Cxcl10 Cas9-CKO *Strategy*

Designer: **Jinling Wang**

Design Date: **2019-7-25**

Project Overview

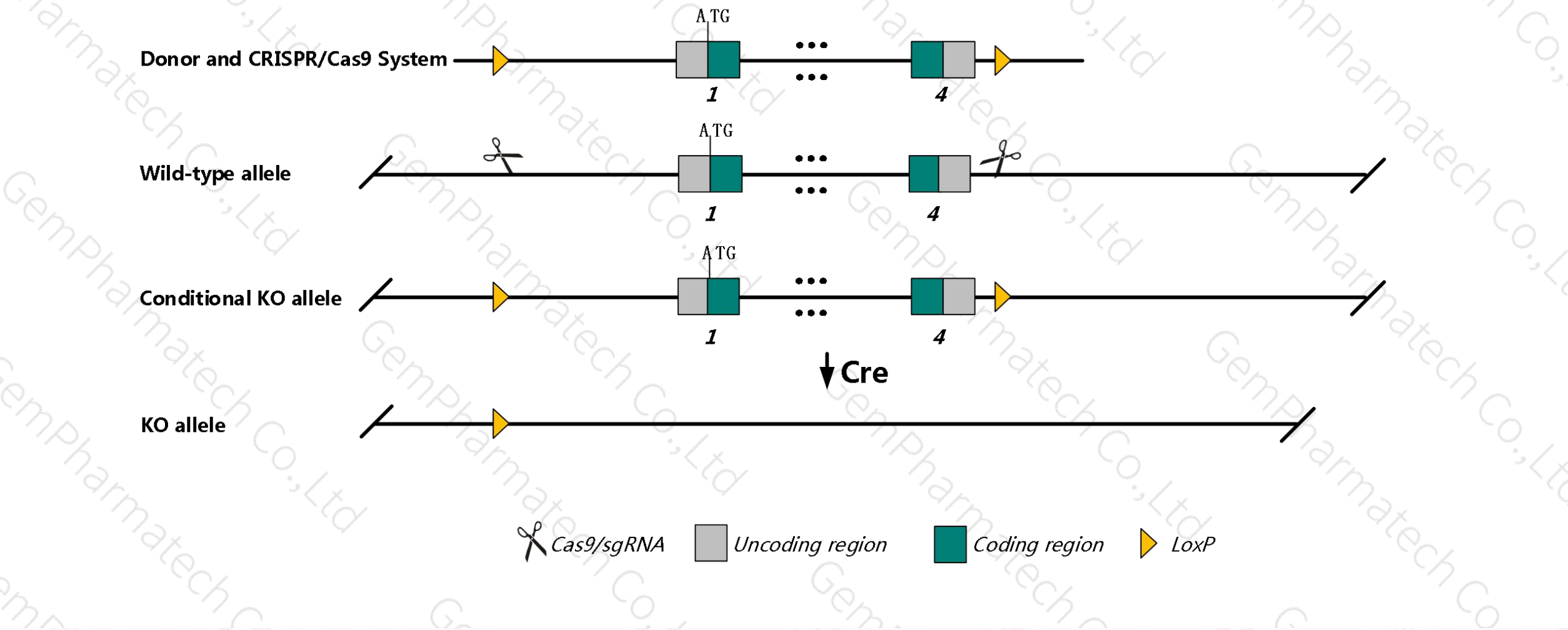|	
Project Name	*Cxcl10*
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional 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, donor was constructed.Cas9, gRNA and Donor 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.

- The flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues or cell types.

Notice

➤ According to the existing MGI data: Mice homozygouse for disruptions of this gene have immune system abnormalities leading to increased susceptibility toautoimmune 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 loxp insertion 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:ENSMUSG00000034855 Vega:OTTMUSG00000028740
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	ENSMUST00000038816.12	1094	98aa	Protein coding	CCDS39153	P17515 Q548V9	TSL:1 GENCODE basic APPRIS P1
Cxcl10-202	ENSMUST00000118006.2	1353	93aa	Protein coding	-	D3YW23	TSL:1 GENCODE basic
Cxcl10-203	ENSMUST00000138169.1	344	No protein	Retained intron	-	-	TSL:2
Cxcl10-204	ENSMUST00000201176.1	2230	No protein	Retained intron	-	-	TSL:NA

