Mgat4c Cas9-KO Strategy

Designer: Yanhua Shen
Reviewer：Xueting Zhang
Design Date: 2020-2-14

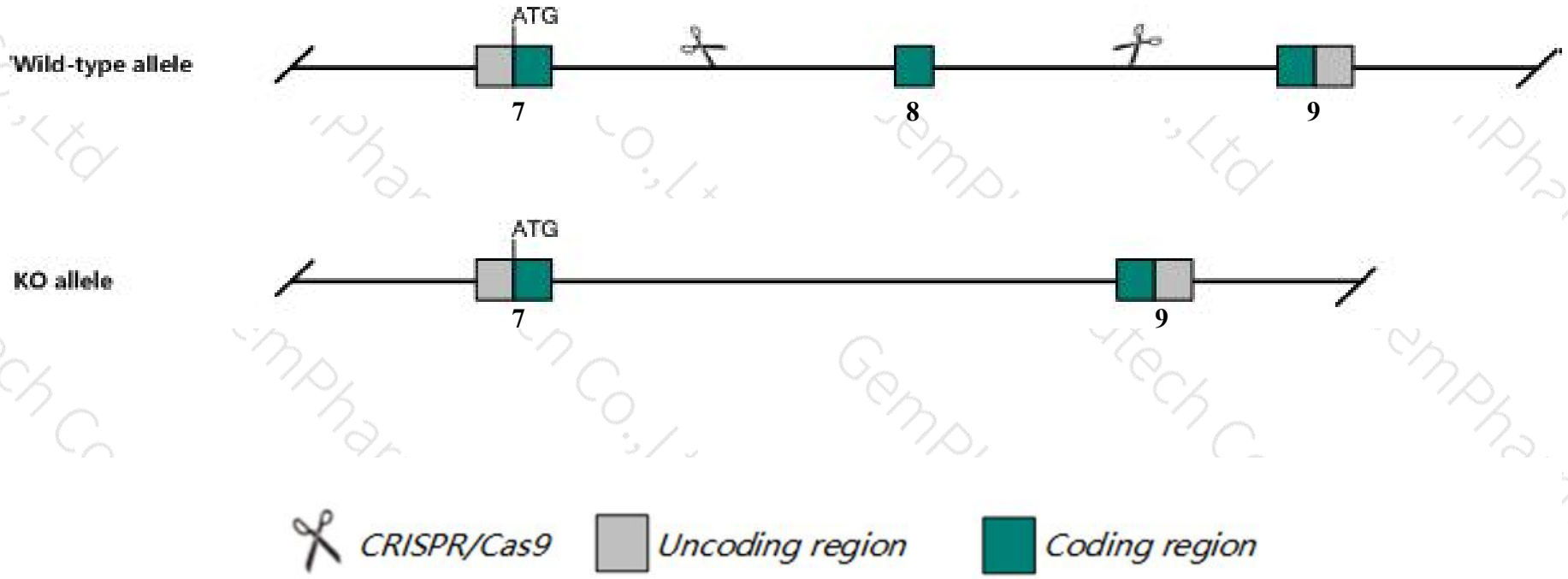
集萃药康 GemPharmatech
GemPharmatech Co.,Ltd

Project Overview

Project Name	***Mgat4c***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Mgat4c* gene. The schematic diagram is as follows:



Technical routes

集萃药康 GemPharmatech

- The *Mgat4c* gene has 16 transcripts. According to the structure of *Mgat4c* gene, exon8 of *Mgat4c-212* (ENSMUST00000179929.7) transcript is recommended as the knockout region.The region contains 148bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Mgat4c* gene. The brief process is as follows: CRISPR/Cas9 syster

Notice

➢Transcripts 204,205,208,209,213,214,216 may not be affected. The effect of transcripts 203,206,210 is unknown.

➢Some amino acids will remain at the N-terminus and some functions may be retained.

➢The *Mgat4c* 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）

集萃药康 GemPharmatech

Mgat4c MGAT4 family, member C [*Mus musculus* (house mouse)]

Gene ID: 67569, updated on 12-Aug-2019

Summary

Official Symbol	Mgat4c provided by MGI
Official Full Name	MGAT4 family, member C provided by MGI
Primary source	MGI:MGI:1914819
See related	Ensembl:ENSMUSG00000019888
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	GntlVh; 9130411I17Rik
Expression	Biased expression in large intestine adult (RPKM 3.5), colon adult (RPKM 2.8) and 9 other tissues See more
Orthologs	human all

