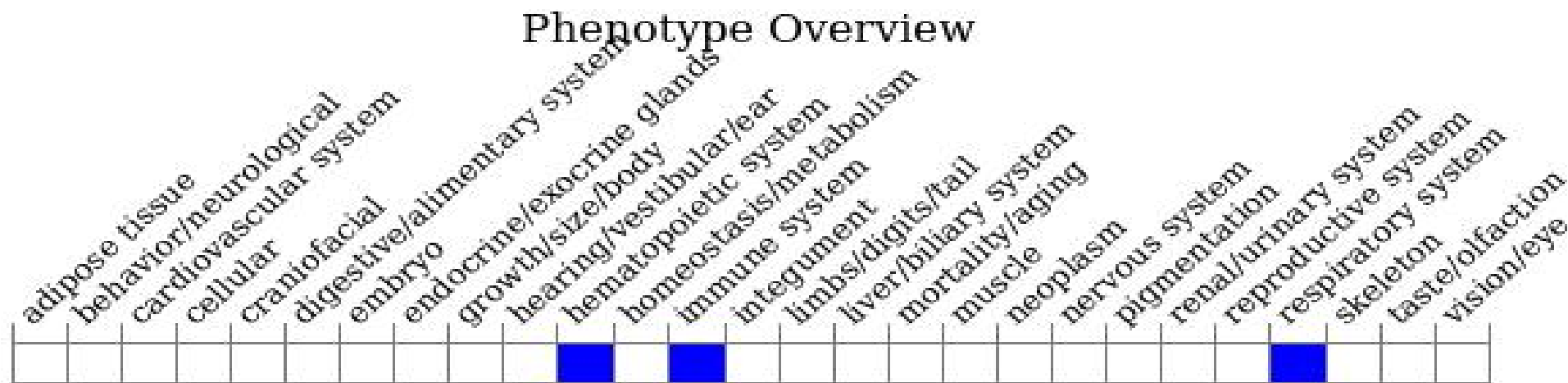
Genomic Information



Protein Information



Mouse Phenotype Information (MGI)



- Homozygous mutation of this gene results in decreased mortality, decreased tumor necrosis factor production, and decreased IL-1beta production following LPS administration.

Important Information

- The intron of ENSMUSG00000129892 was overlapped with knockout region, the effect of on ENSMUSG00000129892 gene function is unknown.
- *Ccr4* is located on Chr9. 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.