Mog Cas9-KO Strategy

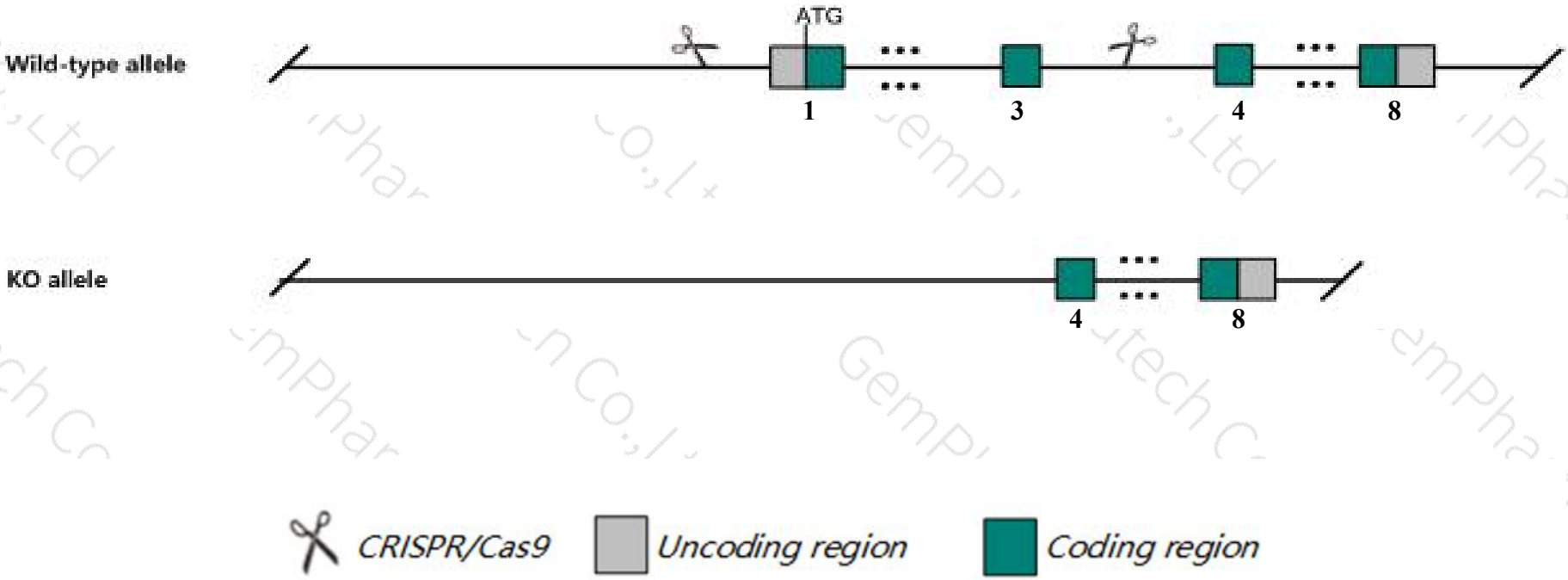
Designer: Xiaojing Li
Design Date:2019-12-11
Reviewer:JiaYu

Project Overview

Project Name	***Mog***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

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



Technical routes

➢ The *Mog* gene has 2 transcripts. According to the structure of *Mog* gene, exon1-exon3 of *Mog-201* (ENSMUST00000102665.10) transcript is recommended as the knockout region.The region contains start codon ATG. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Mog* gene. The brief process is as follows: CRISPR/Cas9 system w

Notice

- According to the existing MGI data,While one line of homozygous mutant mice showed resistance to experimental autoimmune encephalomyelitis (EAE), another showed increased susceptibility.

