Cd83 Cas9-CKO Strategy

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Design Date:	**2019-11-26**

Project Overview

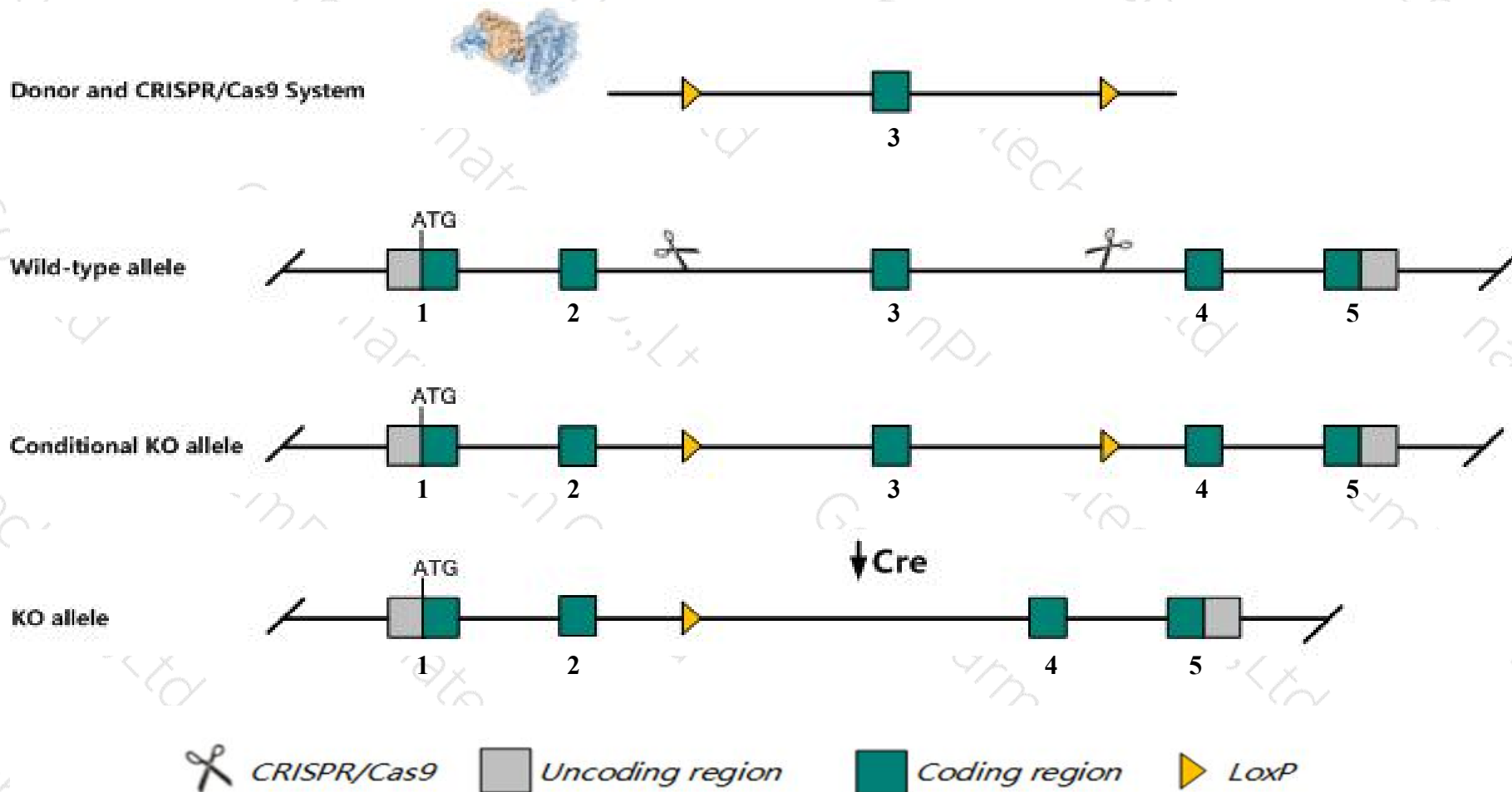|	
Project Name	*Cd83*
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cd83* gene. The schematic diagram is as follows:

➤ The *Cd83* gene has 2 transcripts. According to the structure of *Cd83* gene, exon3 of *Cd83-201* (ENSMUST00000015540.3) transcript is recommended as the knockout region.The region contains Ens 196bp coding sequence. Knock out the region will result in disruption of protein function.

