

# *Cd48* Cas9-KO Strategy

**Designer:**

**Yang Zeng**

**Reviewer:**

**Xueting Zhang**

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# Project Overview

**Project Name**

*Cd48*

**Project type**

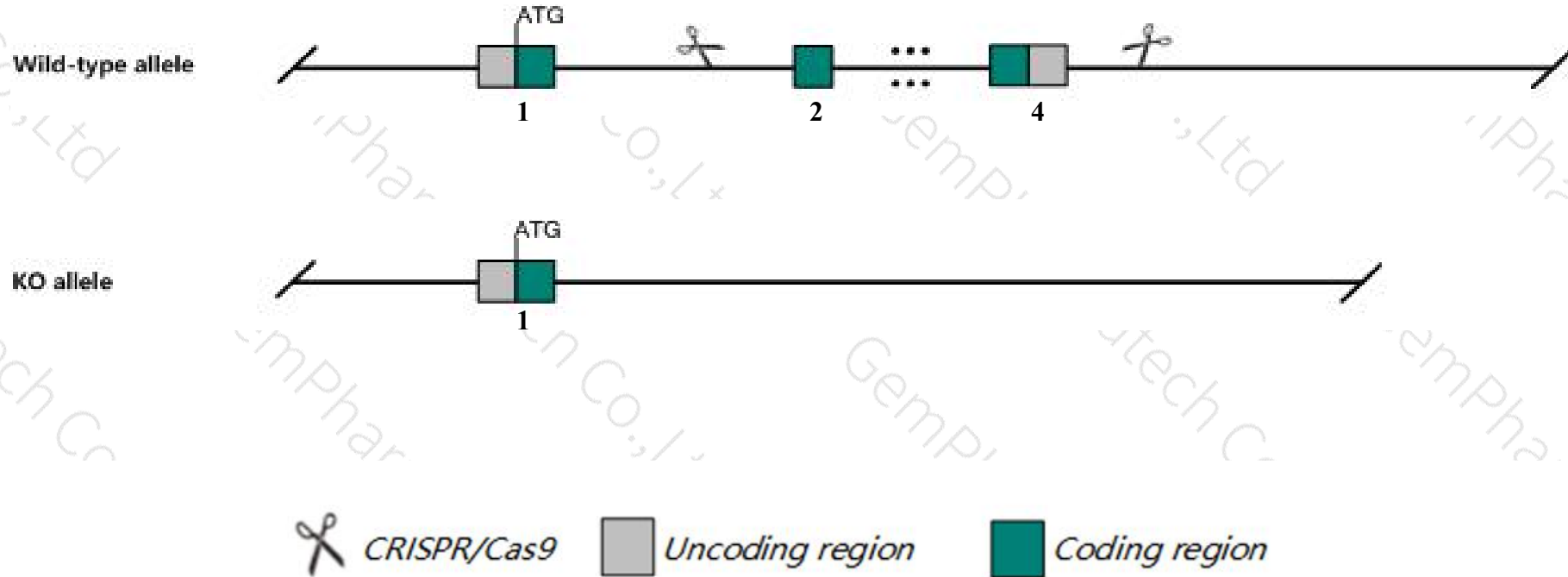
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cd48* gene. The schematic diagram is as follows:



# Technical routes

- The *Cd48* gene has 2 transcripts. According to the structure of *Cd48* gene, exon2-exon4 of *Cd48-202* (ENSMUST00000068584.6) transcript is recommended as the knockout region. The region contains most of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Cd48* gene. The brief process is as follows: CRISPR/Cas9 system were

- According to the existing MGI data, Homozygous mutation of this gene results in a slight increase in CD4+CD8- thymocytes and impaired T cell proliferation in response to mitogens, anti-CD3 antibodies, and alloantigens.
- The *Cd48* gene is located on the Chr1. 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)

