

***Gna15* Cas9-KO Strategy**

Designer:

Yang Zeng

Reviewer:

Jing Jin

Design Date:

2019-10-16

Project Overview

Project Name

Gna15

Project type

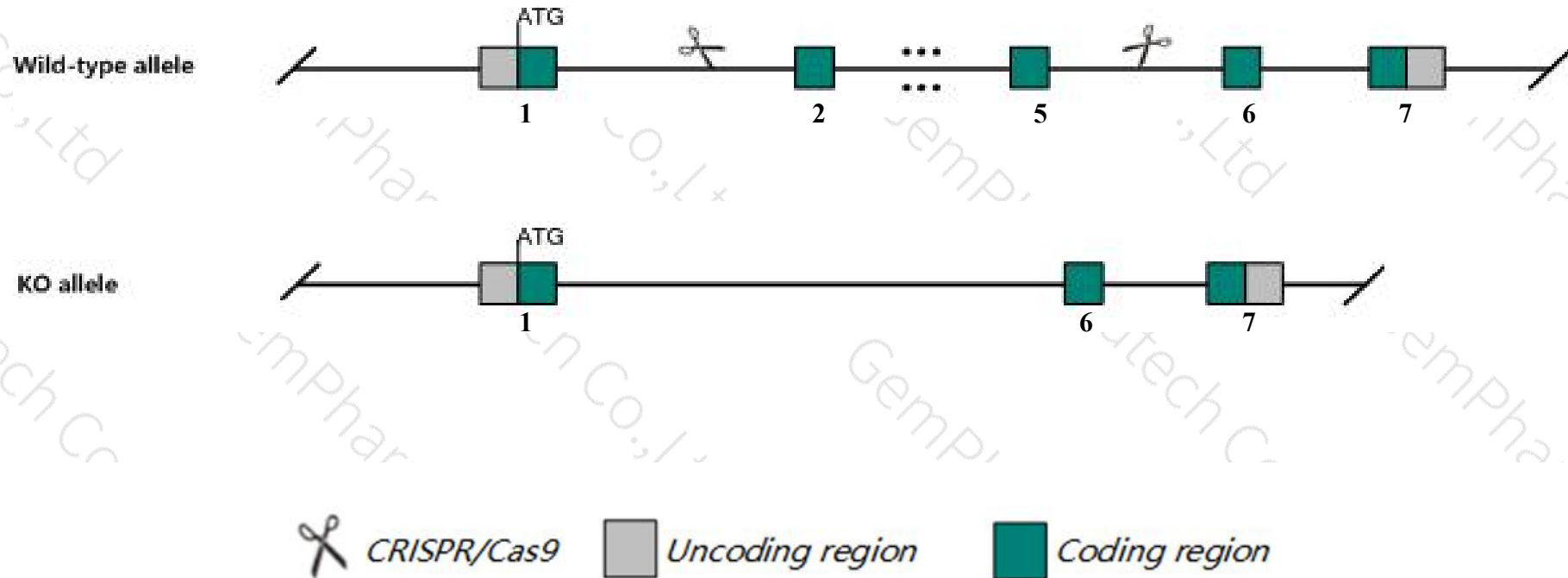
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Gna15* gene. The schematic diagram is as follows:



- The *Gna15* gene has 3 transcripts. According to the structure of *Gna15* gene, exon2-exon5 of *Gna15-201* (ENSMUST00000043709.7) transcript is recommended as the knockout region. The region contains 599bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Gna15* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for a targeted null mutation exhibit normal hematopoiesis and normal response to inflammatory challenges.
- The *Gna15* gene is located on the Chr10. 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.

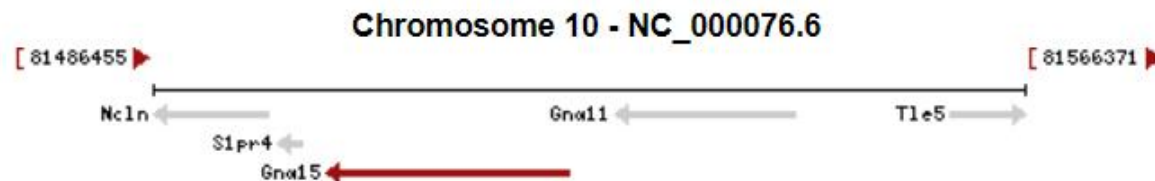
Gene information (NCBI)

