

Alg6 Cas9-KO Strategy

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Project Overview

Project Name

Alg6

Project type

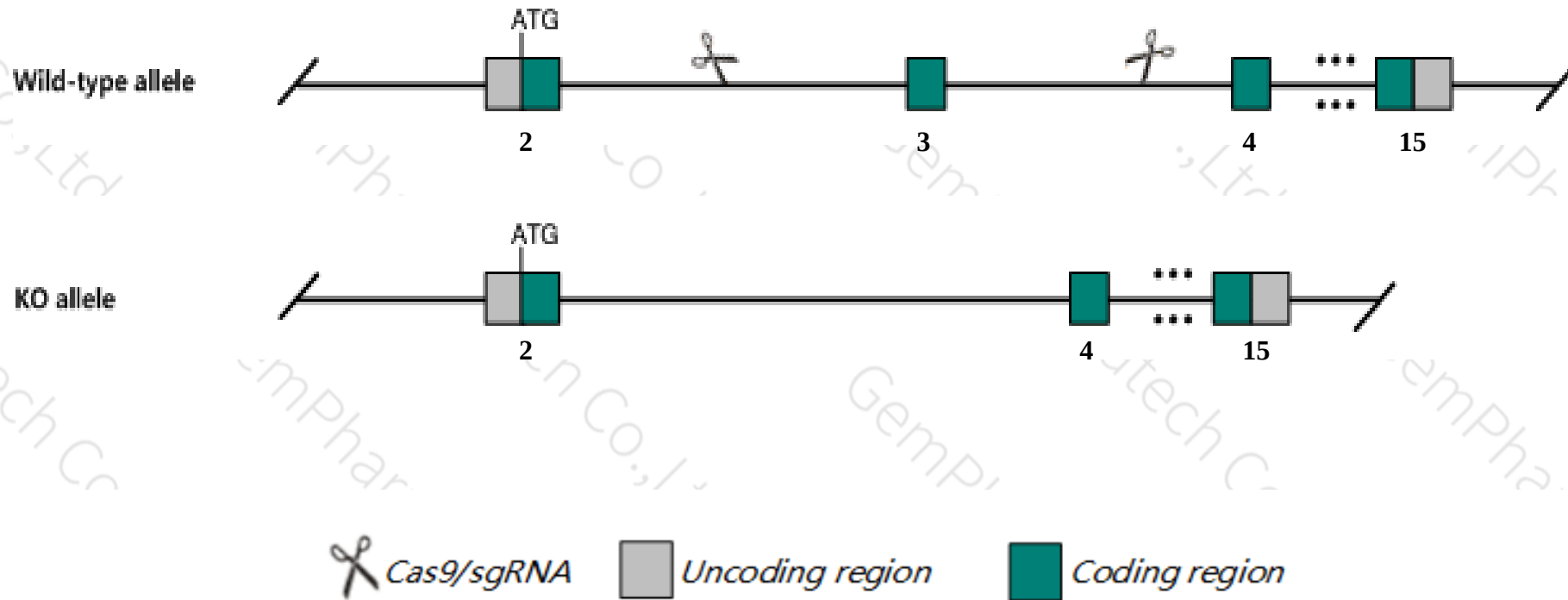
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Alg6* gene. The schematic diagram is as follows:



- The *Alg6* gene has 7 transcripts. According to the structure of *Alg6* gene, exon3 of *Alg6*-201(ENSMUST00000097961.8) transcript is recommended as the knockout region. The region contains 85bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Alg6* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA 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 *Alg6* gene is located on the Chr4. 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)

Alg6 asparagine-linked glycosylation 6 (alpha-1,3,-glucosyltransferase) [Mus musculus (house mouse)]

Gene ID: 320438, updated on 13-Mar-2020

Summary



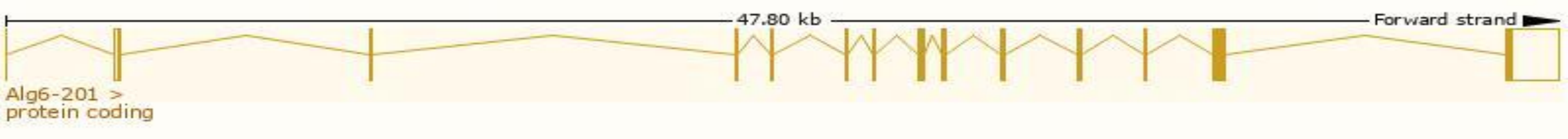
Official Symbol	Alg6 provided by MGI
Official Full Name	asparagine-linked glycosylation 6 (alpha-1,3,-glucosyltransferase) provided by MGI
Primary source	MGI:MGI:2444031
See related	Ensembl:ENSMUSG00000073792
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	E230028F23Rik
Expression	Broad expression in limb E14.5 (RPKM 4.7), placenta adult (RPKM 4.6) and 26 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

