

# *Cd79b* Cas9-KO Strategy

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**Reviewer:**

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# Project Overview

**Project Name**

***Cd79b***

**Project type**

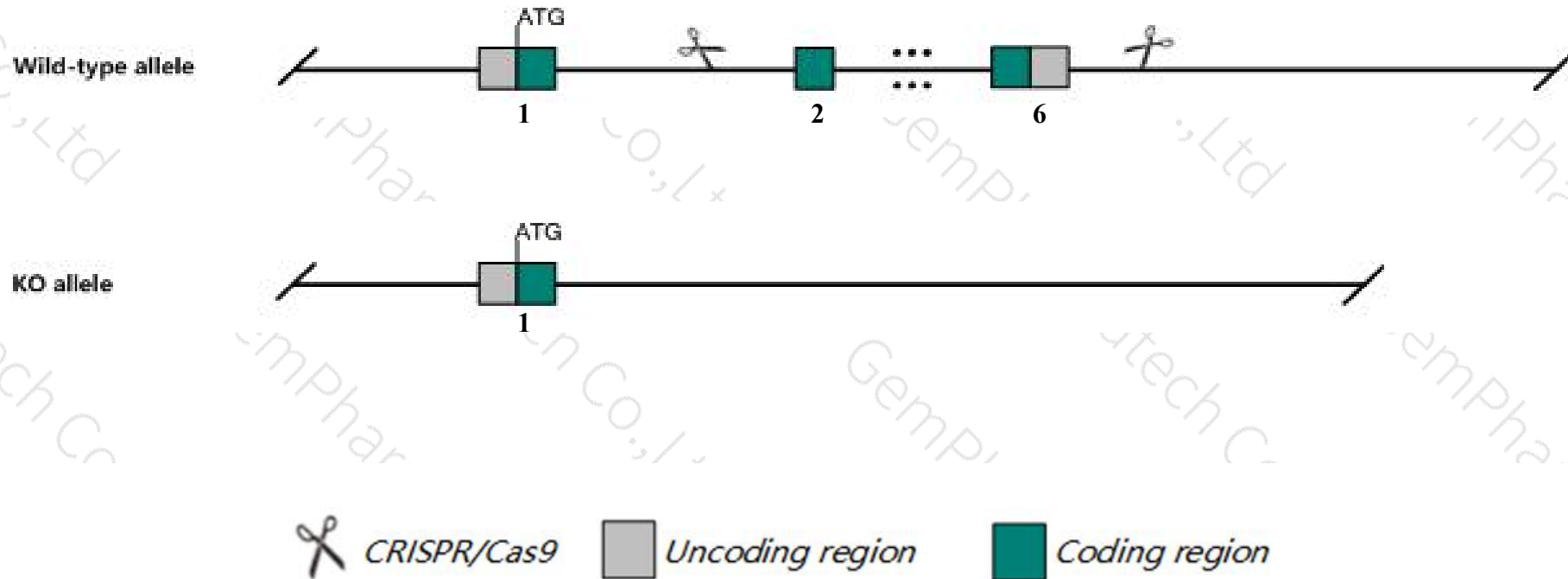
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cd79b* gene. The schematic diagram is as follows:



- The *Cd79b* gene has 2 transcripts. According to the structure of *Cd79b* gene, exon2-exon6 of *Cd79b-202* (ENSMUST00000167143.1) transcript is recommended as the knockout region. The region contains 620bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Cd79b* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygotes for targeted null mutations exhibit arrested development of B cells at the pro-B cell stage due to diminished signaling of the B cell receptor.
- The *Cd79b* gene is located on the Chr11. 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)

## Cd79b CD79B antigen [ *Mus musculus* (house mouse) ]

Gene ID: 15985, updated on 11-Sep-2019

### Summary

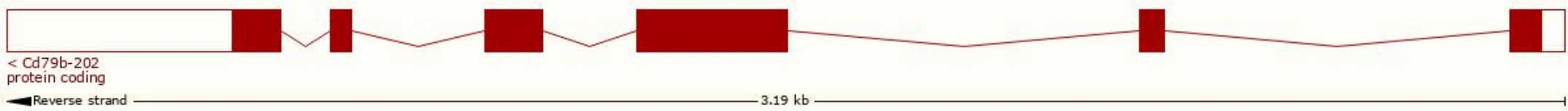
<b>Official Symbol</b>	Cd79b provided by <a href="#">MGI</a>
<b>Official Full Name</b>	CD79B antigen provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:96431</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000040592</a>
<b>Gene type</b>	protein coding
<b>RefSeq status</b>	REVIEWED
<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>	B29; Igb; Igbeta; Ig-beta
<b>Summary</b>	The B lymphocyte antigen receptor is a multimeric complex that includes the antigen-specific component, surface immunoglobulin (Ig). Surface Ig non-covalently associates with two other proteins, Ig-alpha and Ig-beta, which are necessary for expression and function of the B-cell antigen receptor. This gene encodes the Ig-beta protein of the B-cell antigen component. Alternatively spliced transcript variants encoding different isoforms have been described. [provided by RefSeq, Sep 2015]
<b>Expression</b>	Biased expression in spleen adult (RPKM 246.8), mammary gland adult (RPKM 54.7) and 2 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