Genomic context

Location: 10; 10 D1

See Mgat4c in Genome Data Viewer

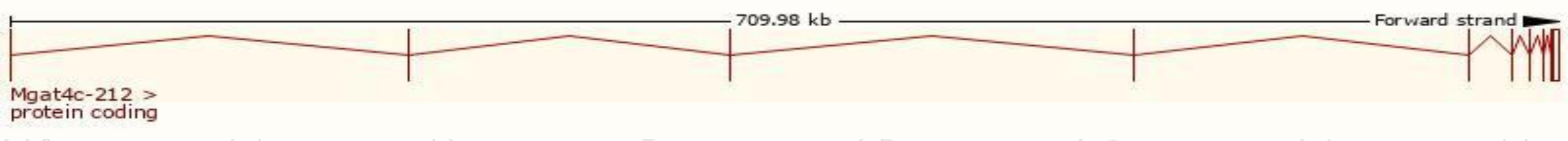
Exon count: 14

Transcript information（Ensembl）

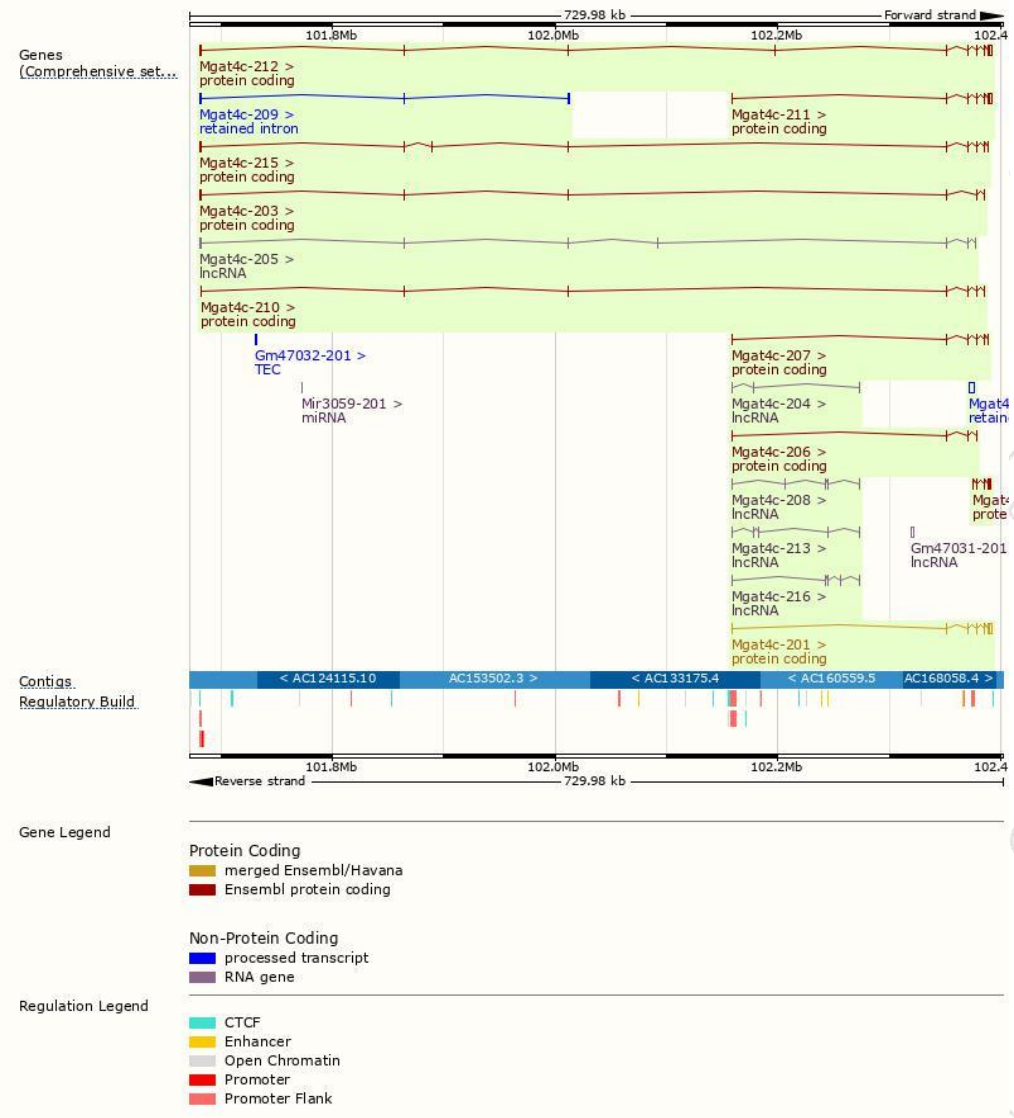
The gene has 16 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mgat4c-212	ENSMUST00000179929.7	4272	478aa	Protein coding	CCDS24153	Q9D306	TSL:5 GENCODE basic APPRIS P1
Mgat4c-211	ENSMUST00000163753.7	3862	478aa	Protein coding	CCDS24153	Q9D306	TSL:3 GENCODE basic APPRIS P1
Mgat4c-201	ENSMUST00000020039.12	3735	478aa	Protein coding	CCDS24153	Q9D306	TSL:1 GENCODE basic APPRIS P1
Mgat4c-202	ENSMUST00000120748.1	2603	478aa	Protein coding	CCDS24153	Q9D306	TSL:1 GENCODE basic APPRIS P1
Mgat4c-215	ENSMUST00000219195.1	1061	113aa	Protein coding	-	A0A1W2P7X6	CDS 3' incomplete TSL:5
Mgat4c-207	ENSMUST00000138522.7	769	150aa	Protein coding	-	D3YZM8	CDS 3' incomplete TSL:3
Mgat4c-210	ENSMUST00000156751.7	703	76aa	Protein coding	-	D3Z683	CDS 3' incomplete TSL:3
Mgat4c-203	ENSMUST00000127504.8	694	59aa	Protein coding	-	D3Z5V6	CDS 3' incomplete TSL:5
Mgat4c-206	ENSMUST00000138016.7	402	23aa	Protein coding	-	D3Z1C7	CDS 3' incomplete TSL:3
Mgat4c-214	ENSMUST00000218984.1	3543	No protein	Retained intron	-	-	TSL:NA
Mgat4c-209	ENSMUST00000146230.7	1993	No protein	Retained intron	-	-	TSL:1
Mgat4c-205	ENSMUST00000134930.7	709	No protein	lncRNA	-	-	TSL:3
Mgat4c-208	ENSMUST00000143640.1	680	No protein	lncRNA	-	-	TSL:1
Mgat4c-213	ENSMUST00000218554.1	658	No protein	lncRNA	-	-	TSL:5
Mgat4c-216	ENSMUST00000219683.1	657	No protein	lncRNA	-	-	TSL:5
Mgat4c-204	ENSMUST00000130580.2	485	No protein	lncRNA	-	-	TSL:5