## Cd48 CD48 antigen [ *Mus musculus* (house mouse) ]

Gene ID: 12506, updated on 24-Oct-2019

### Summary



**Official Symbol** Cd48 provided by [MGI](#)

**Official Full Name** CD48 antigen provided by [MGI](#)

**Primary source** [MGI:MGI:88339](#)

**See related** [Ensembl:ENSMUSG00000015355](#)

**Gene type** protein coding

**RefSeq status** VALIDATED

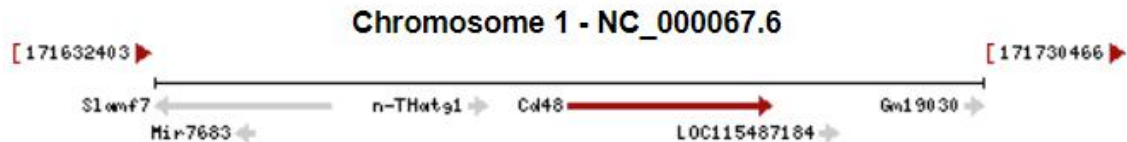
**Organism** [Mus musculus](#)

**Lineage** Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus

**Also known as** BCM1; BLAST; Bcm-1; BLAST1; SLAMF2; Sgp-60; BLAST-1; MEM-102; AI449234; AW610730

**Expression** Biased expression in