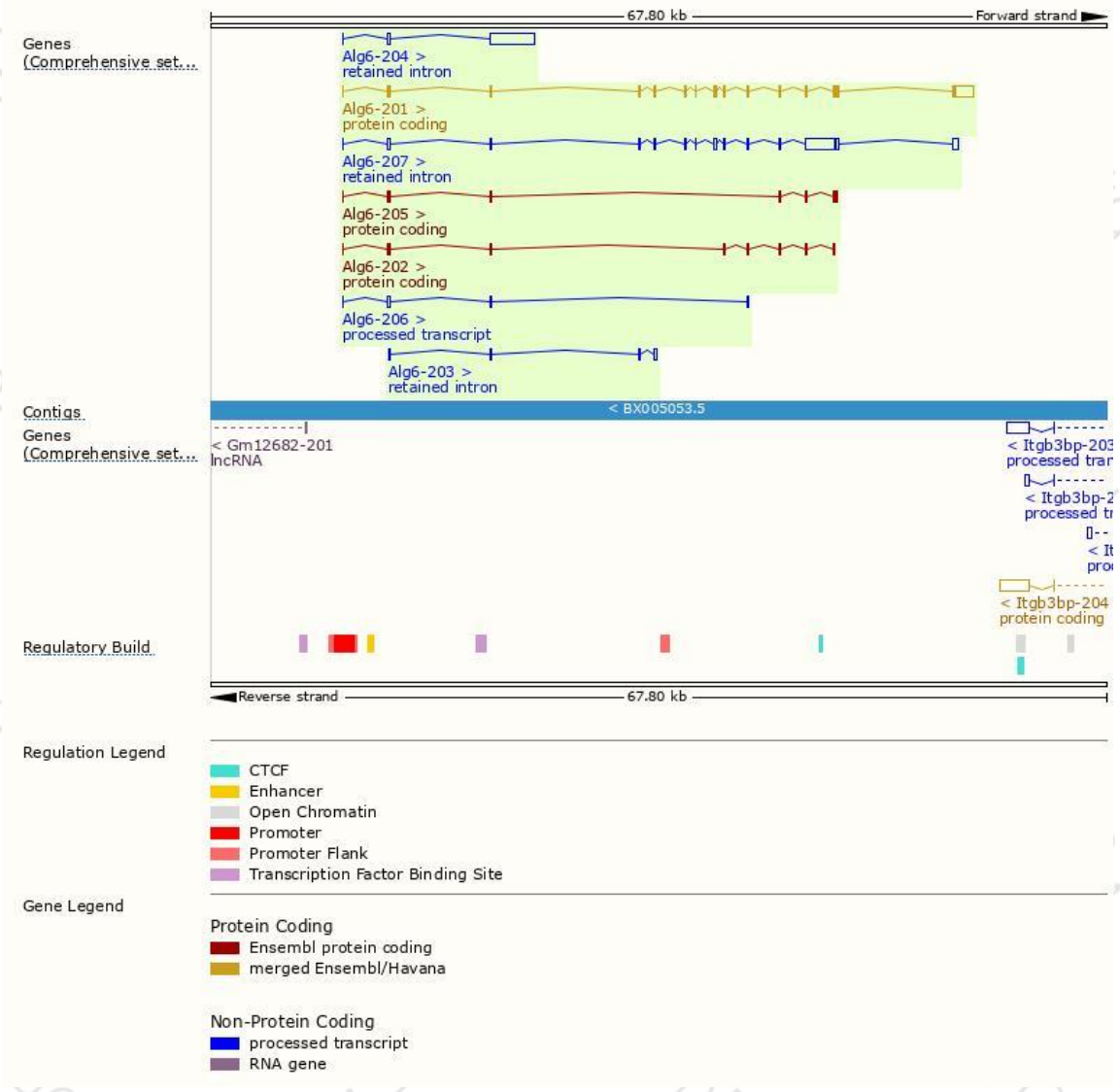
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Alg6-201	ENSMUST00000097961.8	3079	507aa	Protein coding	CCDS38818	Q3TAE8	TSL:1 GENCODE basic APPRIS P1
Alg6-202	ENSMUST00000107004.8	766	204aa	Protein coding	-	A2BDY0	CDS 3' incomplete TSL:3
Alg6-205	ENSMUST00000139799.2	628	158aa	Protein coding	-	A2BDX8	CDS 3' incomplete TSL:3
Alg6-206	ENSMUST00000141870.7	378	No protein	Processed transcript	-	-	TSL:3
Alg6-207	ENSMUST00000144805.7	3947	No protein	Retained intron	-	-	TSL:2
Alg6-204	ENSMUST00000137473.7	3607	No protein	Retained intron	-	-	TSL:1
Alg6-203	ENSMUST00000124147.1	517	No protein	Retained intron	-	-	TSL:3