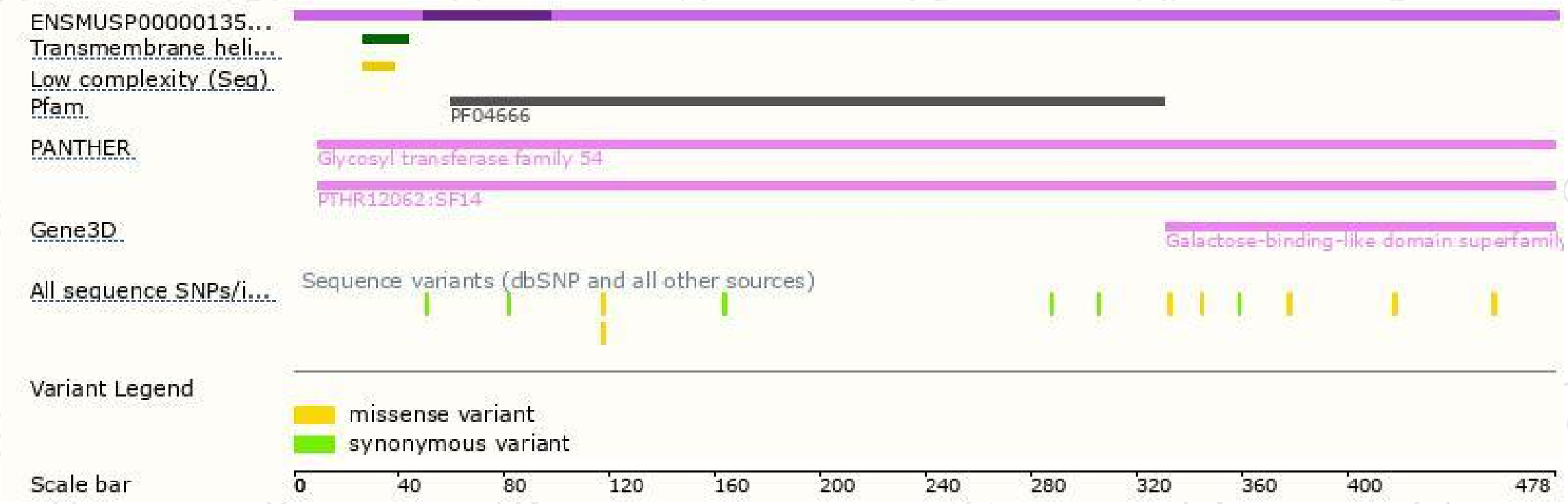
The strategy is based on the design of *Mgat4c-212* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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