Crp Cas9-KO Strategy

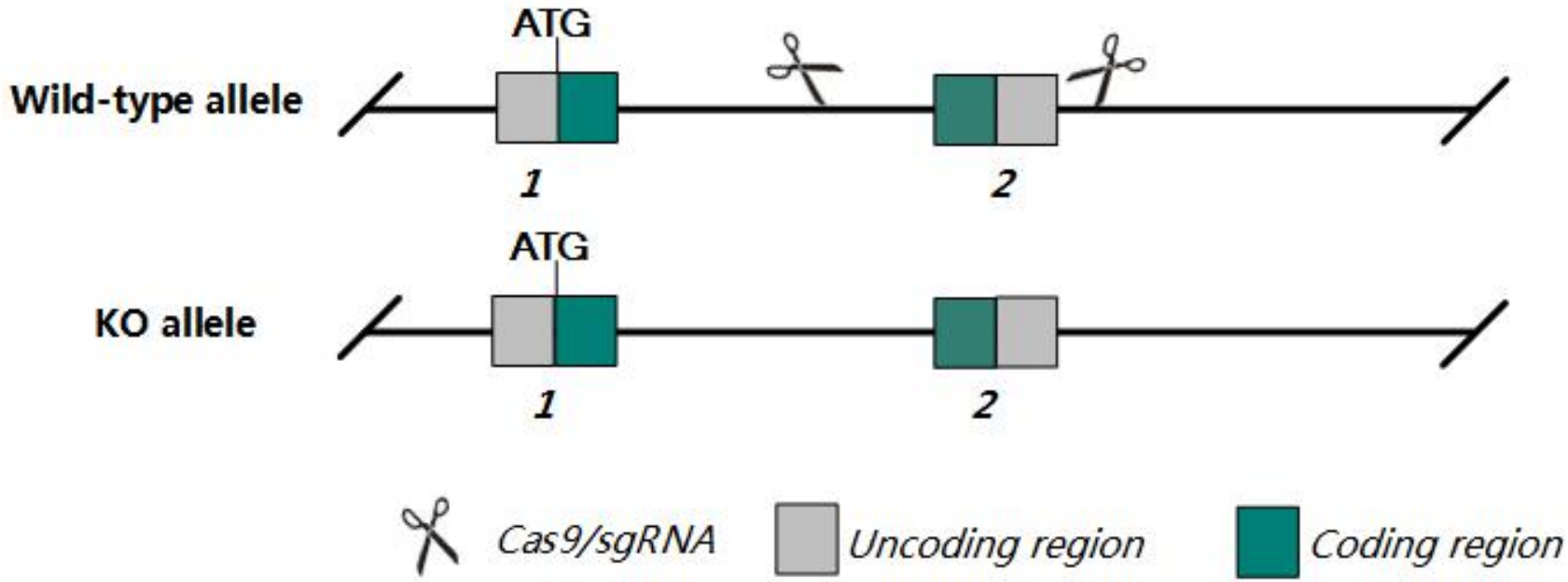
Designer:Qiong Zhou

Project Overview

Project Name	***Crp***
Project type	**Cas9-KO**
Strain background	**C57BL/6J**

Knockout strategy

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



Technical routes

- The *Crp* gene has 10 transcripts. According to the structure of *Crp* gene, exon2- of *Crp-201* (ENSMUST00000038495.4) transcript is recommended as the knockout region.The region contains most 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 *Crp* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6J 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/6J mice.

Notice

- According to the existing MGI data, Mice homozygous for a knock-out allele lack detectable C-reactive protein in the serum but are otherwise healthy and fertile.

- The *Crp* gene is located on the Chr1. 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）

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Crp C-reactive protein, pentraxin-related [*Mus musculus* (house mouse)]

Gene ID: 12944, updated on 15-Apr-2019

Summary

Official Symbol	Crp provided by MGI
Official Full Name	C-reactive protein, pentraxin-related provided by MGI
Primary source	MGI:MGI:88512
See related	Ensembl:ENSMUSG00000037942
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	AI255847
Expression	Biased expression in liver E18 (RPKM 127.7), liver adult (RPKM 108.0) and 2 other tissues See more
Orthologs	human all