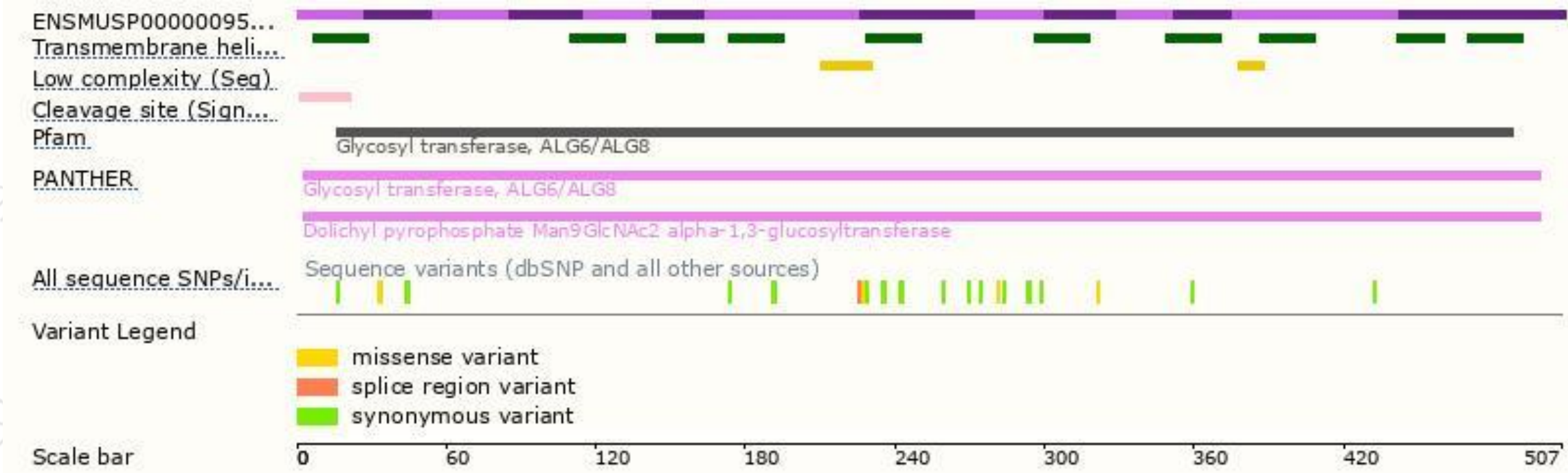
The strategy is based on the design of *Alg6-201* transcript,the transcription is shown below:



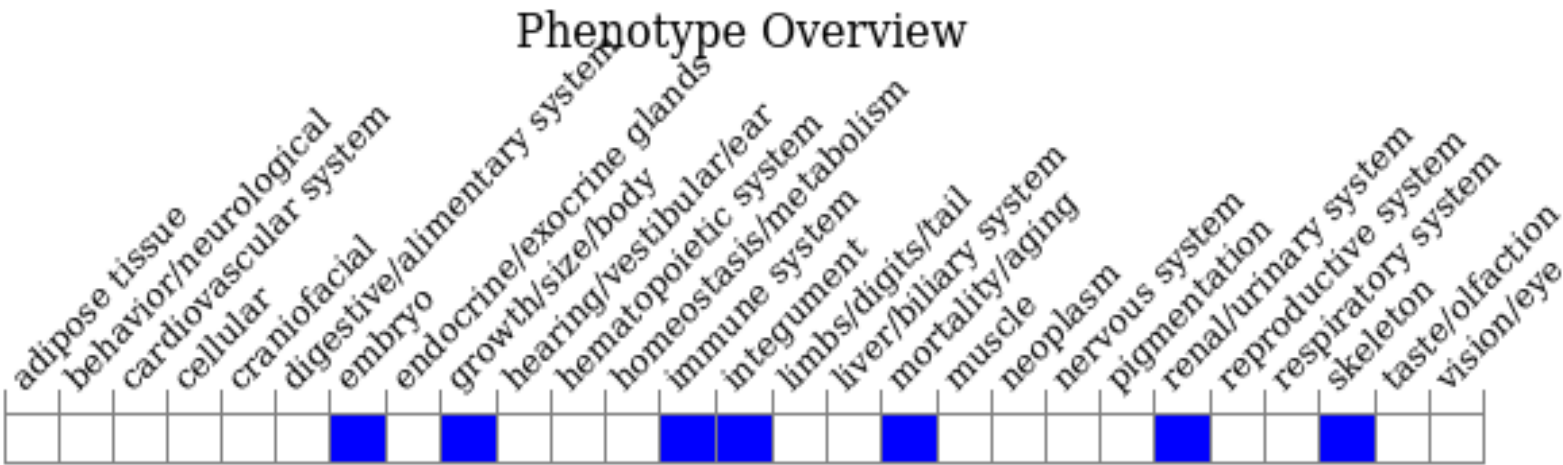
Genomic location distribution



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/>).

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

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