

Ccr2 Cas9-KO Strategy

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Design Date:2018-07-02

Project Overview



Project Name

Ccr2

Project type

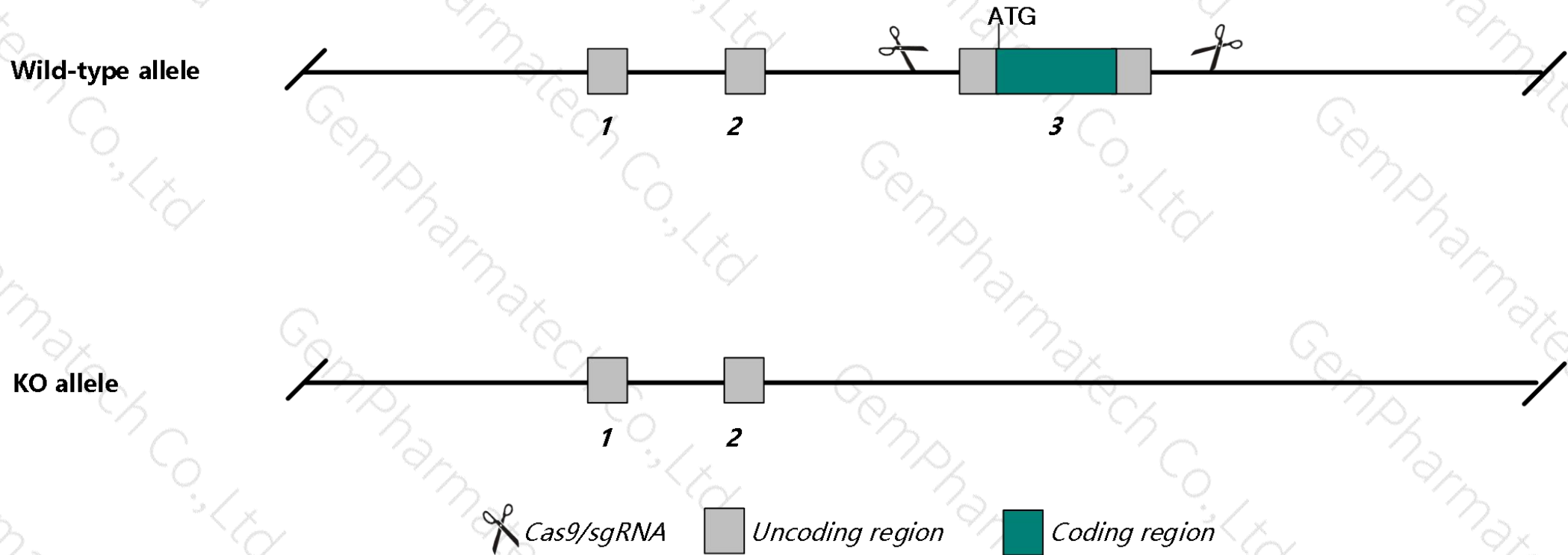
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ccr2* gene. The schematic diagram is as follows:



- The *Ccr2* gene has 4 transcripts. According to the structure of *Ccr2* gene, exon3 of *Ccr2-201* (ENSMUST00000055918.6) transcript is recommended as the knockout region. The region contains all 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 *Ccr2* gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, Mice homozygous for a knock-out allele exhibit defects in leukocyte physiology that result in altered response to myocardial infarction and increased susceptibility to bacterial infection and colitis. Mice may also exhibit retinal degeneration and alcohol aversion depending on the knock-out allele.
- The *Ccr2* gene is located on the Chr17. 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)

Ccr2 chemokine (C-C motif) receptor 2 [*Mus musculus* (house mouse)]

Gene ID: 12772, updated on 13-Aug-2019

Summary

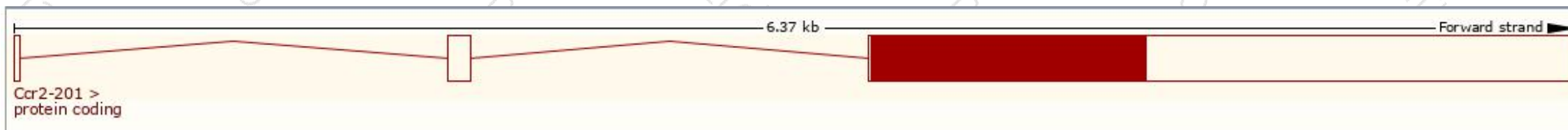
Official Symbol	Ccr2 provided by MGI
Official Full Name	chemokine (C-C motif) receptor 2 provided by MGI
Primary source	MGI:MGI:106185
See related	Ensembl:ENSMUSG00000049103
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Ckr2; Ccr2a; Ccr2b; Ckr2a; Ckr2b; mJe-r; Cmkbr2; Cc-ckr-2
Expression	Broad expression in bladder adult (RPKM 3.5), mammary gland adult (RPKM 3.2) and 17 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