Gna15 guanine nucleotide binding protein, alpha 15 [*Mus musculus* (house mouse)]

Gene ID: 14676, updated on 12-Aug-2019

Summary

Official Symbol	Gna15 provided by MGI
Official Full Name	guanine nucleotide binding protein, alpha 15 provided by MGI
Primary source	MGI:MGI:95770
See related	Ensembl:ENSMUSG00000034792
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	G[a]15; Galpha15
Expression	Broad expression in spleen adult (RPKM 5.4), bladder adult (RPKM 4.6) and 21 other tissues See more
Orthologs	human all

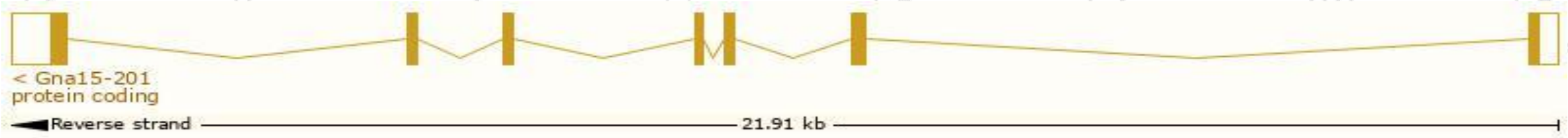


Transcript information (Ensembl)

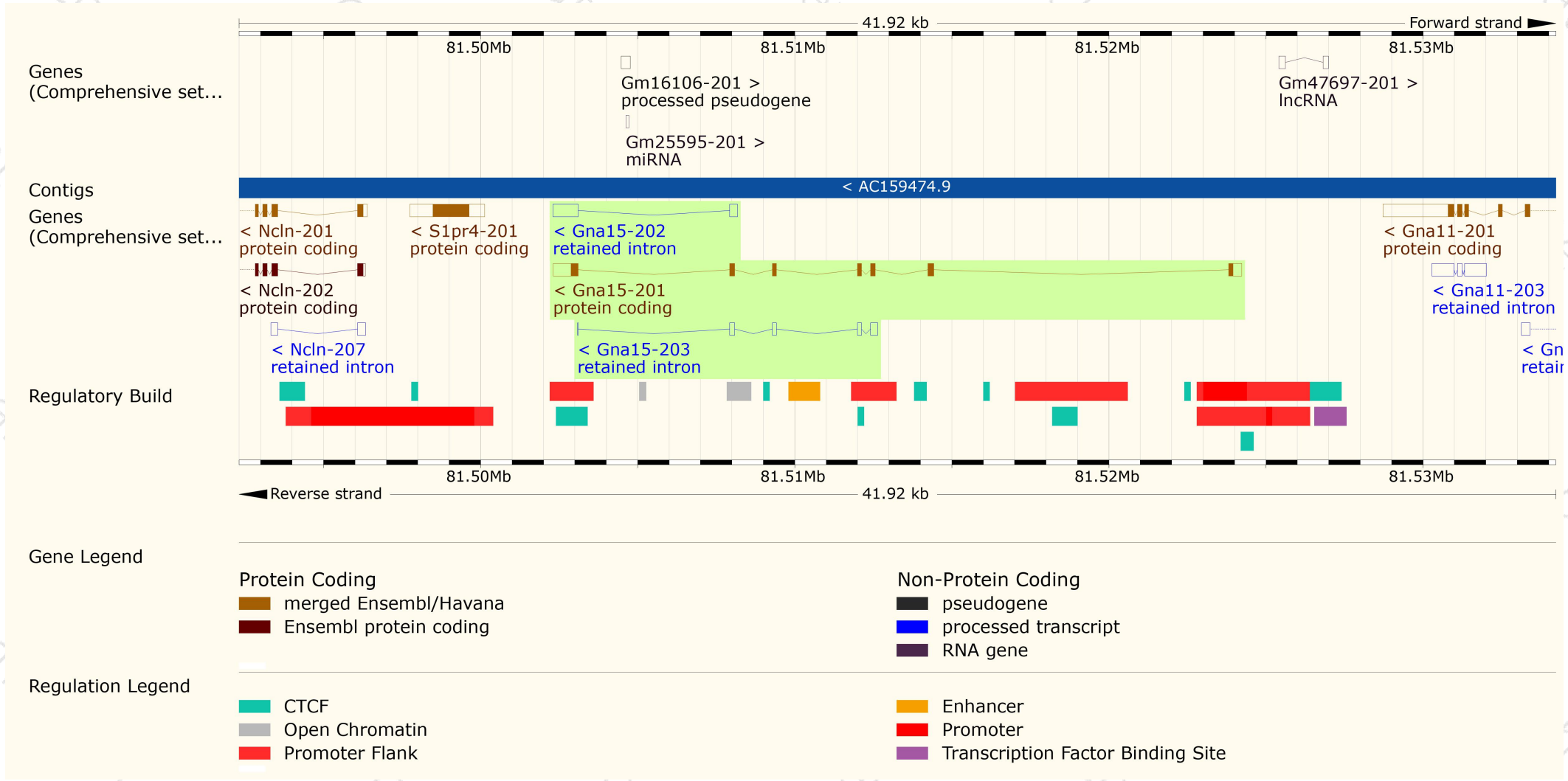
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Gna15-201	ENSMUST00000043709.7	1962	374aa	ENSMUSP00000049175.7	Protein coding	CCDS24060	P30678	TSL:1 GENCODE basic APPRIS P1
Gna15-202	ENSMUST00000147908.1	1046	No protein	-	Retained intron	-	-	TSL:1
Gna15-203	ENSMUST00000150586.1	661	No protein	-	Retained intron	-	-	TSL:3

