

St3gal6 Cas9-CKO Strategy

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Project Overview

Project Name

St3gal6

Project type

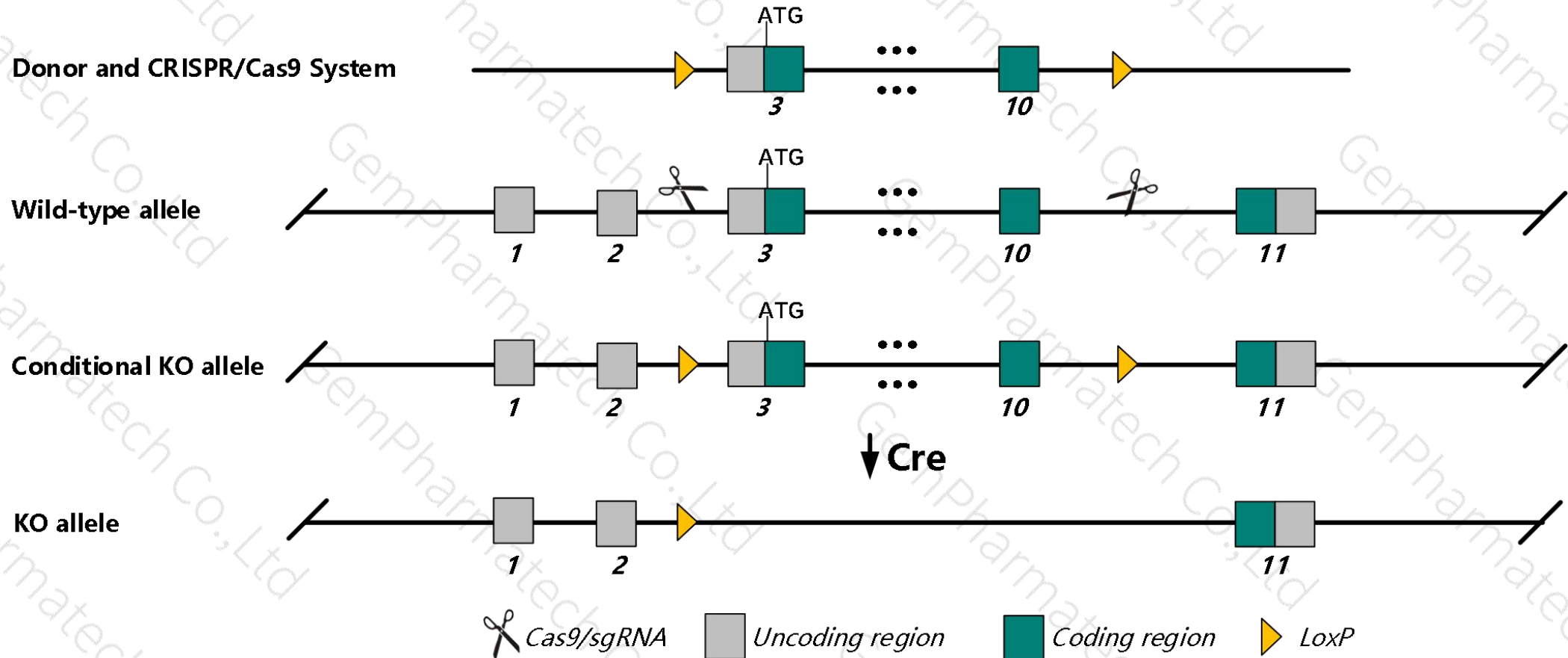
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *St3gal6* gene. The schematic diagram is as follows:



- The *St3gal6* gene has 15 transcripts. According to the structure of *St3gal6* gene, exon3-exon10 of *St3gal6-207* (ENSMUST00000137035.7) 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 *St3gal6* 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, Mice homozygous for a knock-out allele exhibit modest impairment in leukocyte rolling and neutrophil recruitment.
- The transcripts 208,210,215 may not be affected.
- The *St3gal6* 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)

St3gal6 ST3 beta-galactoside alpha-2,3-sialyltransferase 6 [*Mus musculus* (house mouse)]

Gene ID: 54613, updated on 13-Mar-2020

Summary

Official Symbol	St3gal6 provided by MGI
Official Full Name	ST3 beta-galactoside alpha-2,3-sialyltransferase 6 provided by MGI
Primary source	MGI:MGI:1888707
See related	Ensembl:ENSMUSG00000022747
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	Siat10; AI930218; AW552396; St3galVI; 1700023B24Rik
Expression	Ubiquitous expression in colon adult (RPKM 4.2), lung adult (RPKM 3.0) and 28 other tissues See more
Orthologs	human all