➤ In this project we use CRISPR/Cas9 technology to modify *Cd83* 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 lacking this gene develop, thrive, and reproduce normally, but exhibit defects in T cell development.

➢ The *Cd83* gene is located on the Chr13. 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.
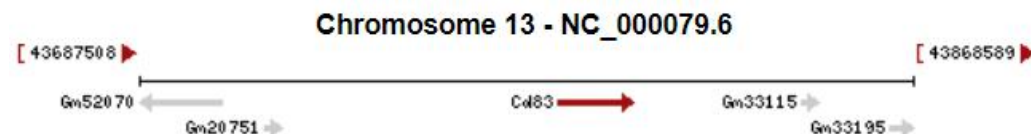
Gene information （NCBI）

Cd83　CD83 antigen [*Mus musculus* (house mouse)]

Gene ID: 12522, updated on 5-Nov-2019

Summary

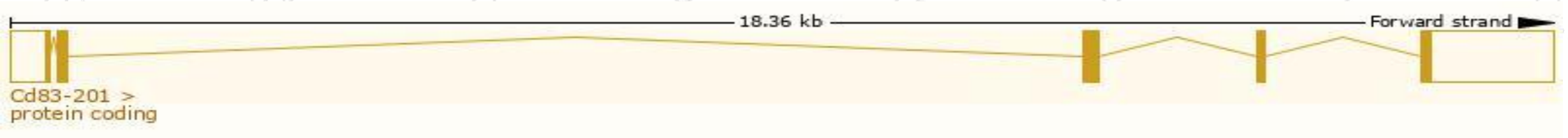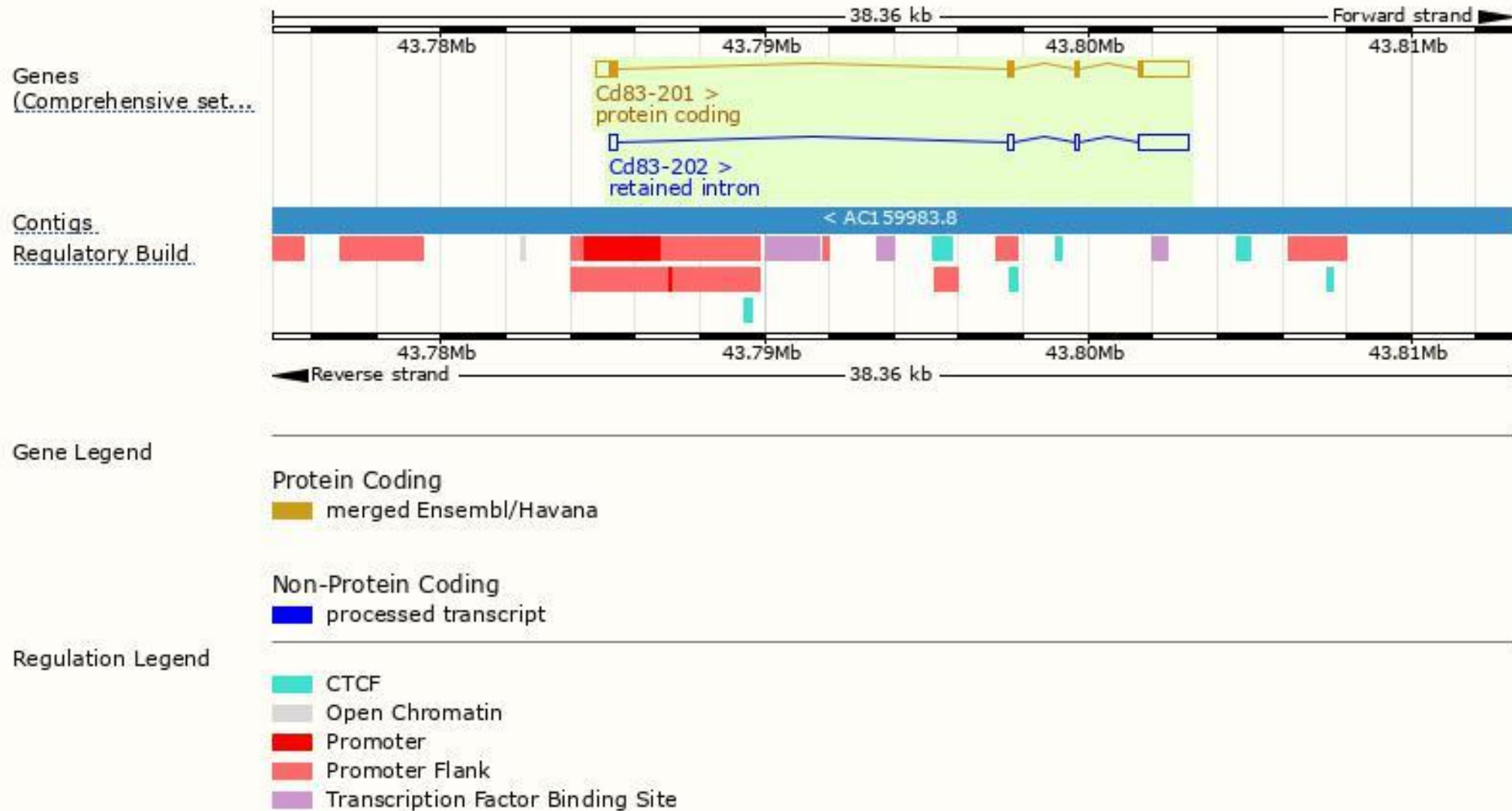|	
Official Symbol	Cd83 provided by MGI
Official Full Name	CD83 antigen provided by MGI
Primary source	MGI:MGI:1328316
See related	Ensembl:ENSMUSG00000015396
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Expression	Broad expression in spleen adult (RPKM 24.2), thymus adult (RPKM 21.3) and 20 other tissues See more
Orthologs	human　all