- The *Mog* 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）

集萃药康 GemPharmatech

Mog myelin oligodendrocyte glycoprotein [*Mus musculus* (house mouse)]

Gene ID: 17441, updated on 4-Dec-2019

Summary

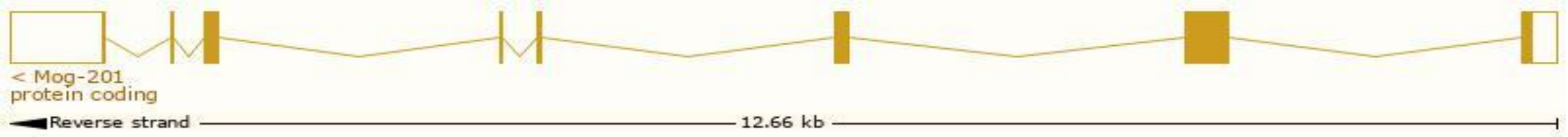
Official Symbol	Mog provided by MGI
Official Full Name	myelin oligodendrocyte glycoprotein provided by MGI
Primary source	MGI:MGI:97435
See related	Ensembl:ENSMUSG00000076439
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	B230317G11Rik
Expression	Biased expression in cerebellum adult (RPKM 31.3), cortex adult (RPKM 21.2) and 4 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

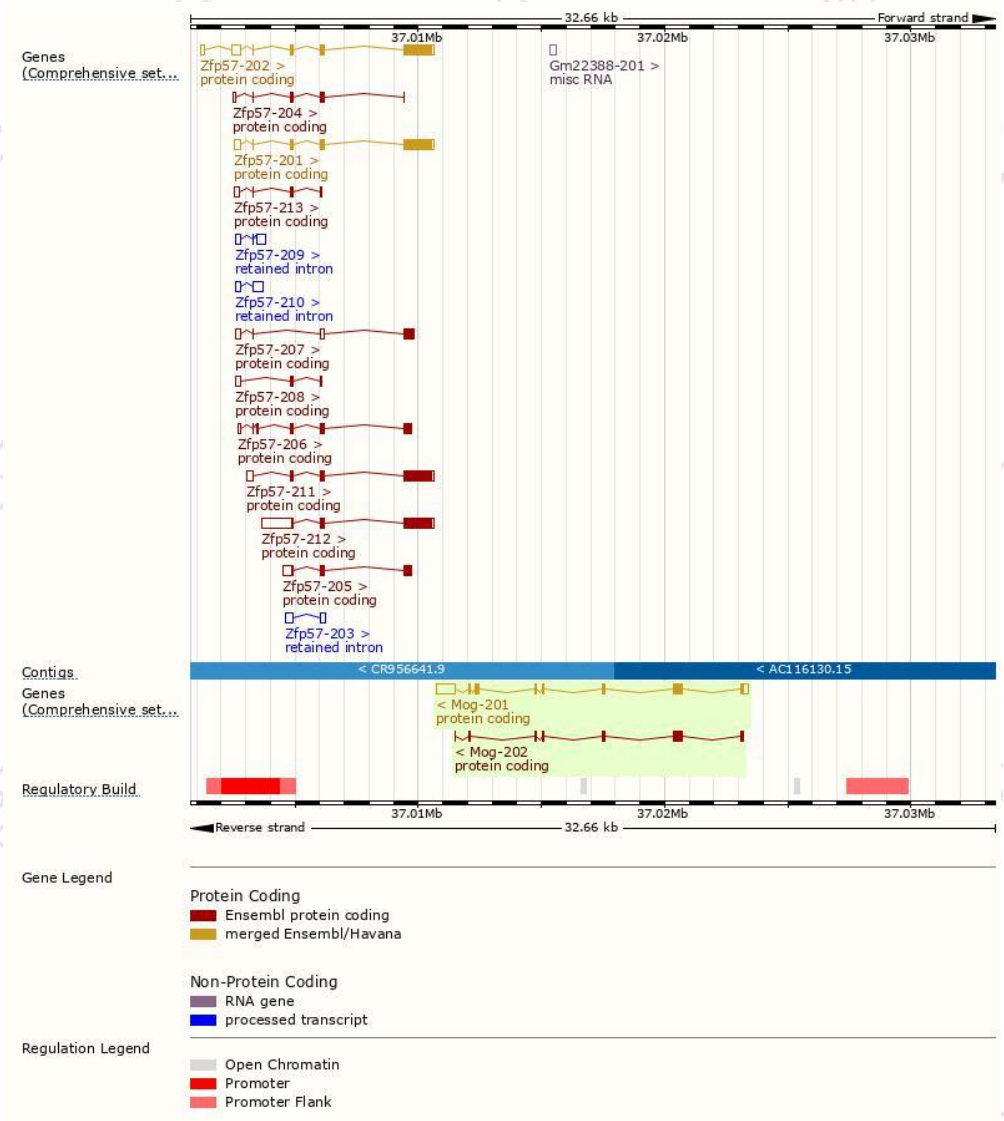
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mog-201	ENSMUST00000102665.10	1704	247aa	Protein coding	CCDS28734	Q3UY21	TSL:1 GENCODE basic APPRIS P2
Mog-202	ENSMUST00000167275.2	627	208aa	Protein coding	-	Q29ZQ5	TSL:1 GENCODE basic APPRIS ALT2

