Siglec1 Cas9-CKO Strategy

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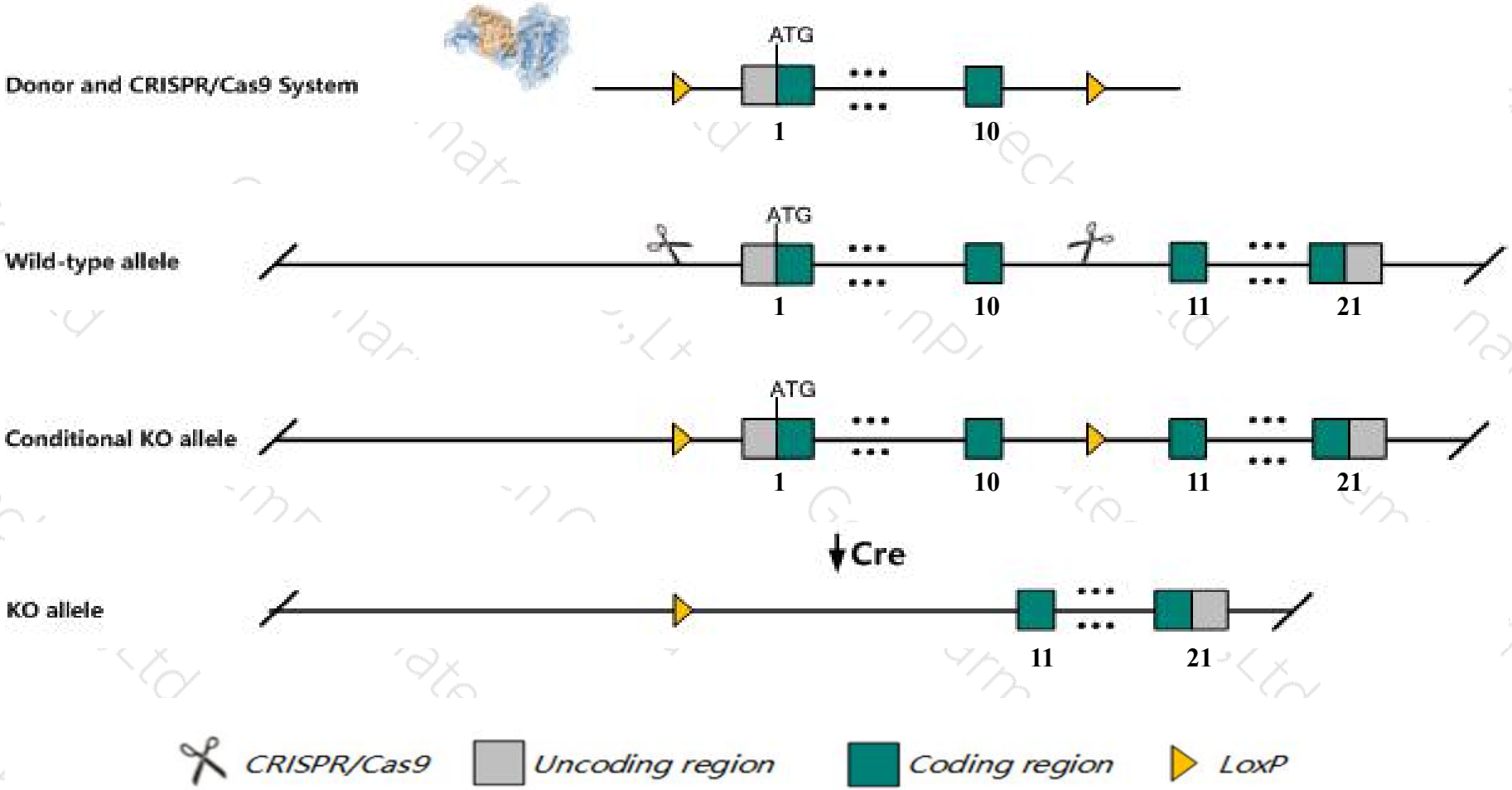
Project Overview

Project Name	***Siglec1***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

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



Technical routes

- 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 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.