Chromosome 13 - NC_000079.6

[43687508 ▶　　　　　　　　　　　　　　　　　　　　　　　　[43868589 ▶

Gm52070 ◀　　　　　　　　　　　　　　Cd83 ▶　　　Gm33115 ▶

　　Gm20751 ▶　　　　　　　　　　　　　　　　　　　Gm33195 ▶

Transcript information（Ensembl）

The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cd83-201	ENSMUST00000015540.3	2477	196aa	Protein coding	CCDS26481	O88324	TSL:1 GENCODE basic APPRIS P1
Cd83-202	ENSMUST00000221359.1	2158	No protein	Retained intron	-	-	TSL:2

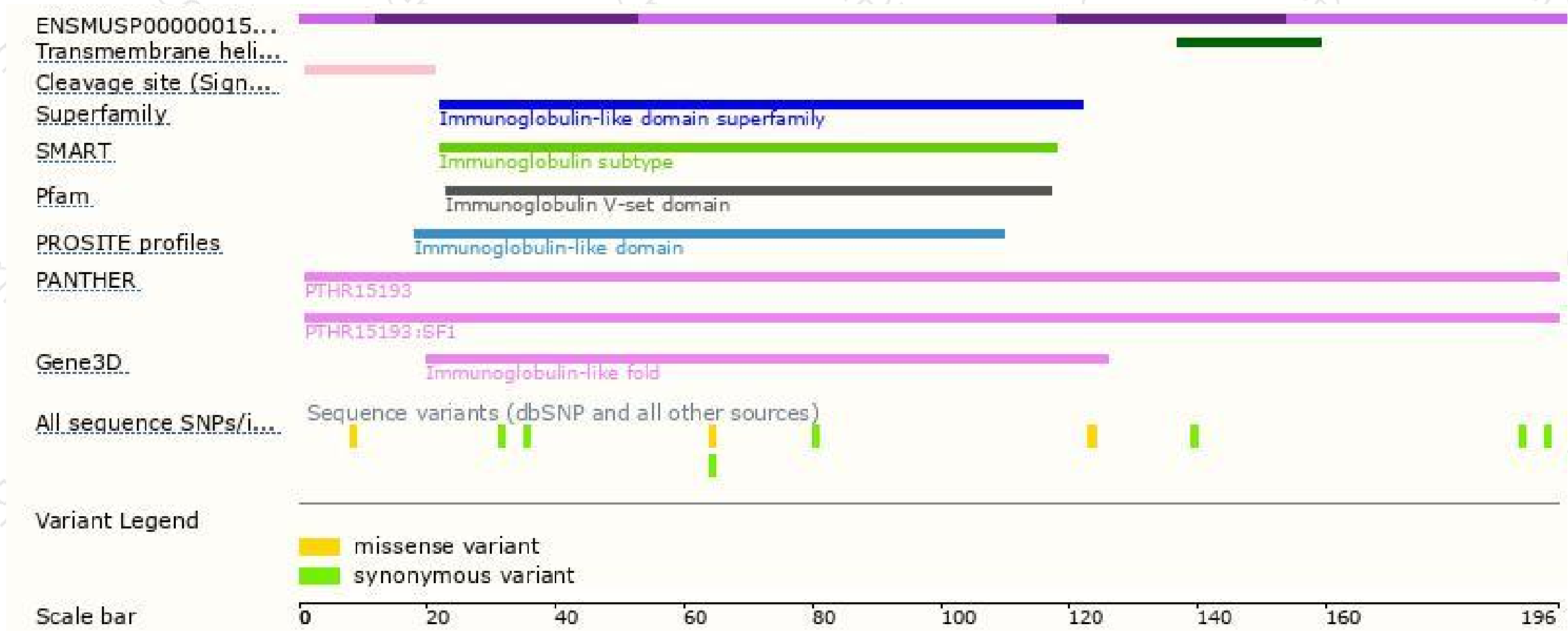The strategy is based on the design of *Cd83-201* transcript,The transcription is shown below
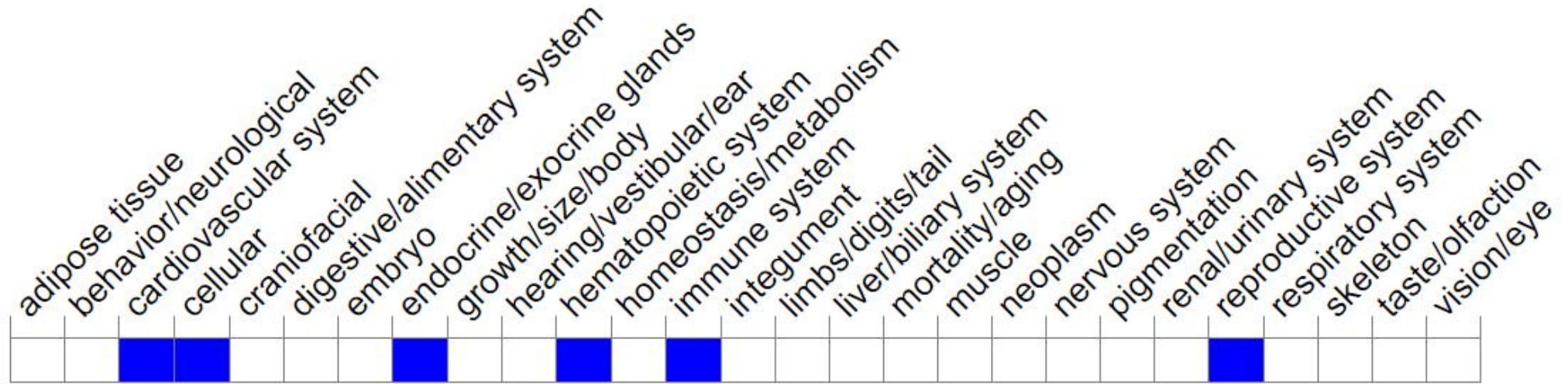
Genomic location distribution

Protein domain

ENSMUSP00000015...	
Transmembrane heli...	
Cleavage site (Sign...	
Superfamily	Immunoglobulin-like domain superfamily
SMART	Immunoglobulin subtype
Pfam	Immunoglobulin V-set domain
PROSITE profiles	Immunoglobulin-like domain
PANTHER	PTHR15193
	PTHR15193:SF1
Gene3D	Immunoglobulin-like fold
All sequence SNPs/i...	Sequence variants (dbSNP and all other sources)

Variant Legend

■ missense variant
■ synonymous variant

Scale bar: 0 20 40 60 80 100 120 140 160 196

Mouse phenotype description(MGI)

Phenotype Overview

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 lacking this gene develop, thrive, and reproduce normally, but exhibit defects in T cell development.

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