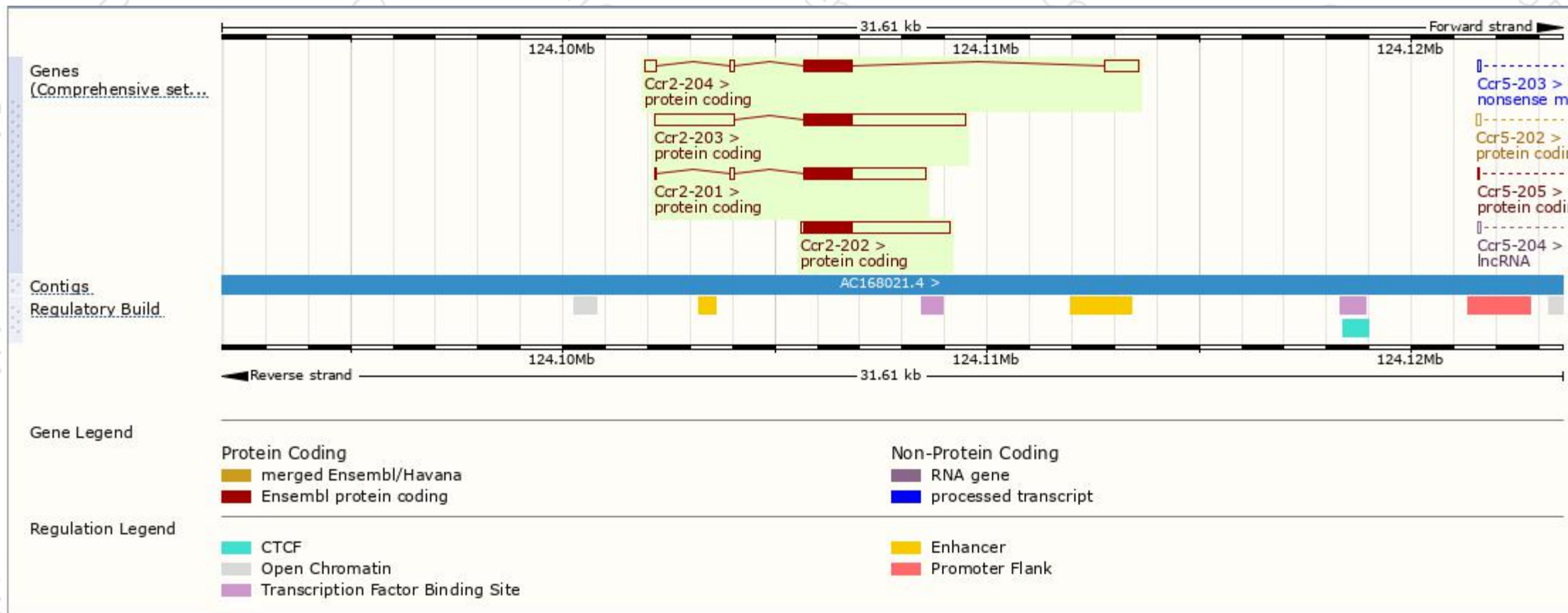
The gene has 4 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ccr2-203	ENSMUST00000168841.2	5728	373aa	Protein coding	CCDS23669	P51683 Q543S8	TSL:1 GENCODE basic APPRIS P1
Ccr2-202	ENSMUST00000165984.2	3515	373aa	Protein coding	CCDS23669	P51683 Q543S8	TSL:NA GENCODE basic APPRIS P1
Ccr2-201	ENSMUST00000055918.6	2999	373aa	Protein coding	CCDS23669	P51683 Q543S8	TSL:1 GENCODE basic APPRIS P1
Ccr2-204	ENSMUST00000171719.7	2265	373aa	Protein coding	CCDS23669	P51683 Q543S8	TSL:1 GENCODE basic APPRIS P1

