Siglec15 Cas9-CKO Strategy

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Project Overview

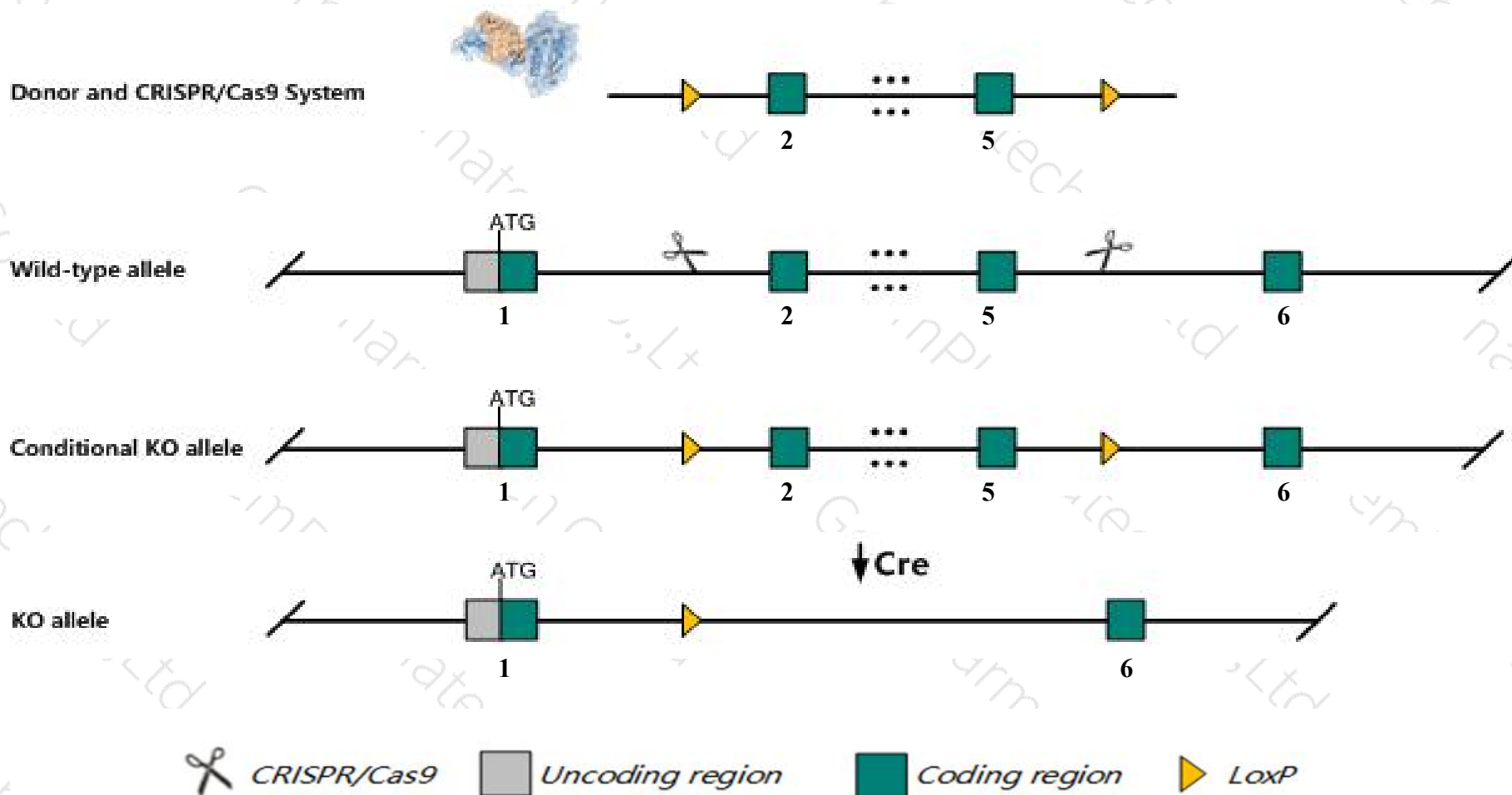|	
Project Name	***Siglec15***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Siglec15* gene. The schematic diagram is as follows:

Donor and CRISPR/Cas9 System

Wild-type allele

Conditional KO allele

↓Cre

KO allele

CRISPR/Cas9   Uncoding region   Coding region   LoxP

Technical routes

➢ The *Siglec15* gene has 1 transcript. According to the structure of *Siglec15* gene, exon2-exon5 of *Siglec15-201* (ENSMUST00000170760.2) transcript is recommended as the knockout region.The region contains Ens 850bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Siglec15* 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 targeted allele exhibit impaired osteoclast differentiation and function and mild osteopetrosis.