spleen adult (RPKM 16.9), thymus adult (RPKM 12.5) and 13 other tissues [See more](#)

**Orthologs** [human](#) [all](#)



# Transcript information (Ensembl)

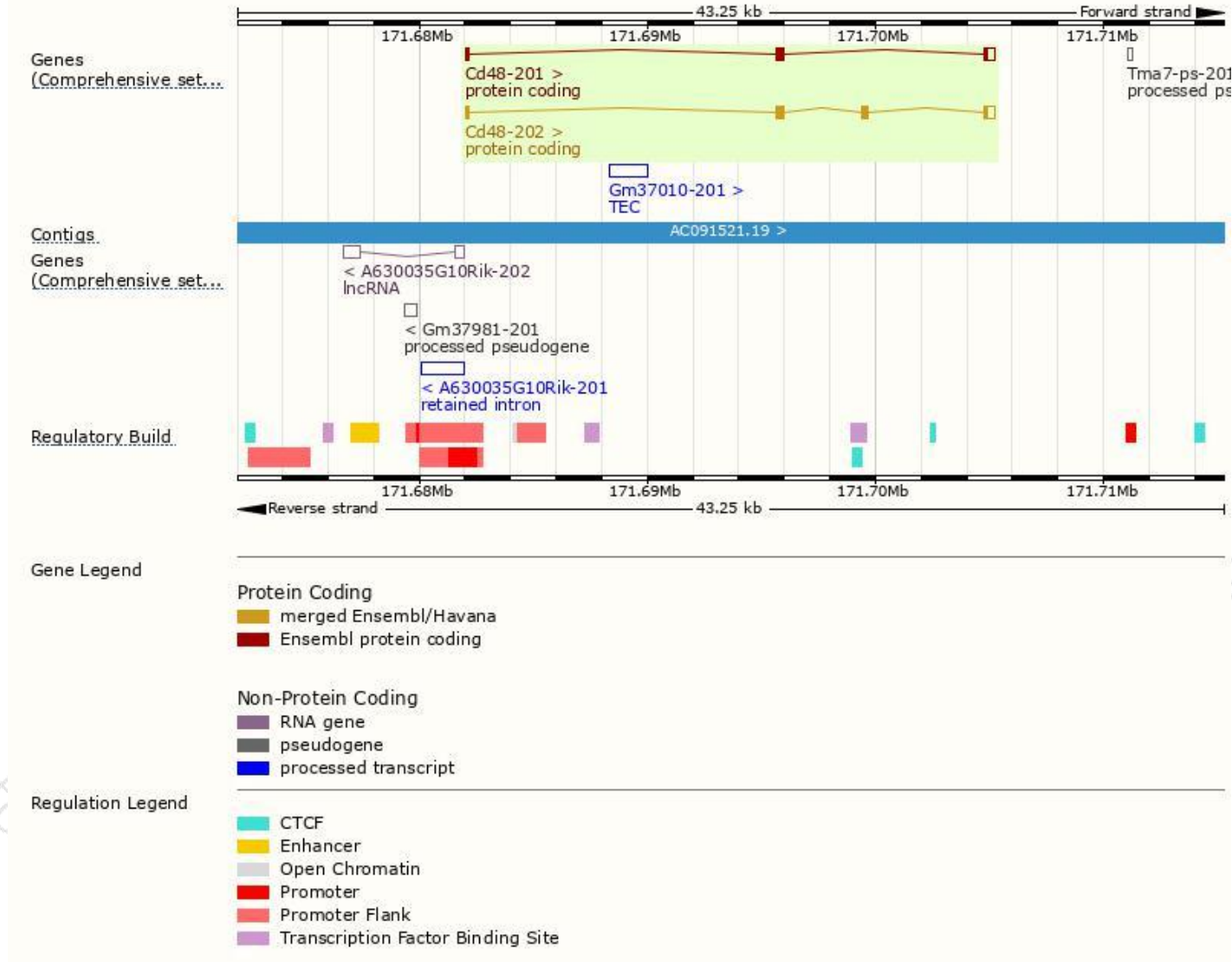
The gene has 2 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Cd48-202	<a href="#">ENSMUST00000068584.6</a>	1186	<a href="#">240aa</a>	<a href="#">ENSMUSP00000064241.5</a>	Protein coding	<a href="#">CCDS15501</a>	<a href="#">P18181</a>	TSL:1 GENCODE basic APPRIS P1
Cd48-201	<a href="#">ENSMUST00000015499.13</a>	922	<a href="#">151aa</a>	<a href="#">ENSMUSP00000015499.7</a>	Protein coding	-	<a href="#">F8WHM0</a>	TSL:1 GENCODE basic