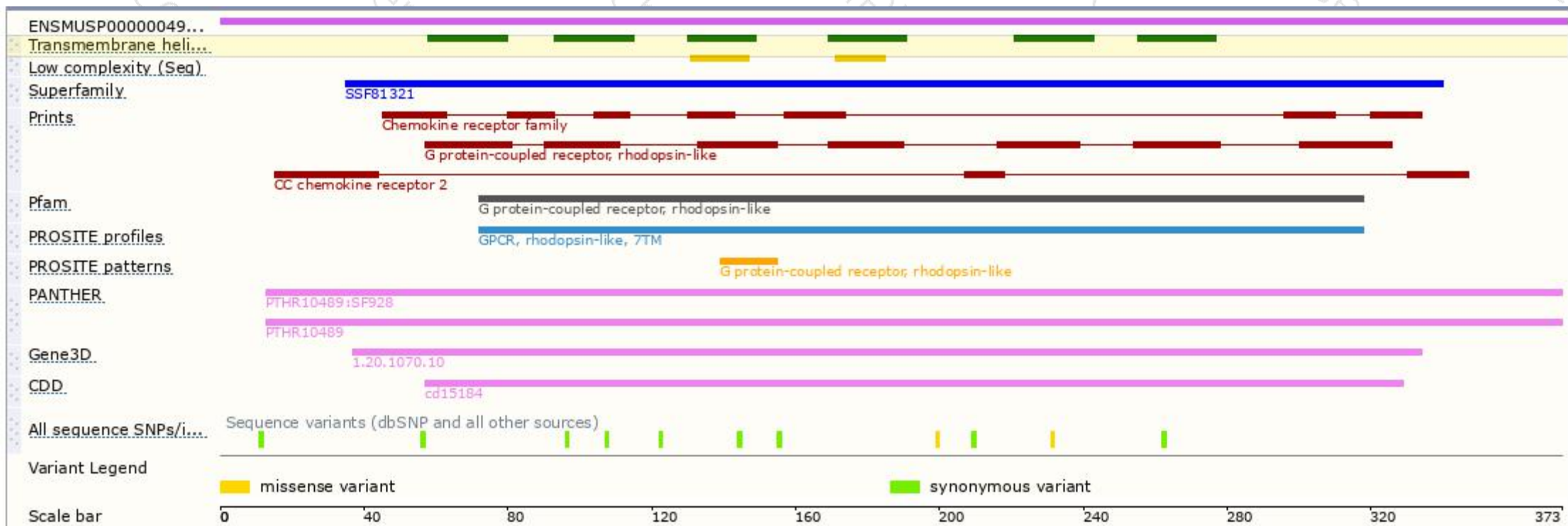
The strategy is based on the design of *Ccr2-201* transcript, The transcription is shown below



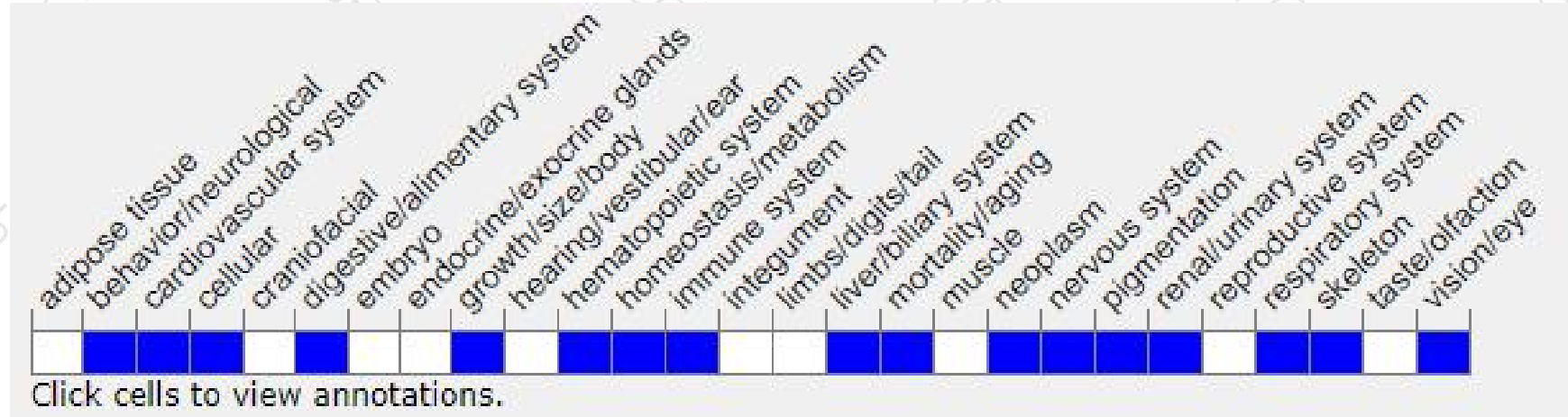
Genomic location distribution



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, Mice homozygous for a knock-out allele exhibit defects in leukocyte physiology that result in altered response to myocardial infarction and increased susceptibility to bacterial infection and colitis.

Mice may also exhibit retinal degeneration and alcohol aversion depending on the knock-out allele.

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

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