

# *Siglec1* Cas9-KO Strategy

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**Reviewer:**

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# Project Overview

**Project Name**

***Siglec1***

**Project type**

**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Siglec1* gene. The schematic diagram is as follows:



- The *Siglec1* gene has 3 transcripts. According to the structure of *Siglec1* gene, exon1-exon10 of *Siglec1-201* (ENSMUST00000028794.9) 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 *Siglec1* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for a disruption in this gene display subtle changes in B- and T-cell populations and decreased IgM levels. Mice homozygous for a knock-out or knock-in allele exhibit impaired phagocytosis of sialylated *C. jejuni*.
- The *Siglec1* gene is located on the Chr2. 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)

## Siglec1 sialic acid binding Ig-like lectin 1, sialoadhesin [Mus musculus (house mouse)]

Gene ID: 20612, updated on 12-Mar-2019

### Summary



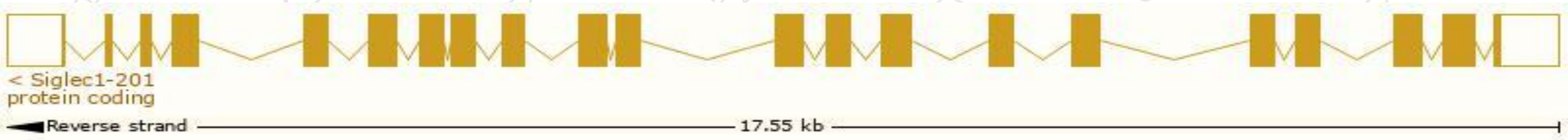
<b>Official Symbol</b>	Siglec1 provided by <a href="#">MGI</a>
<b>Official Full Name</b>	sialic acid binding Ig-like lectin 1, sialoadhesin provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:99668</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000027322</a>
<b>Gene type</b>	protein coding
<b>RefSeq status</b>	VALIDATED
<b>Organism</b>	<a href="#">Mus musculus</a>
<b>Lineage</b>	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
<b>Also known as</b>	Cd169, Siglec-1, Sn
<b>Expression</b>	Biased expression in mammary gland adult (RPKM 31.7), spleen adult (RPKM 18.9) and 11 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

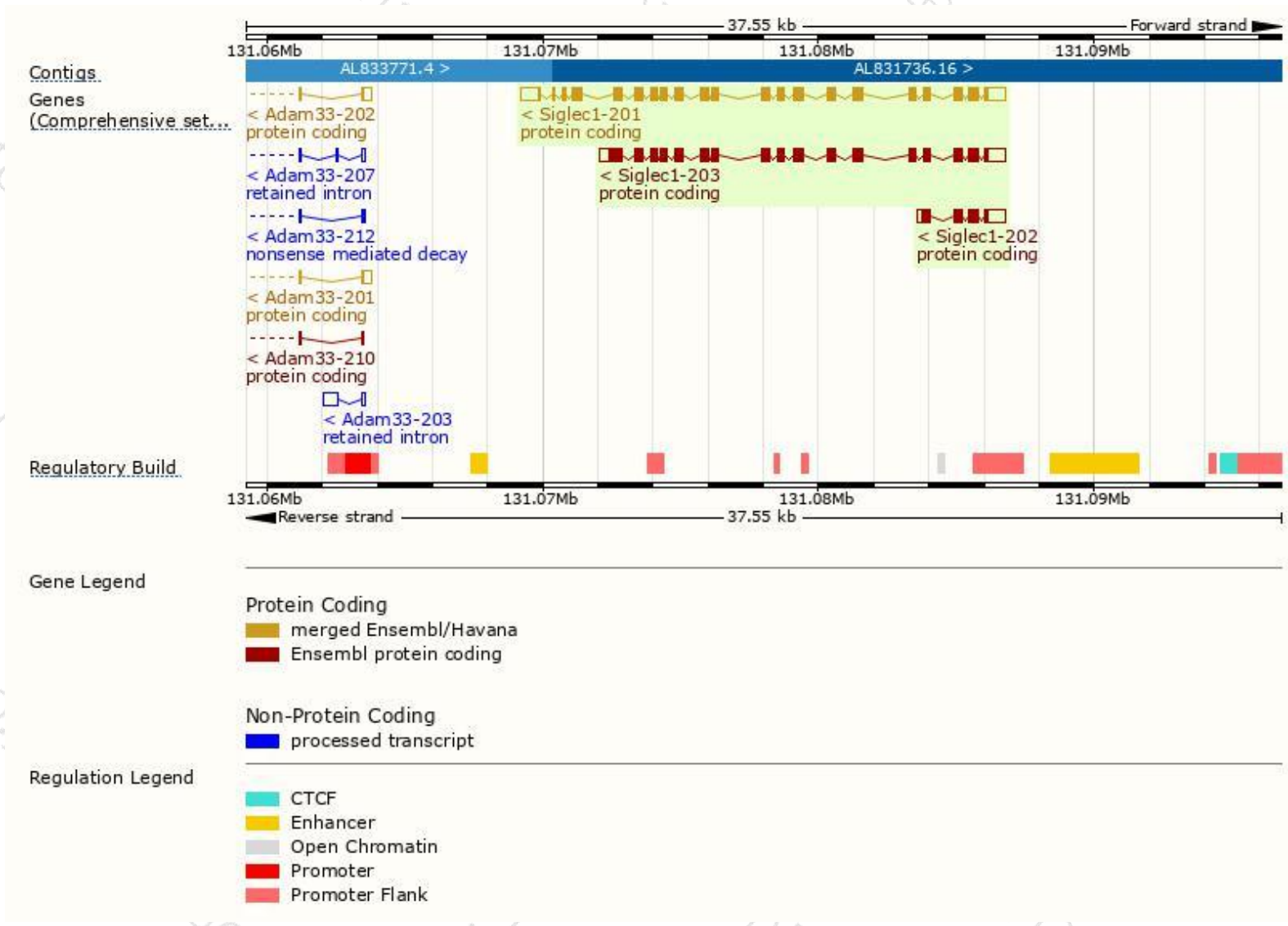
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Siglec1-201	<a href="#">ENSMUST00000028794.9</a>	6387	<a href="#">1701aa</a>	Protein coding	<a href="#">CCDS16754</a>	<a href="#">G3X8X6</a>	TSL:1 GENCODE basic APPRIS P2
Siglec1-203	<a href="#">ENSMUST00000110227.7</a>	5790	<a href="#">1605aa</a>	Protein coding	-	<a href="#">H9KUZ3</a>	TSL:1 GENCODE basic APPRIS ALT2
Siglec1-202	<a href="#">ENSMUST00000110226.1</a>	1861	<a href="#">346aa</a>	Protein coding	-	<a href="#">H9KUZ2</a>	TSL:1 GENCODE basic