Genomic context

Location: 16; 16 C1.2

Exon count: 18

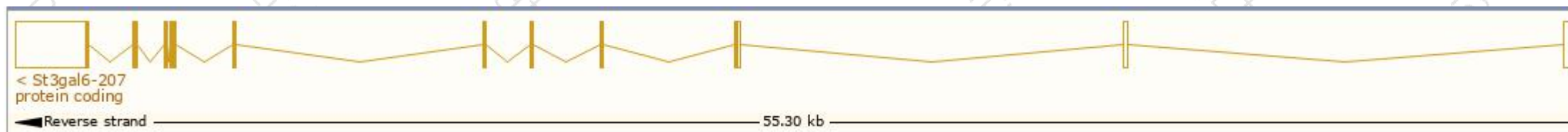
See St3gal6 in [Genome Data Viewer](#)

Transcript information (Ensembl)

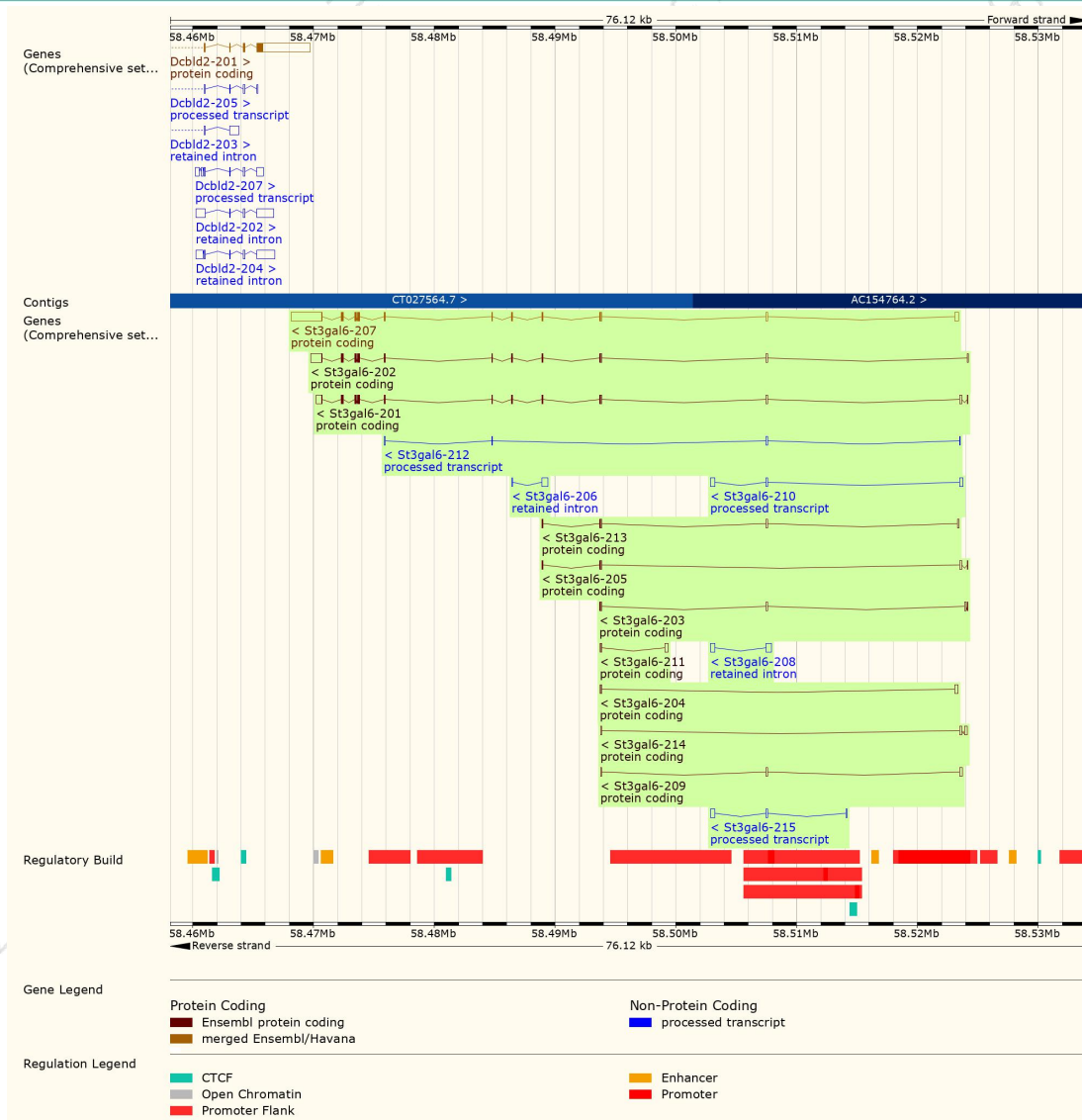
The gene has 15 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
St3gal6-207	ENSMUST00000137035.7	4123	329aa	Protein coding	CCDS28230	Q8VIB3	TSL:1 Gencode basic APPRIS P1
St3gal6-202	ENSMUST00000114358.8	2264	329aa	Protein coding	CCDS28230	Q8VIB3	TSL:1 Gencode basic APPRIS P1
St3gal6-201	ENSMUST00000114357.9	1918	329aa	Protein coding	CCDS28230	Q8VIB3	TSL:1 Gencode basic APPRIS P1
St3gal6-213	ENSMUST00000149456.7	540	50aa	Protein coding	-	A0A338P743	CDS 3' incomplete TSL:3
St3gal6-209	ENSMUST00000142900.7	498	5aa	Protein coding	-	-	CDS 3' incomplete TSL:2
St3gal6-203	ENSMUST00000123918.7	490	26aa	Protein coding	-	A6X953	CDS 3' incomplete TSL:3
St3gal6-214	ENSMUST00000151510.1	487	5aa	Protein coding	-	-	CDS 3' incomplete TSL:3
St3gal6-205	ENSMUST00000126978.7	449	46aa	Protein coding	-	A6X952	CDS 3' incomplete TSL:3
St3gal6-204	ENSMUST00000125712.1	386	8aa	Protein coding	-	A0A338P6H0	CDS 3' incomplete TSL:3
St3gal6-211	ENSMUST00000148061.1	370	8aa	Protein coding	-	A0A338P6H0	CDS 3' incomplete TSL:3
St3gal6-210	ENSMUST00000145283.1	810	No protein	Processed transcript	-	-	TSL:1
St3gal6-215	ENSMUST00000232391.1	639	No protein	Processed transcript	-	-	-
St3gal6-212	ENSMUST00000149197.7	372	No protein	Processed transcript	-	-	TSL:2
St3gal6-208	ENSMUST00000137850.7	837	No protein	Retained intron	-	-	TSL:1
St3gal6-206	ENSMUST00000135721.1	600	No protein	Retained intron	-	-	TSL:3

