

# ***Cxcl10 Cas9-KO Strategy***

**Designer:**

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**Design Date:**

**2019-7-25**

# Project Overview

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**Project Name**

***Cxcl10***

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**Project type**

**Cas9-KO**

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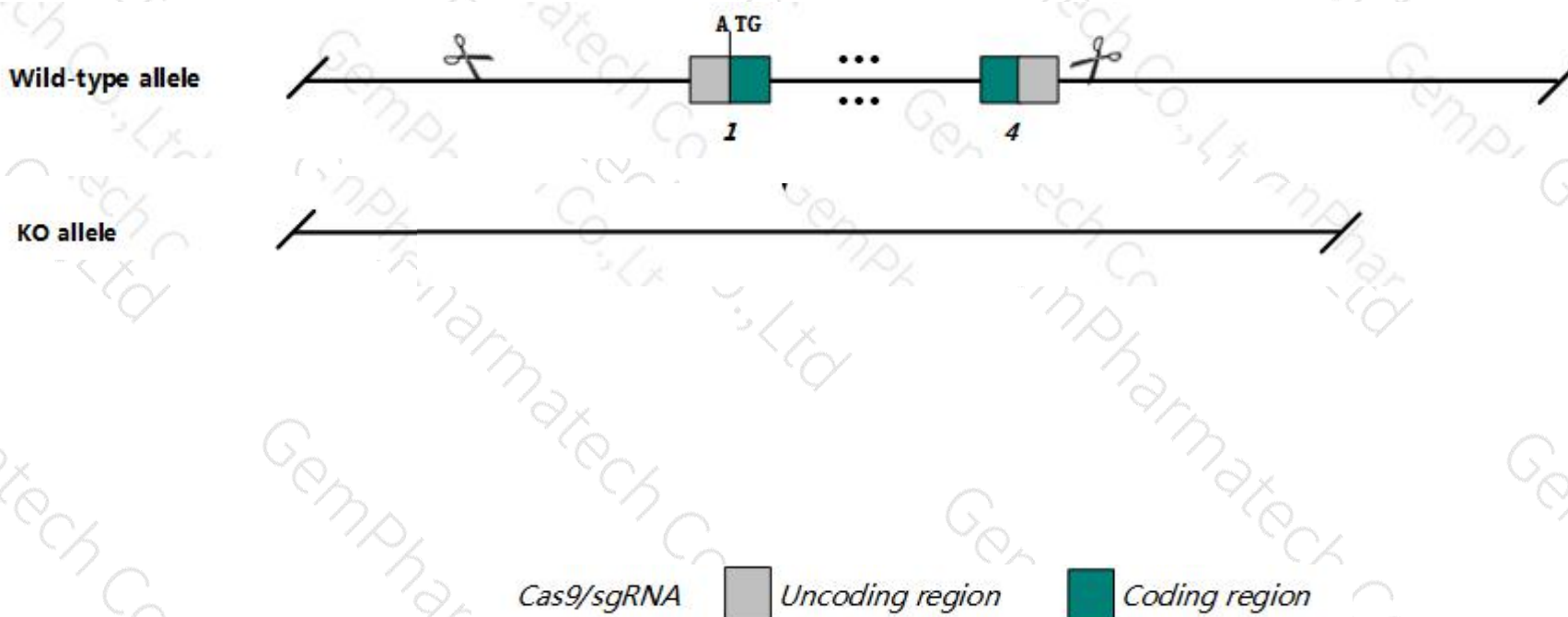
**Strain background**

**C57BL/6JGpt**

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# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cxcl10* gene. The schematic diagram is as follows:



# Technical routes

- The *Cxcl10* gene has 4 transcripts. According to the structure of *Cxcl10* gene, exon1 of *Cxcl10*-201 (ENSMUST00000038816.12) transcript is recommended as the knockout region. The region contains the predicted promoter region sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Cxcl10* gene. The brief process is as follows: gRNA was transcribed in vitro. Cas9 and gRNA 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.

- According to the existing MGI data: Mice homozygous for disruptions of this gene have immune system abnormalities leading to increased susceptibility to autoimmune disease and to some viral infections.
- The *Cxcl10* gene is located on the Chr5. 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 )

## Cxcl10 chemokine (C-X-C motif) ligand 10 [ *Mus musculus* (house mouse) ]

Gene ID: 15945, updated on 18-Sep-2018

### Summary



**Official Symbol** Cxcl10 provided by [MGI](#)

**Official Full Name** chemokine (C-X-C motif) ligand 10 provided by [MGI](#)

**Primary source** [MGI:MGI:1352450](#)

**See related** [Ensembl:ENSMUSG000000034855](#) [Vega:OTTMUSG000000028740](#)

**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** C7; IP10; CRG-2; INP10; IP-10; Ifi10; mob-1; Scyb10; gIP-10

**Expression** Biased expression in thymus adult (RPKM 16.2), spleen adult (RPKM 15.0) and 14 other tissues [See more](#)