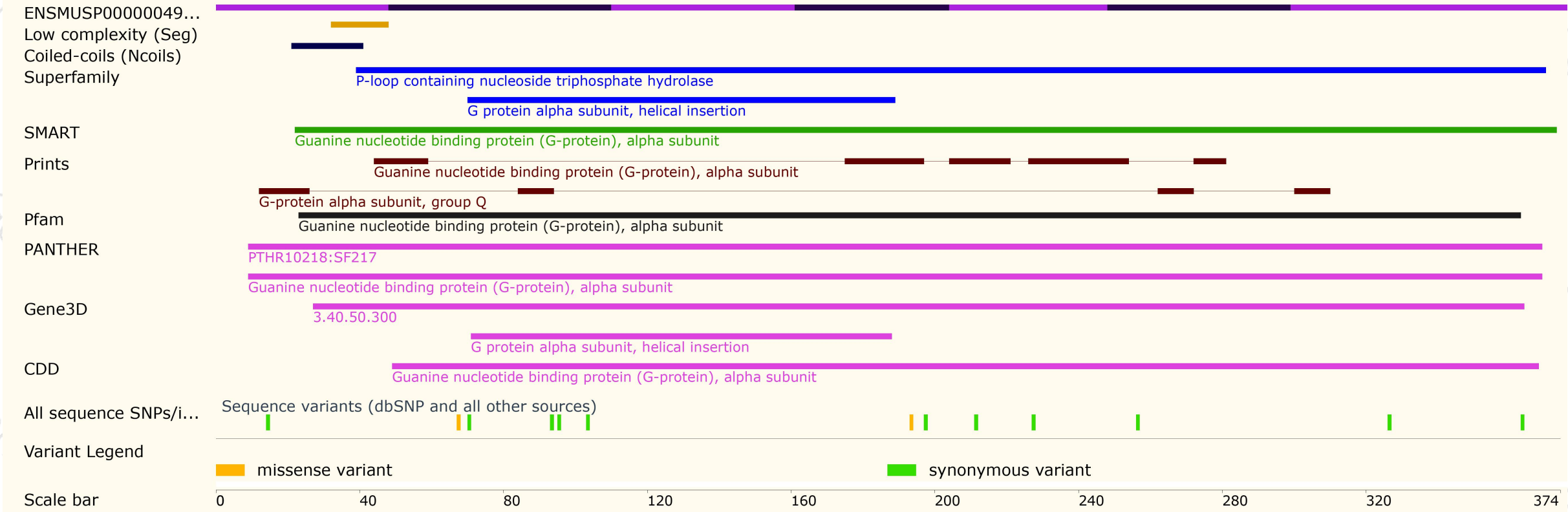
The strategy is based on the design of *Gna15-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

Tel: 400-9660890