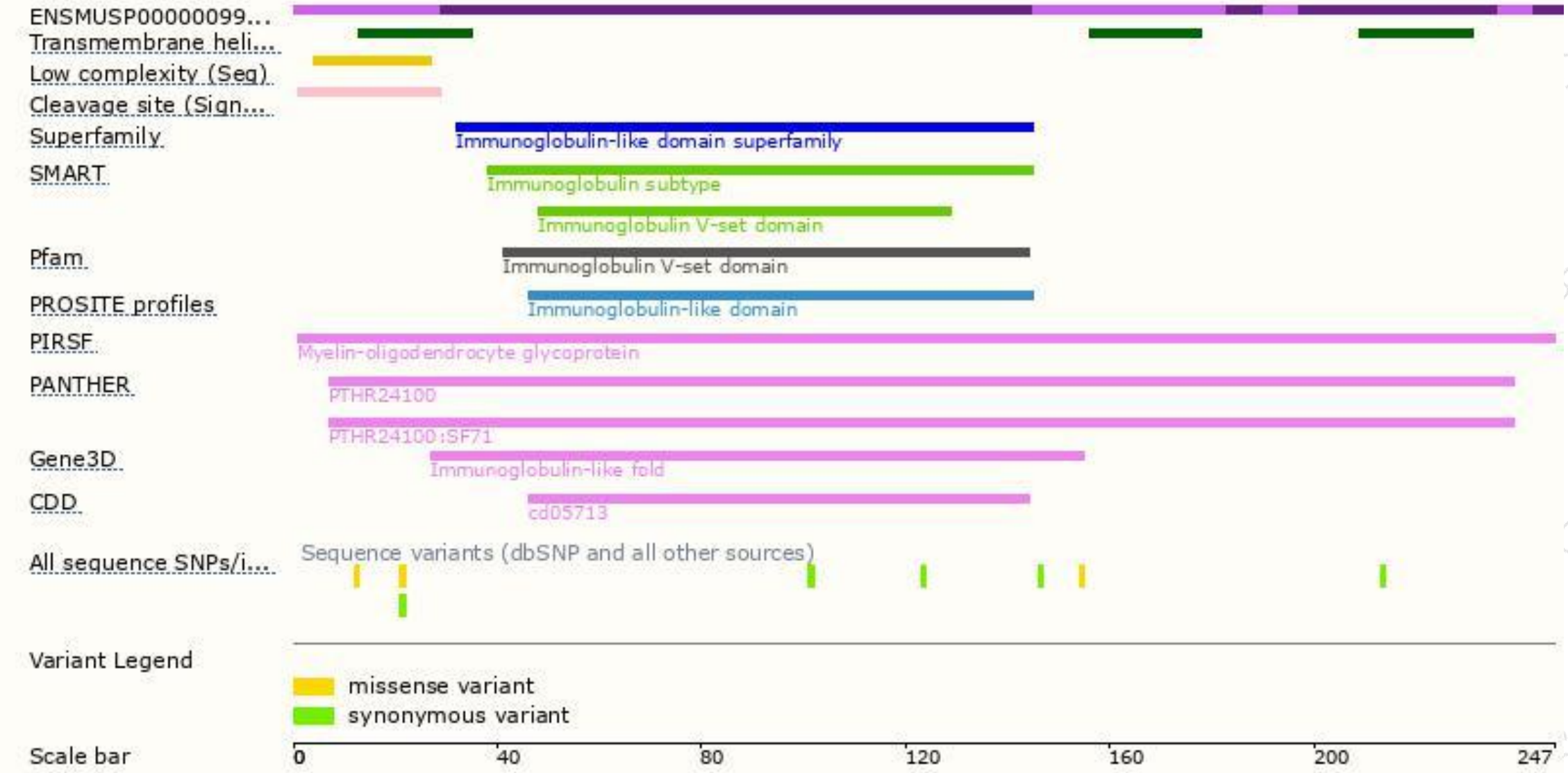
The strategy is based on the design of *Mog-201* transcript,The transcription is shown below