Notice

➢ 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information （NCBI）

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

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

Summary

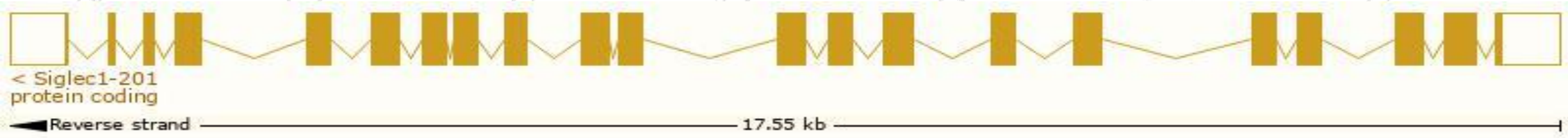
Official Symbol	Siglec1 provided by MGI
Official Full Name	sialic acid binding Ig-like lectin 1, sialoadhesin provided by MGI
Primary source	MGI:MGI:99668
See related	Ensembl:ENSMUSG00000027322
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata;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

Transcript information（Ensembl）

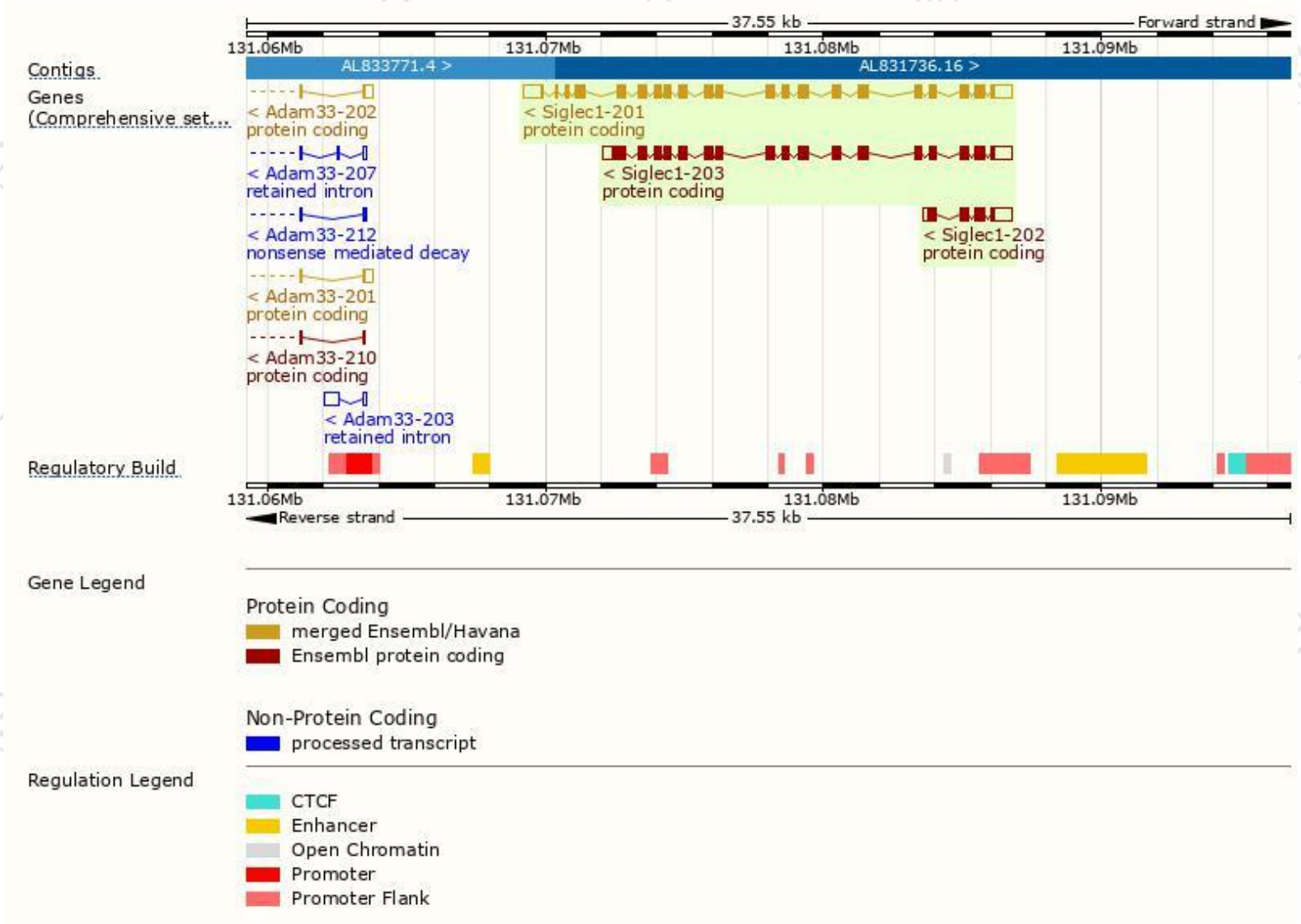
The gene has 3 transcripts,all transcripts are shown below:

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

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

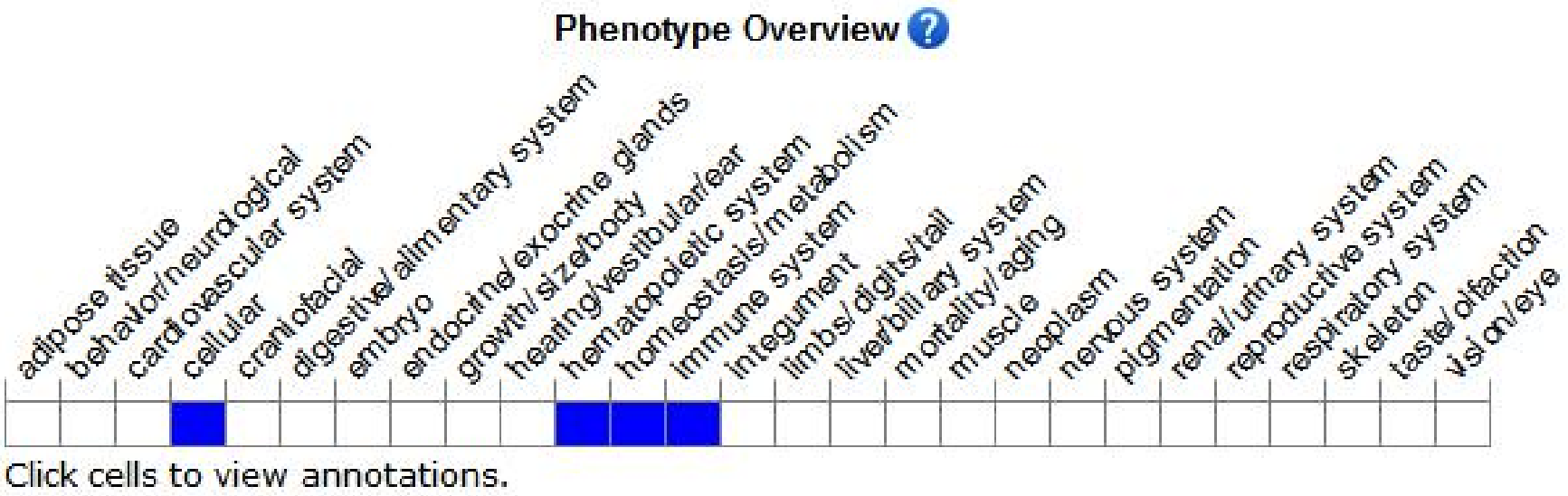


Genomic location distribution



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/).

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

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