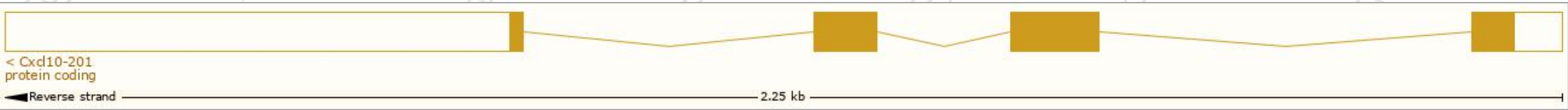
**Orthologs** [human](#) [all](#)

# Transcript information ( Ensembl )

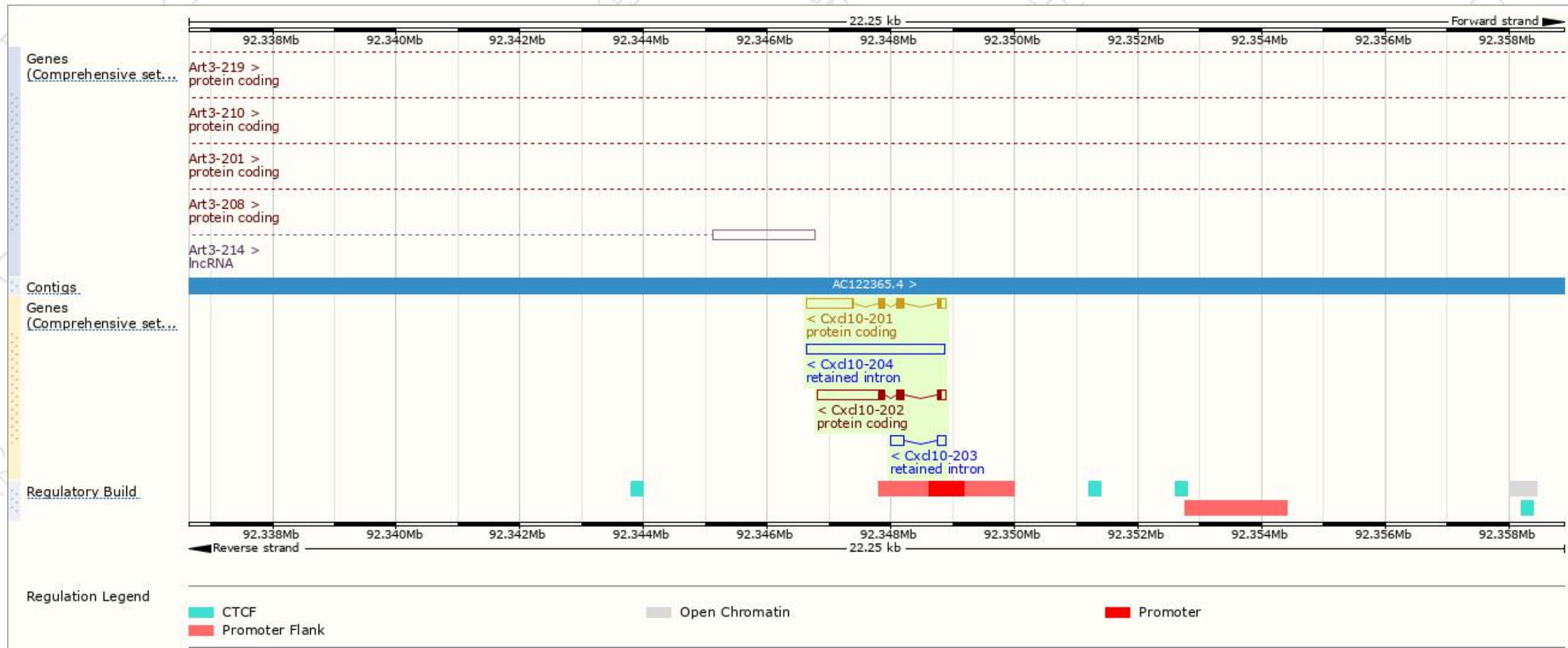
The gene has 4 transcripts, and all transcripts are shown below:

Name ▲	Transcript ID ▲	bp ▲	Protein ▲	Biotype ▲	CCDS ▲	UniProt ▲	Flags ▲
Cxcl10-201	<a href="#">ENSMUST00000038816.12</a>	1094	<a href="#">98aa</a>	 Protein coding	<a href="#">CCDS39153</a>	<a href="#">P17515</a> <a href="#">Q548V9</a>	<a href="#">TSL:1</a> <a href="#">GENCODE basic</a> <a href="#">APPRIS P1</a>
Cxcl10-202	<a href="#">ENSMUST00000118006.2</a>	1353	<a href="#">93aa</a>	 Protein coding	-	<a href="#">D3YW23</a>	<a href="#">TSL:1</a> <a href="#">GENCODE basic</a>
Cxcl10-203	<a href="#">ENSMUST00000138169.1</a>	344	No protein	 Retained intron	-	-	<a href="#">TSL:2</a>
Cxcl10-204	<a href="#">ENSMUST00000201176.1</a>	2230	No protein	 Retained intron	-	-	<a href="#">TSL:NA</a>

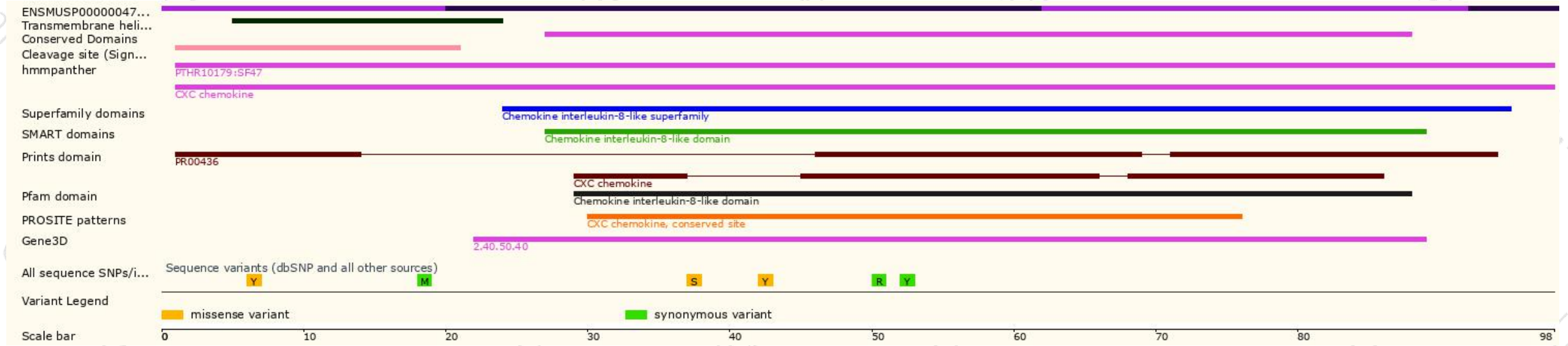
The strategy is based on the design of *Cxcl10*-201 transcript, The transcription is shown below



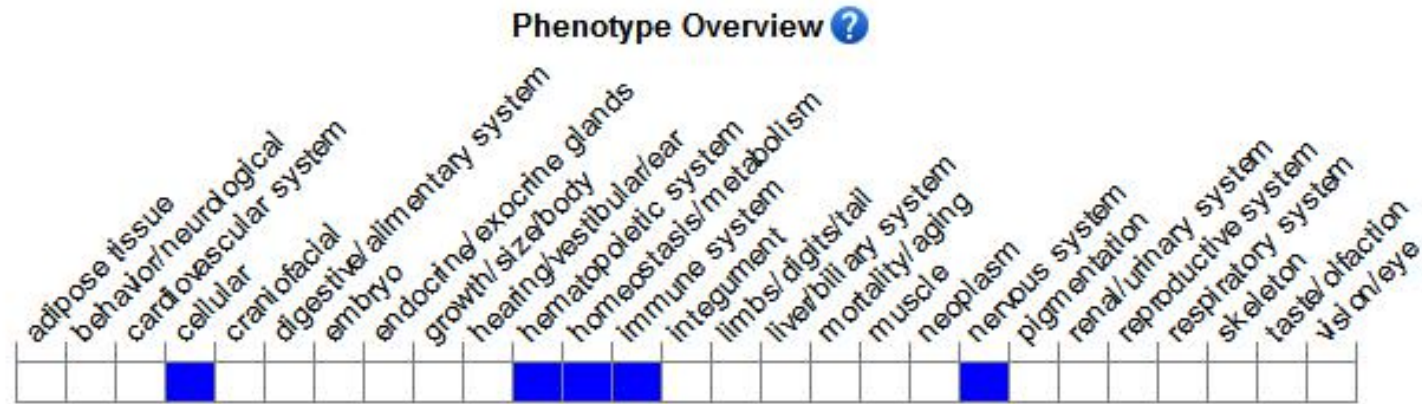
# Genomic location distribution



# 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/>) .*

Mice homozygous for disruptions of this gene have immune system abnormalities leading to increased susceptibility to autoimmune disease and to some viral infections.

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