➢ The *Siglec15* gene is located on the Chr18. 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）

Siglec15 sialic acid binding Ig-like lectin 15 [Mus musculus (house mouse)]

Gene ID: 620235, updated on 21-Feb-2019

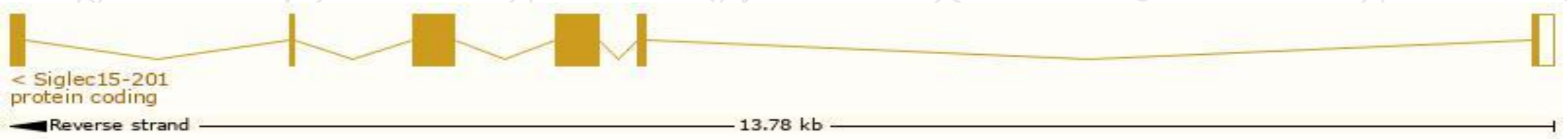## ▲ Summary

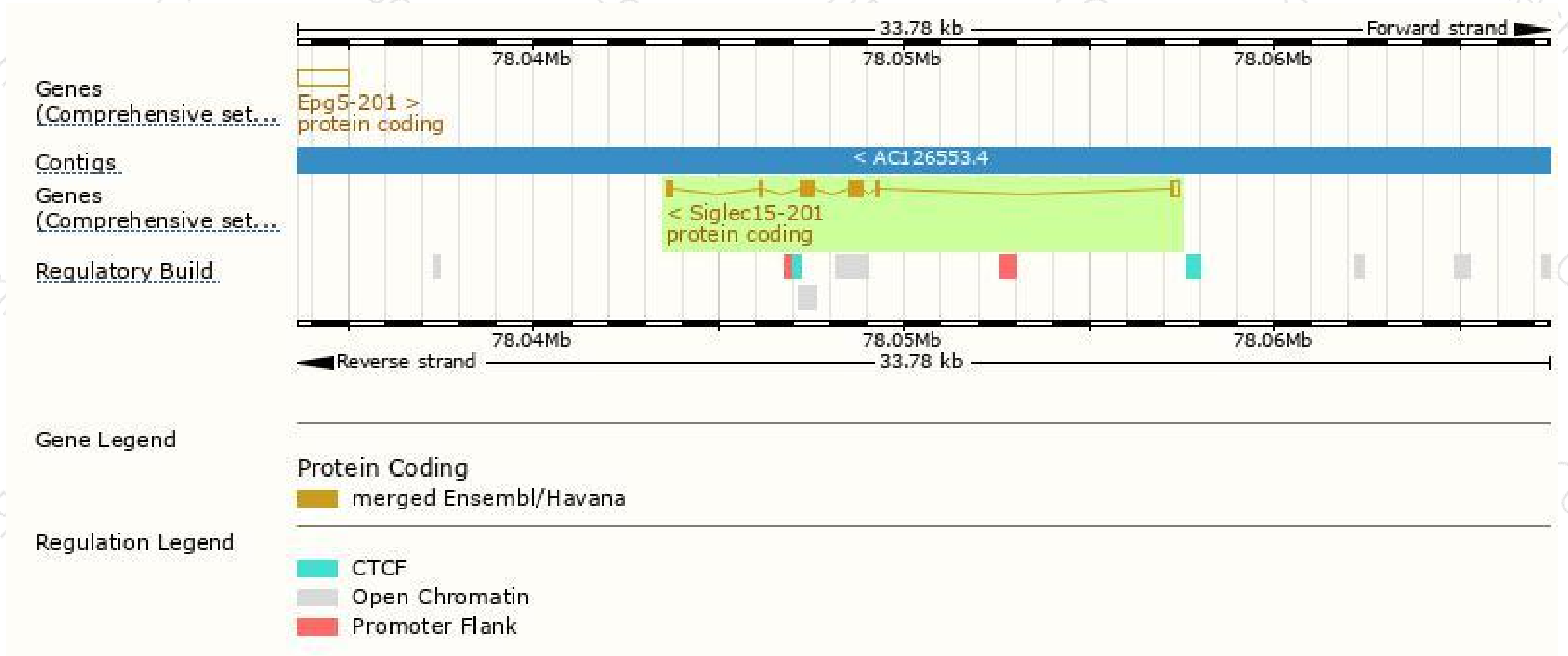|	
Official Symbol	Siglec15 provided by MGI
Official Full Name	sialic acid binding Ig-like lectin 15 provided by MGI
Primary source	MGI:MGI:3646642
See related	Ensembl:ENSMUSG00000091055
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Cd33l3, EG620235, SIGLEC-I
Expression	Biased expression in ovary adult (RPKM 17.6) and thymus adult (RPKM 2.6)See more
Orthologs	human all