The strategy is based on the design of *St3gal6-207* transcript, The transcription is shown below



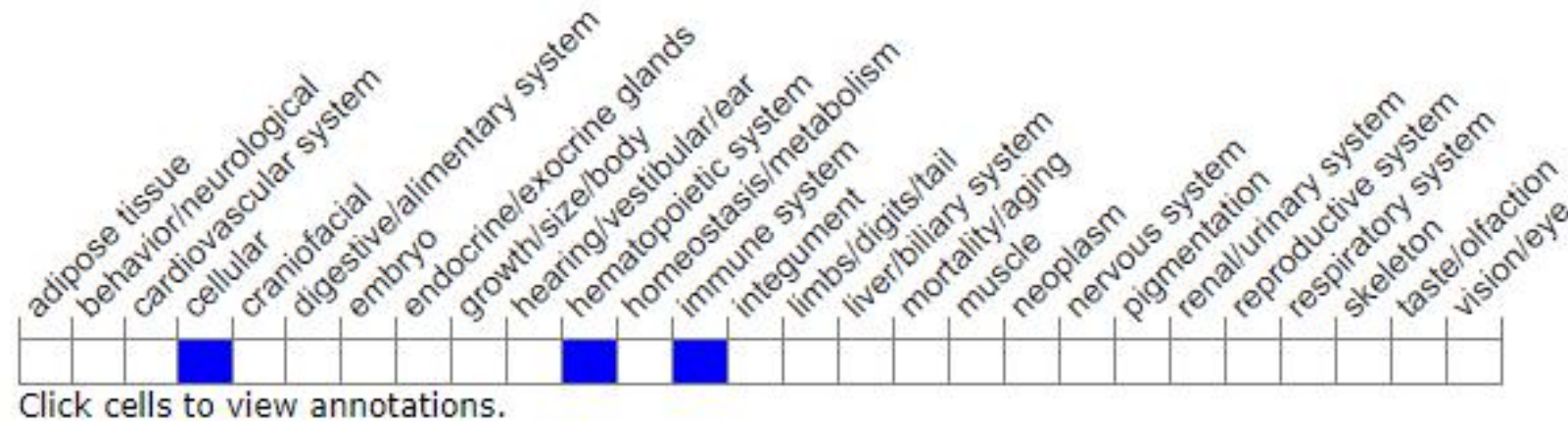
Genomic location distribution



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, Mice homozygous for a knock-out allele exhibit modest impairment in leukocyte rolling and neutrophil recruitment.

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

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