

Golgb1 Cas9-CKO Strategy

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Project Overview

Project Name

Golgb1

Project type

Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

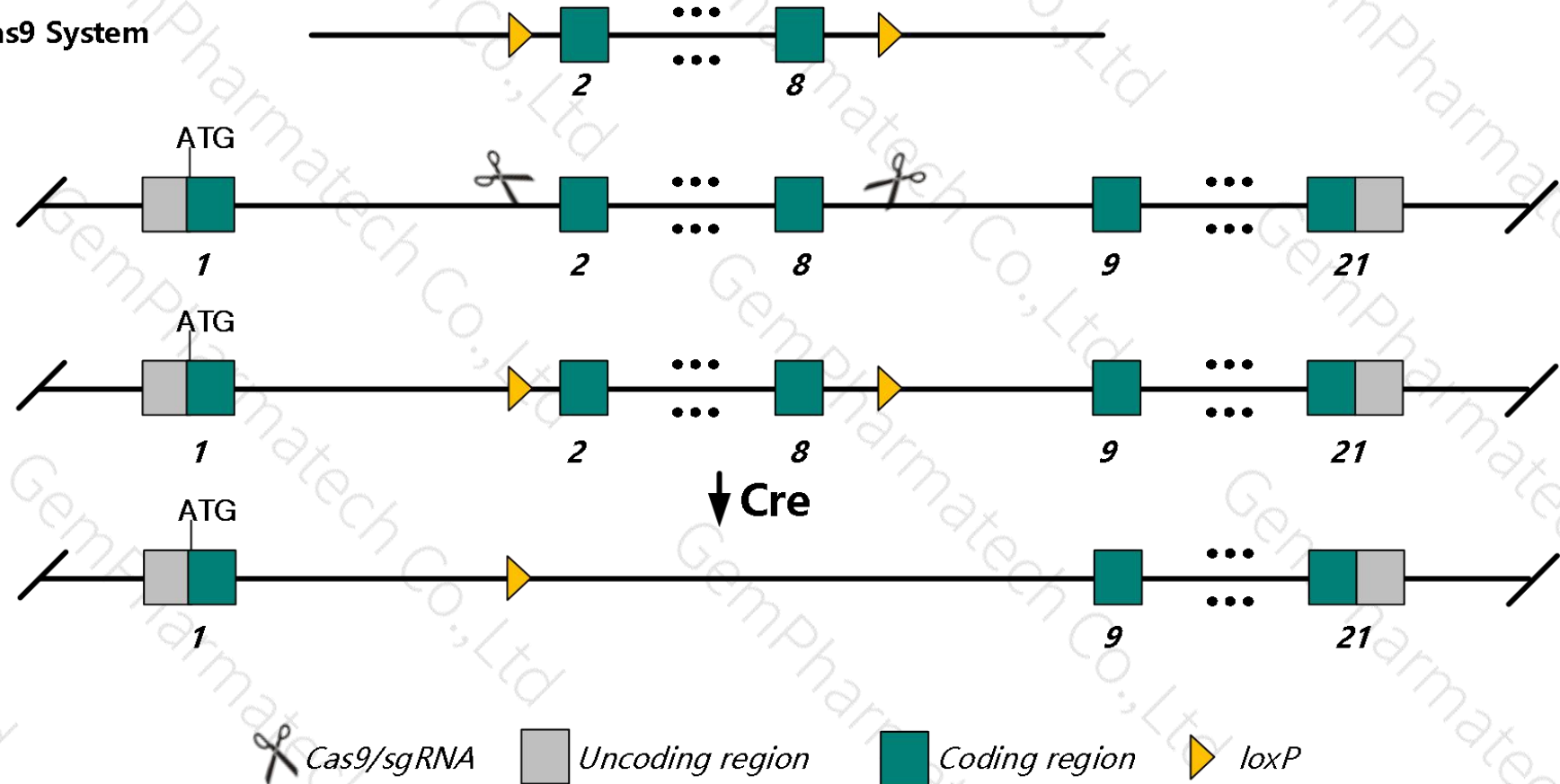
This model will use CRISPR/Cas9 technology to edit the *Golgb1* gene. The schematic diagram is as follows:

Donor and CRISPR/Cas9 System

Wild-type allele

Floxed allele

KO allele



- The *Golgb1* gene has 7 transcripts. According to the structure of *Golgb1* gene, exon2-exon8 of *Golgb1*-202 (ENSMUST00000039855.8) transcript is recommended as the knockout region. The region contains 1204bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Golgb1* gene. The brief process is as follows: CRISPR/Cas9 system and Donor 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 flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

- According to the existing MGI data, Homozygous knockout affects glycosylation of glycoproteins in the extra-cellular matrix of the palatal shelves, resulting in their failure to elevate and fuse, leading to cleft palate.
- Transcripts 201 maybe unaffected.
- The flox region contain the Gm49600 and 4930565N06Rik gene, which may delet them after Cre.
- The *Golgb1* gene is located on the Chr16. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Golgb1 golgi autoantigen, golgin subfamily b, macrogolgin 1 [*Mus musculus* (house mouse)]