The strategy is based on the design of *Cd48-202* transcript, The transcription is shown below

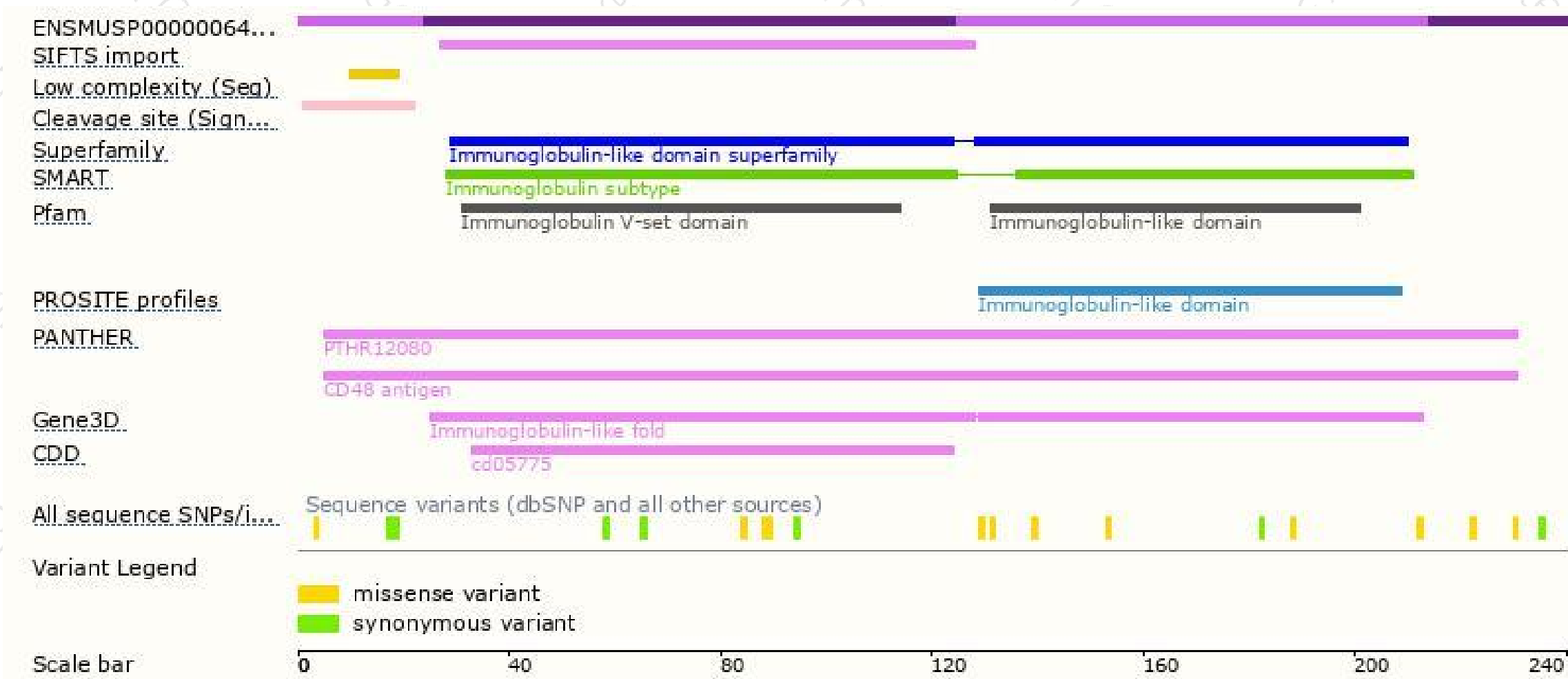


# Genomic location distribution



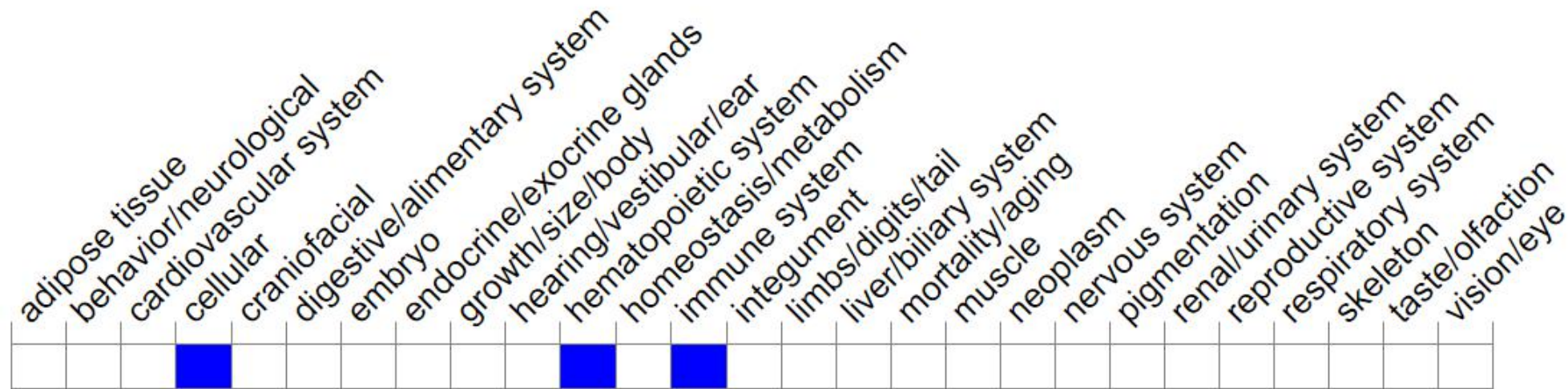


# Protein domain



# 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, Homozygous mutation of this gene results in a slight increase in CD4+CD8- thymocytes and impaired T cell proliferation in response to mitogens, anti-CD3 antibodies, and alloantigens.

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

Tel: 400-9660890