Transcript information（Ensembl）

The gene has 1 transcript,and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Siglec15-201	ENSMUST00000170760.2	1156	342aa	Protein coding	CCDS50329	A7E1W8	TSL:1 GENCODE basic APPRIS P1

The strategy is based on the design of *Siglec15-201* transcript,The transcription is shown below

< Siglec15-201
protein coding
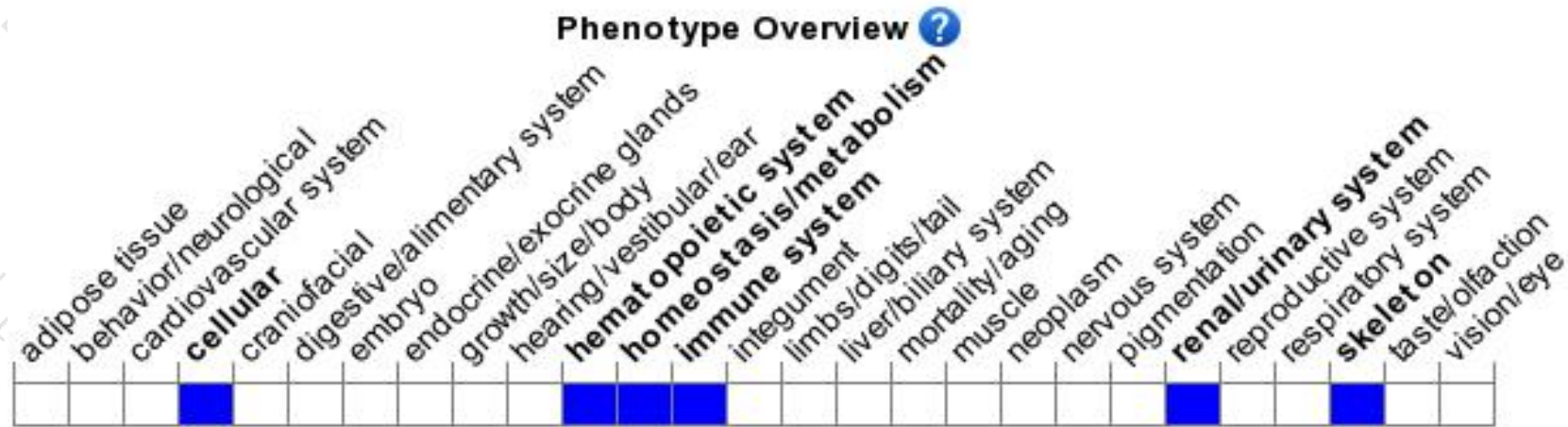
◄── Reverse strand

13.78 kb

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 targeted allele exhibit impaired osteoclast differentiation and function and mild osteopetrosis.

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