Gene ID: 224139, updated on 13-Mar-2020

Summary

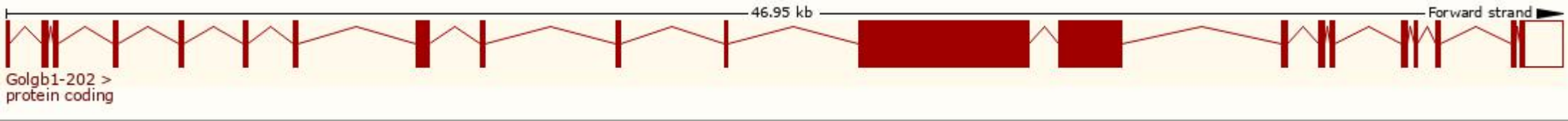
Official Symbol	Golgb1 provided by MGI
Official Full Name	golgi autoantigen, golgin subfamily b, macrogolgin 1 provided by MGI
Primary source	MGI:MGI:1099447
See related	Ensembl:ENSMUSG00000034243
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	628101; Gm6840; AU042952; mKIAA4151; 4930428L02Rik; 6330407A06Rik; C130074L01Rik; F730017E11Rik
Expression	Ubiquitous expression in bladder adult (RPKM 10.4), placenta adult (RPKM 9.4) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

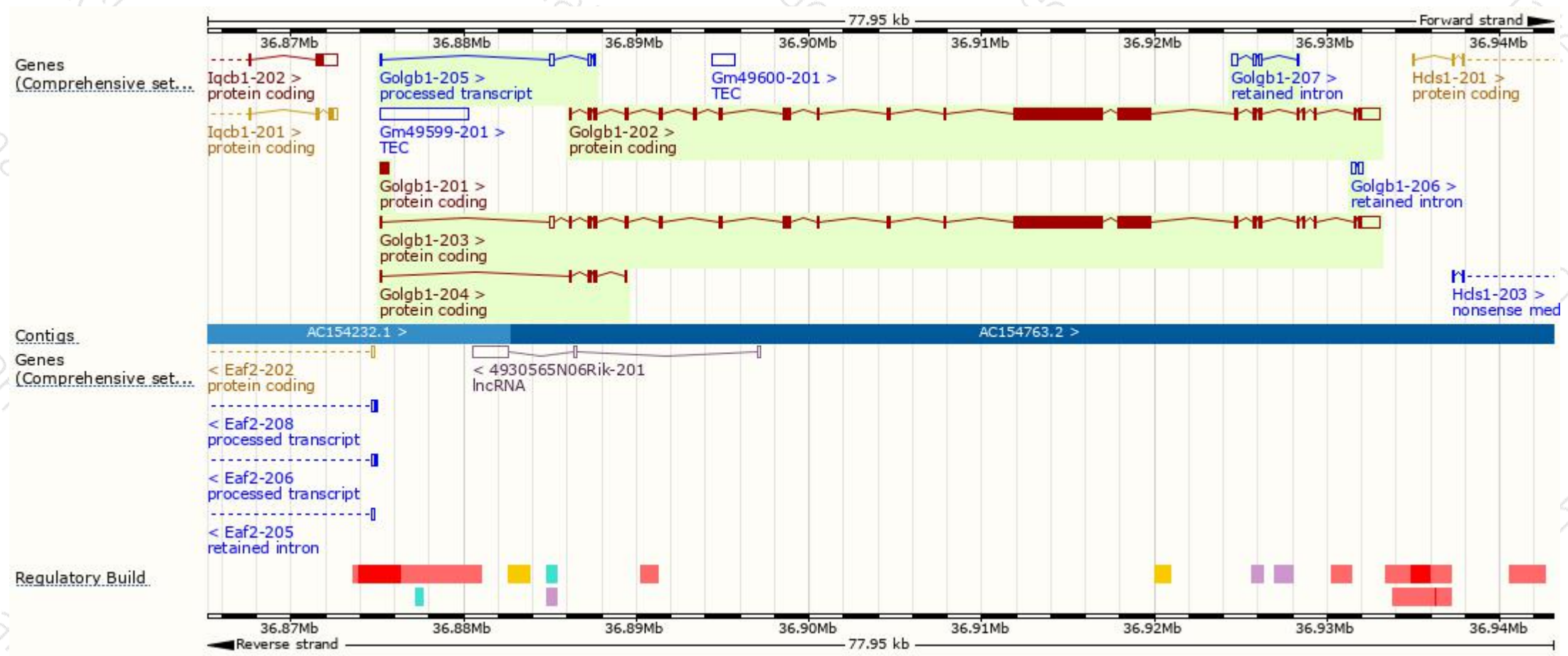
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Golgb1-202	ENSMUST00000039855.8	10847	3238aa	Protein coding	CCDS49844	E9PVZ8	TSL:5 GENCODE basic APPRIS P2
Golgb1-203	ENSMUST00000114812.8	11001	3197aa	Protein coding	-	E9QAH1	TSL:5 GENCODE basic APPRIS ALT2
Golgb1-204	ENSMUST00000134616.7	505	146aa	Protein coding	-	Q9CTU9	CDS 3' incomplete TSL:1
Golgb1-201	ENSMUST00000023534.6	498	165aa	Protein coding	-	Q3U286	TSL:NA GENCODE basic
Golgb1-205	ENSMUST00000135800.1	509	No protein	Processed transcript	-	-	TSL:3
Golgb1-207	ENSMUST00000152864.1	773	No protein	Retained intron	-	-	TSL:2
Golgb1-206	ENSMUST00000140266.1	516	No protein	Retained intron	-	-	TSL:2