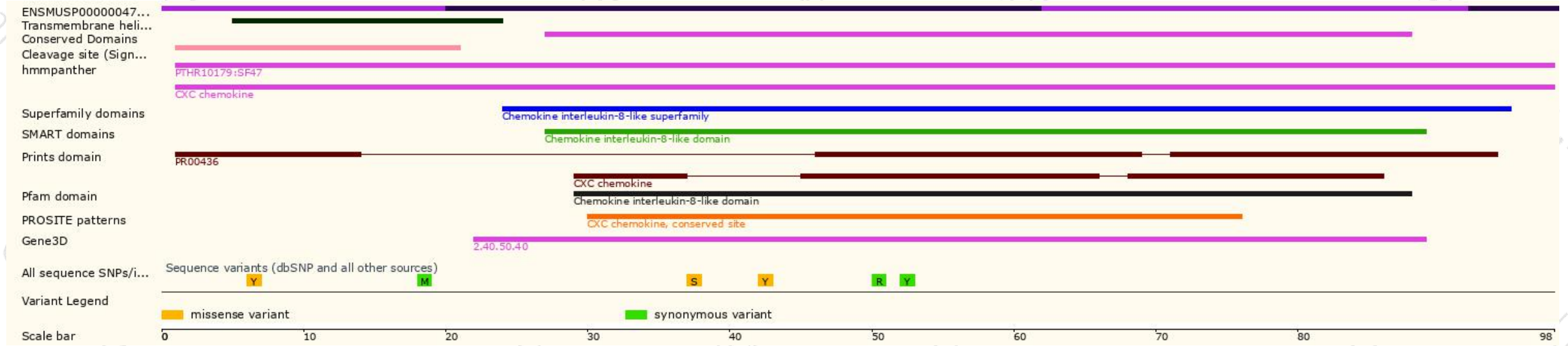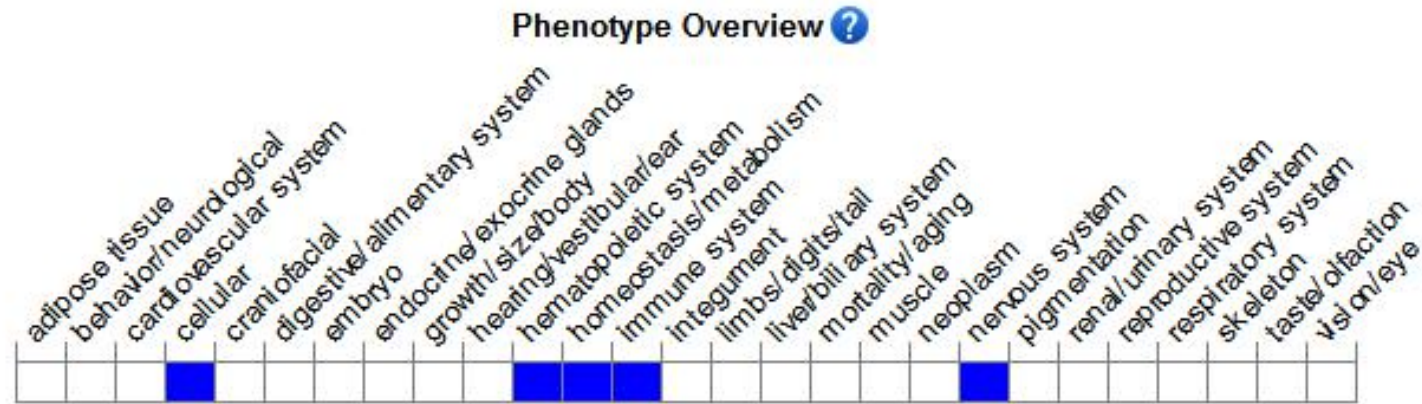The strategy is based on the design of *Cxcl10*-201 transcript,The transcription is shown below