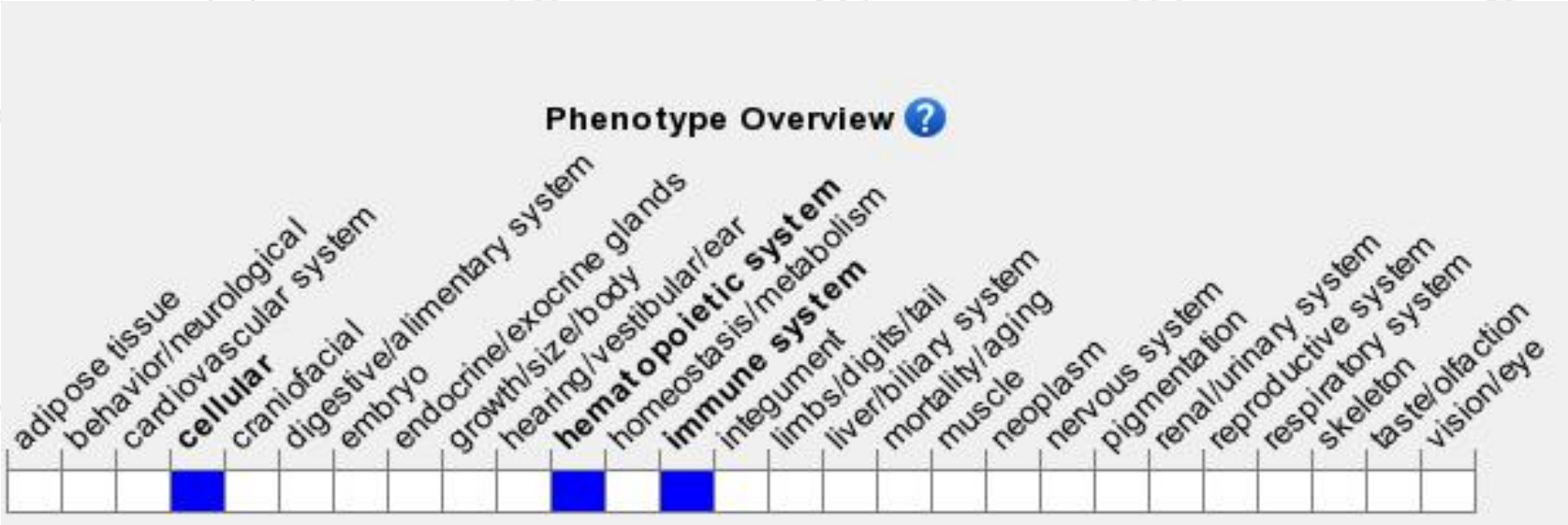
Genomic location distribution



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,While one line of homozygous mutant mice showed resistance to experimental autoimmune encephalomyelitis (EAE), another showed increased susceptibility.

集萃药康
GemPharmatech

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

Tel: 400-9660890

集萃药康生物科技
GemPharmatech Co.,Ltd