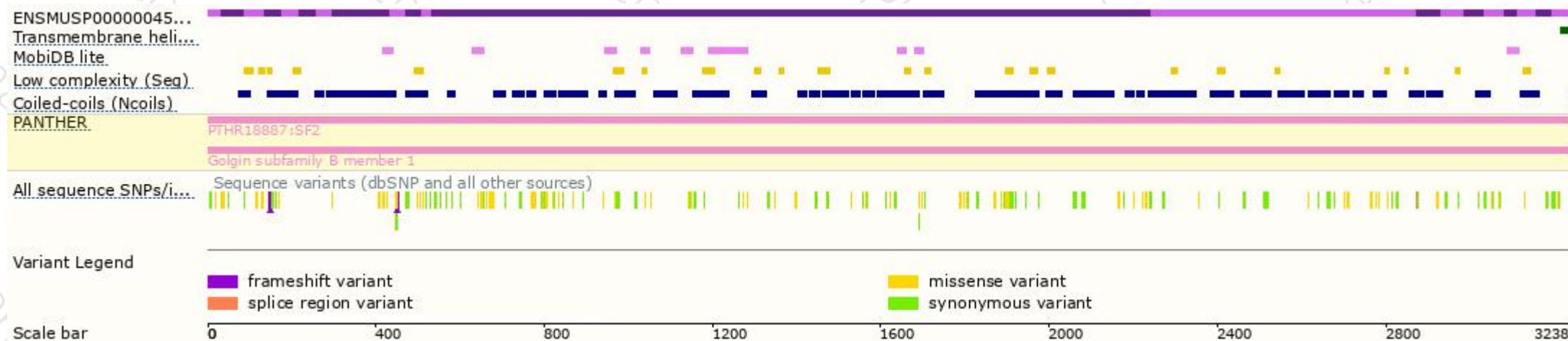
The strategy is based on the design of *Golgb1-202* transcript,The transcription is shown below



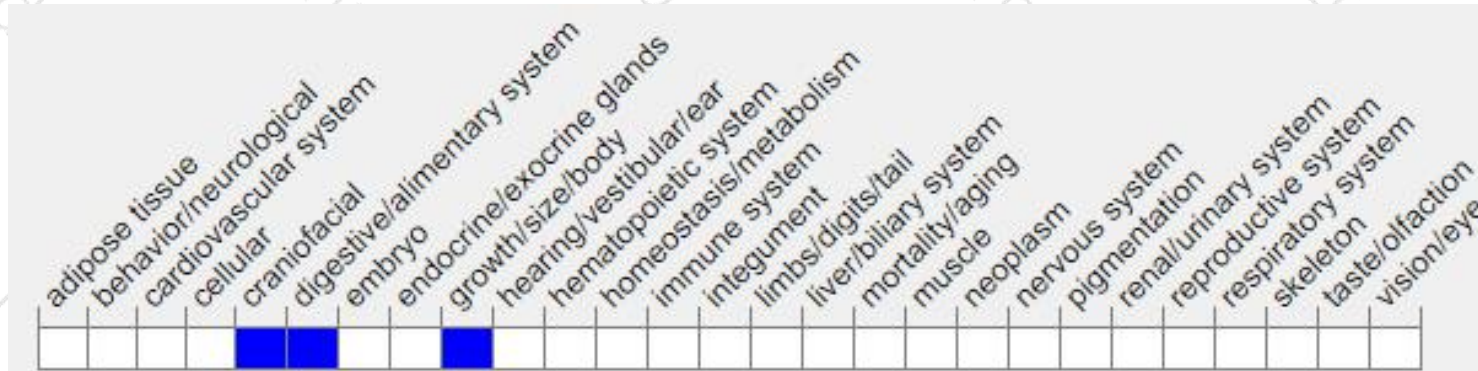
Genomic location distribution



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/>).

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

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