< Cxcl10-201
protein coding

◄ Reverse strand ——————————————————— 2.25 kb ———————————————————
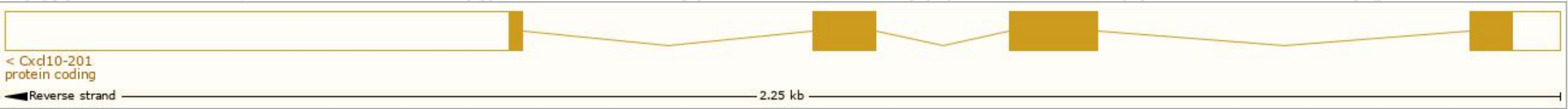
Genomic location distribution
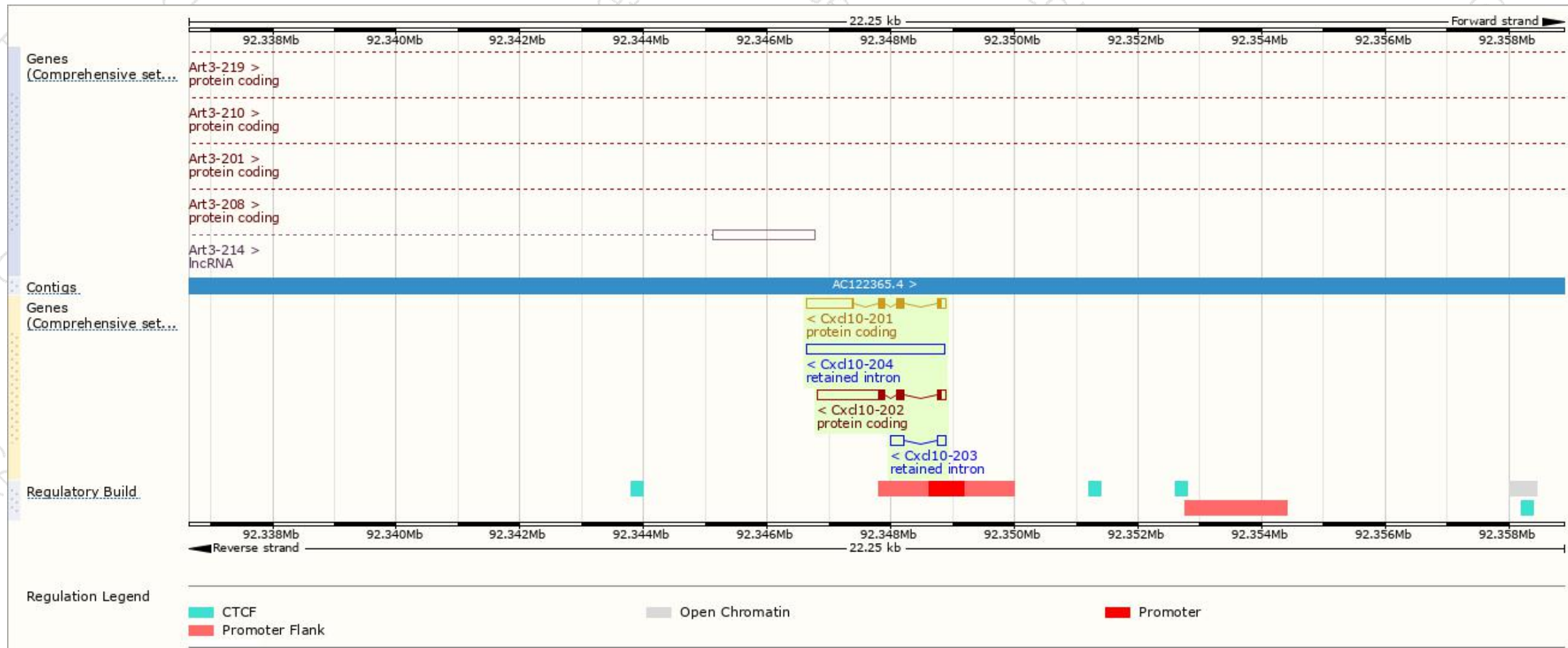
Protein domain

Mouse phenotype description(MGI)

Phenotype Overview

Phenotypes affected by the gene are marked in blue.Data quoted from MGI database(http://www.informatics.jax.org/) .

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

If you have any questions, you are welcome to inquire.
Tel: 400-9660890

集萃药康生物科技
GemPharmatech Co.,Ltd