Genomic context

Location: 1 H3; 1 80.13 cM

See Crp in Genome Data Viewer

Exon count: 2

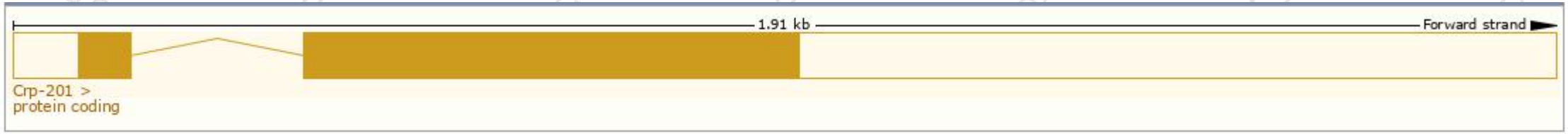
Annotation release	Status	Assembly	Chr	Location
106	current	GRCm38.p4 (GCF_000001635.24)	1	NC_000067.6 (172698056..172699966)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	1	NC_000067.5 (174628187..174630097)

Transcript information（Ensembl）

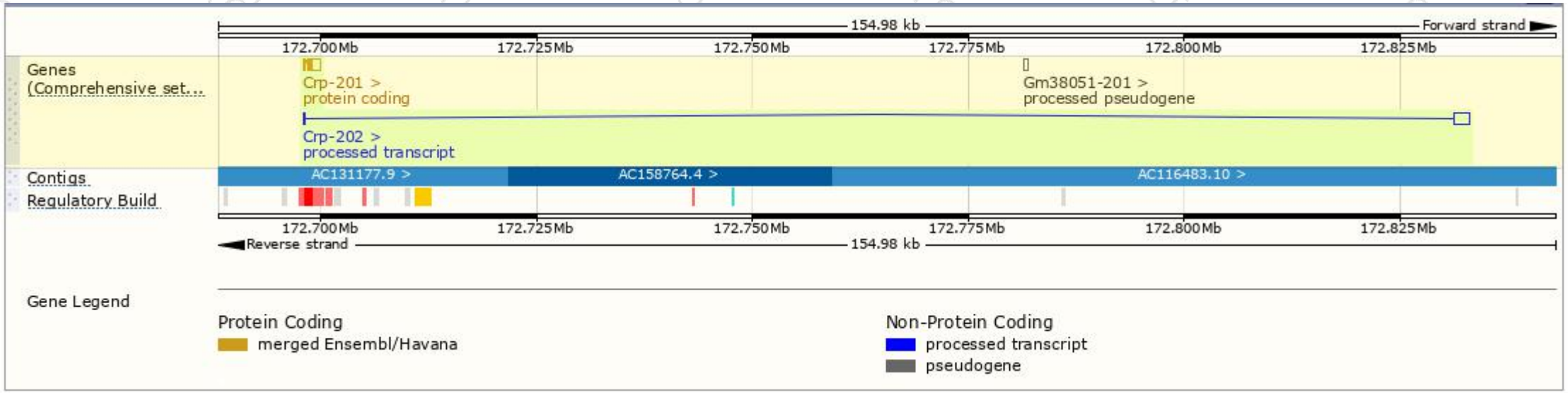
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Crp-201	ENSMUST00000038495.4	1695	225aa	Protein coding	CCDS35787	P14847	TSL:2 GENCODE basic APPRIS P1
Crp-202	ENSMUST00000194251.1	1894	No protein	Processed transcript	-	-	TSL:1