The strategy is based on the design of *Siglec1-201* transcript,The transcription is shown below

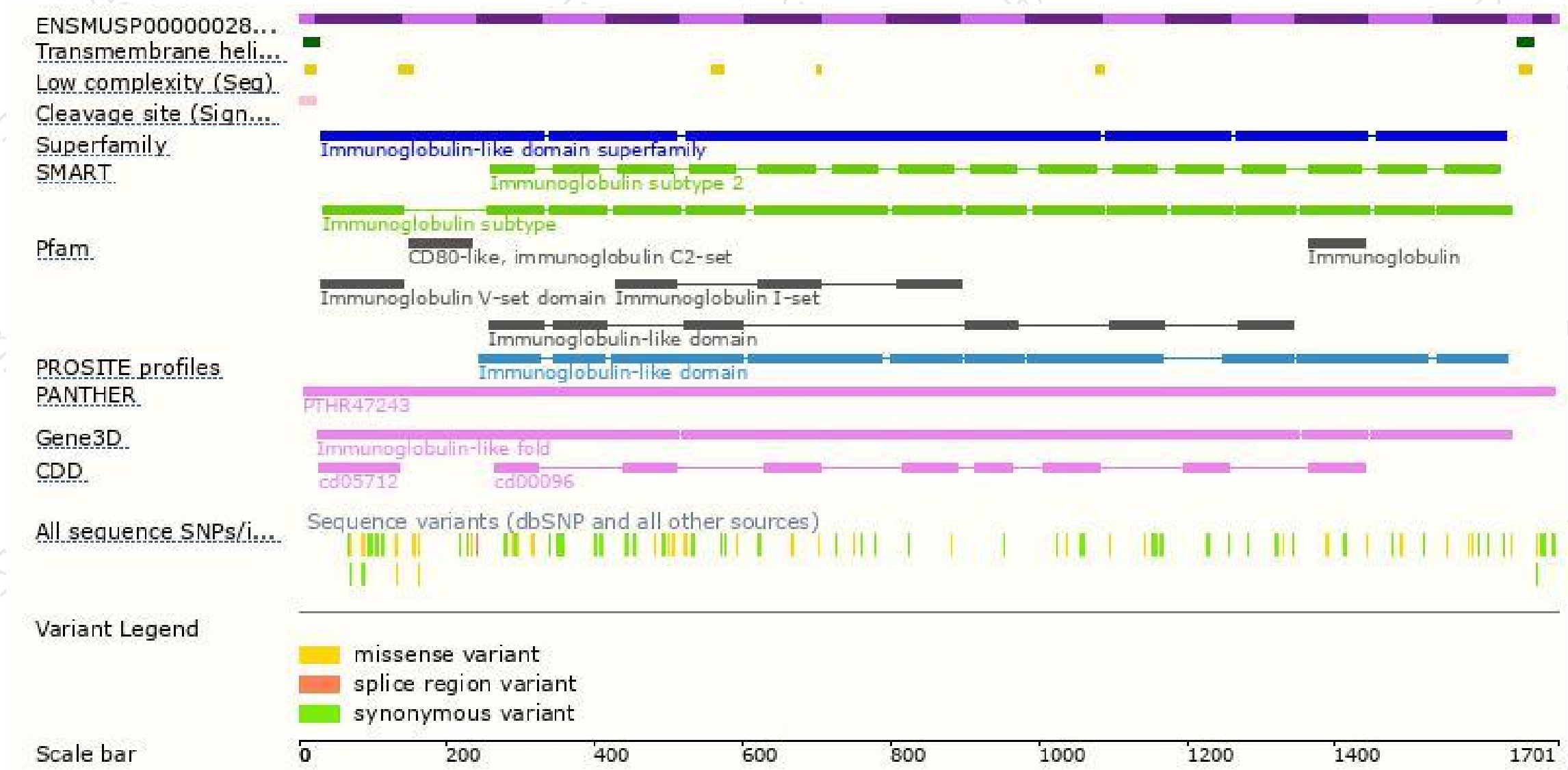


# Genomic location distribution

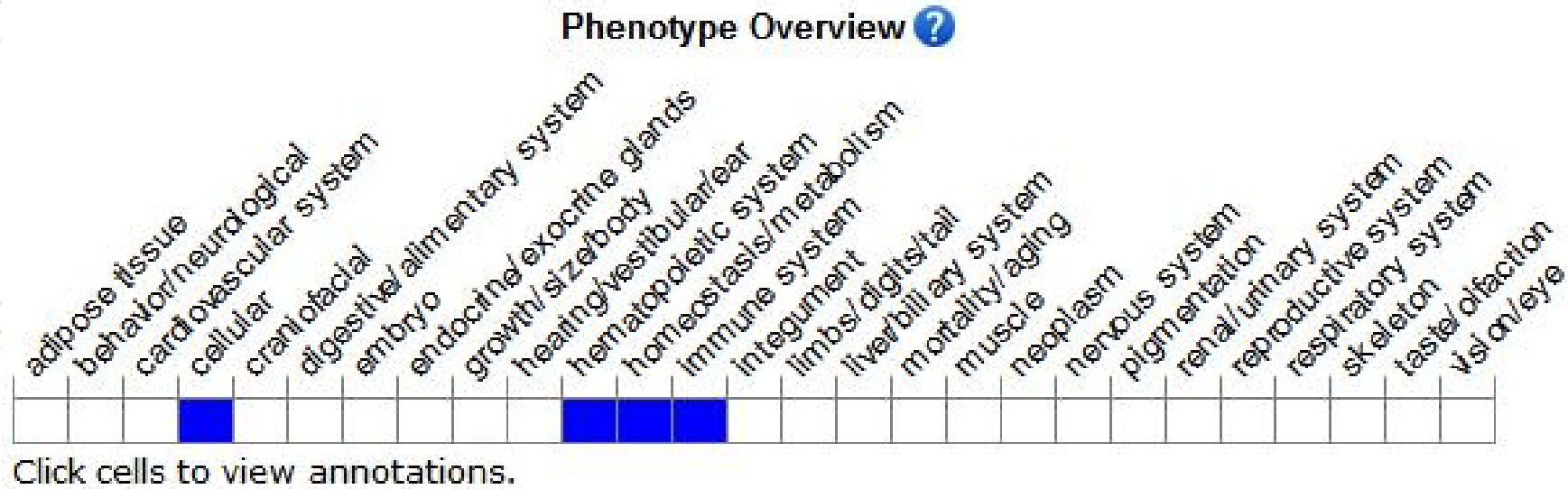




# Protein domain



# Mouse phenotype description(MGI )



*Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).*

According to the existing MGI data, Mice homozygous for a disruption in this gene display subtle changes in B- and T-cell populations and decreased IgM levels. Mice homozygous for a knock-out or knock-in allele exhibit impaired phagocytosis of sialylated *C. jejuni*.

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

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