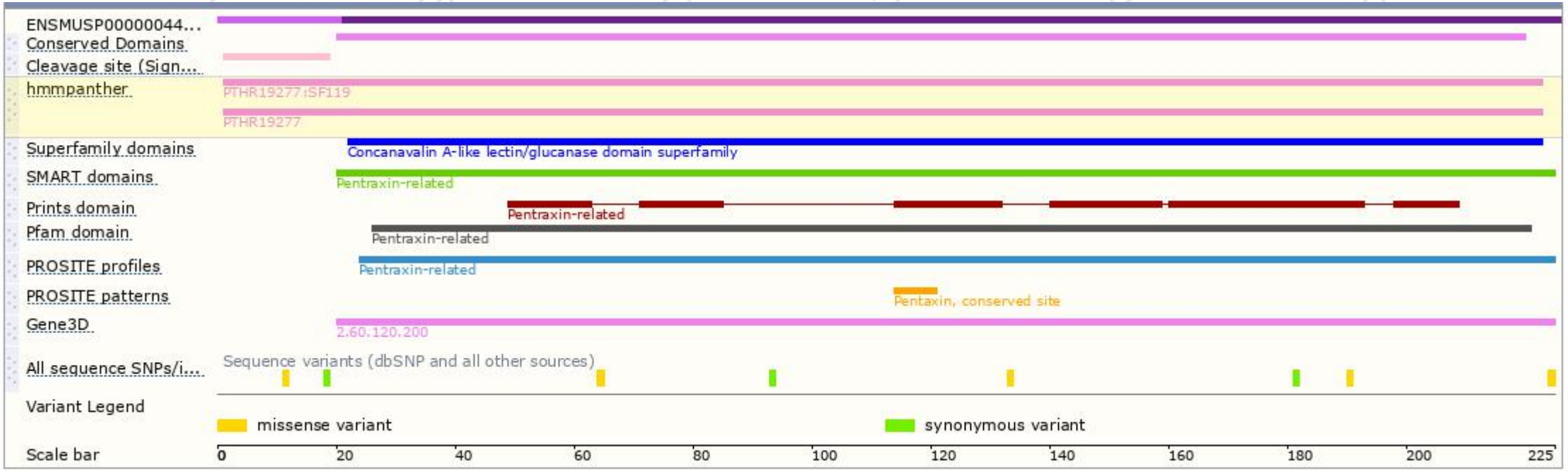
The strategy is based on the design of *Crp-201* transcript,The transcription is shown below



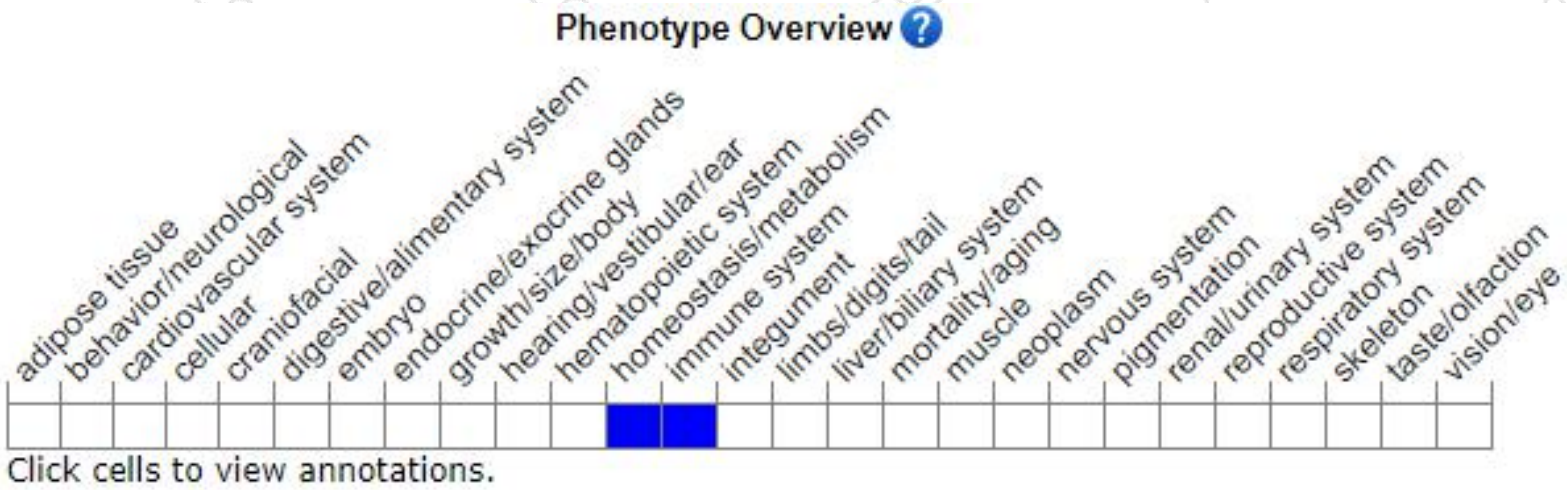
Genomic location distribution



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 a knock-out allele lack detectable C-reactive protein in the serum but are otherwise healthy and fertile.

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

Tel: 025-5864 1534

集萃药康生物科技
GemPharmatech Co.,Ltd