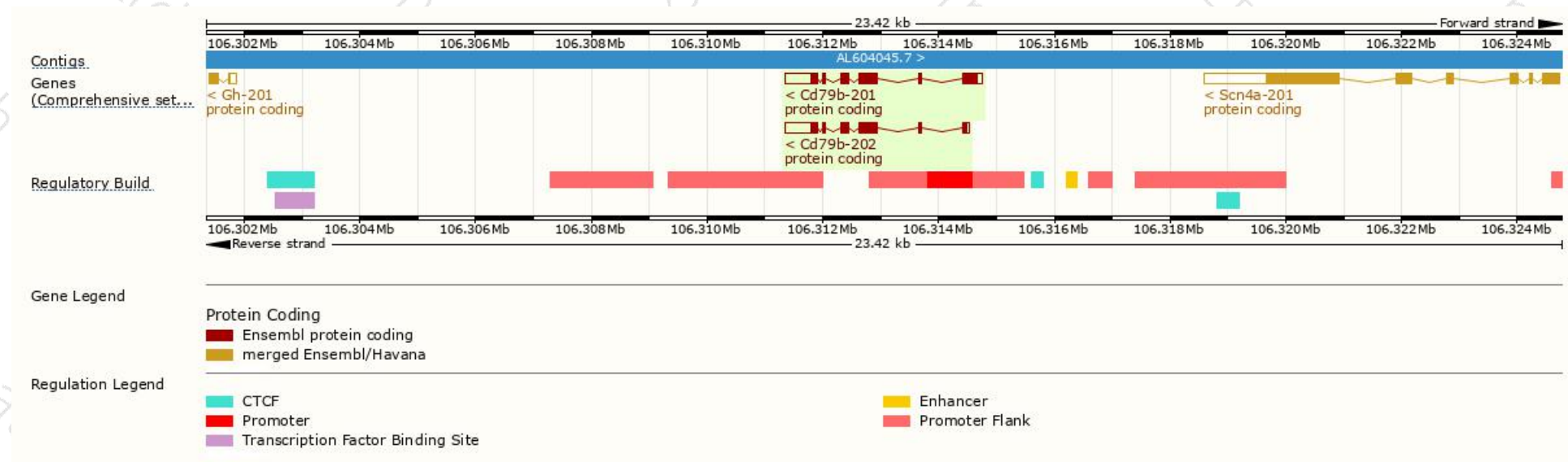
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cd79b-202	<a href="#">ENSMUST00000167143.1</a>	1195	<a href="#">228aa</a>	Protein coding	<a href="#">CCDS48960</a>	<a href="#">P15530</a>	TSL:1 GENCODE basic APPRIS P2
Cd79b-201	<a href="#">ENSMUST00000044228.10</a>	1431	<a href="#">288aa</a>	Protein coding	-	<a href="#">B1ARJ9</a>	TSL:1 GENCODE basic APPRIS ALT2

The strategy is based on the design of *Cd79b-202* transcript,The transcription is shown below

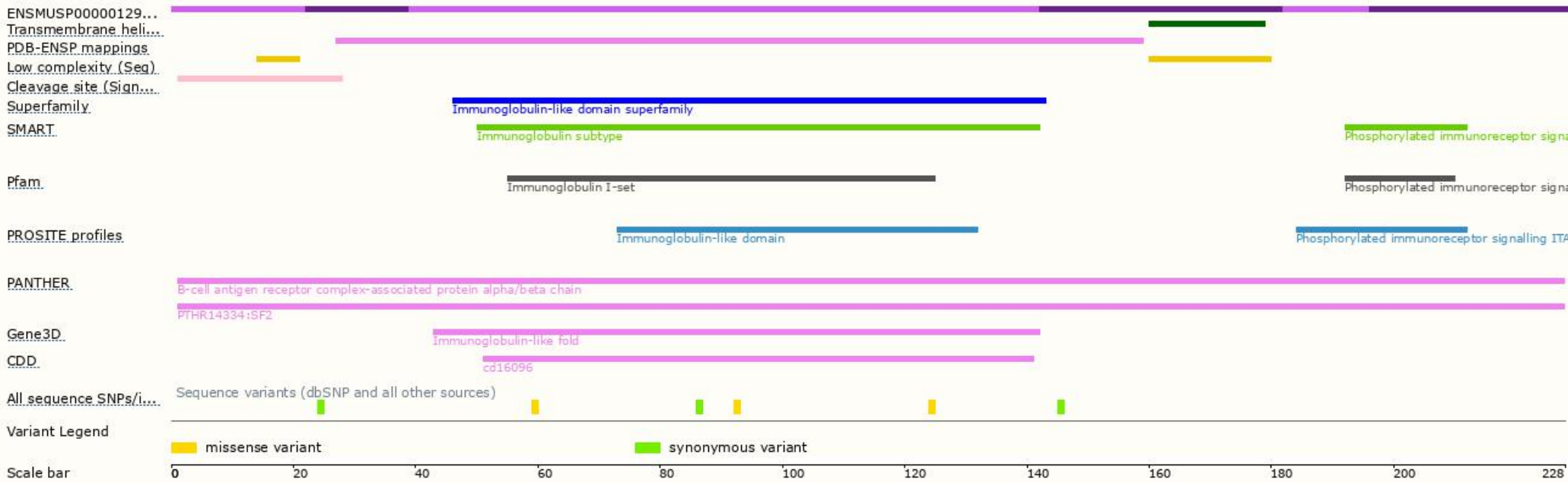


# Genomic location distribution

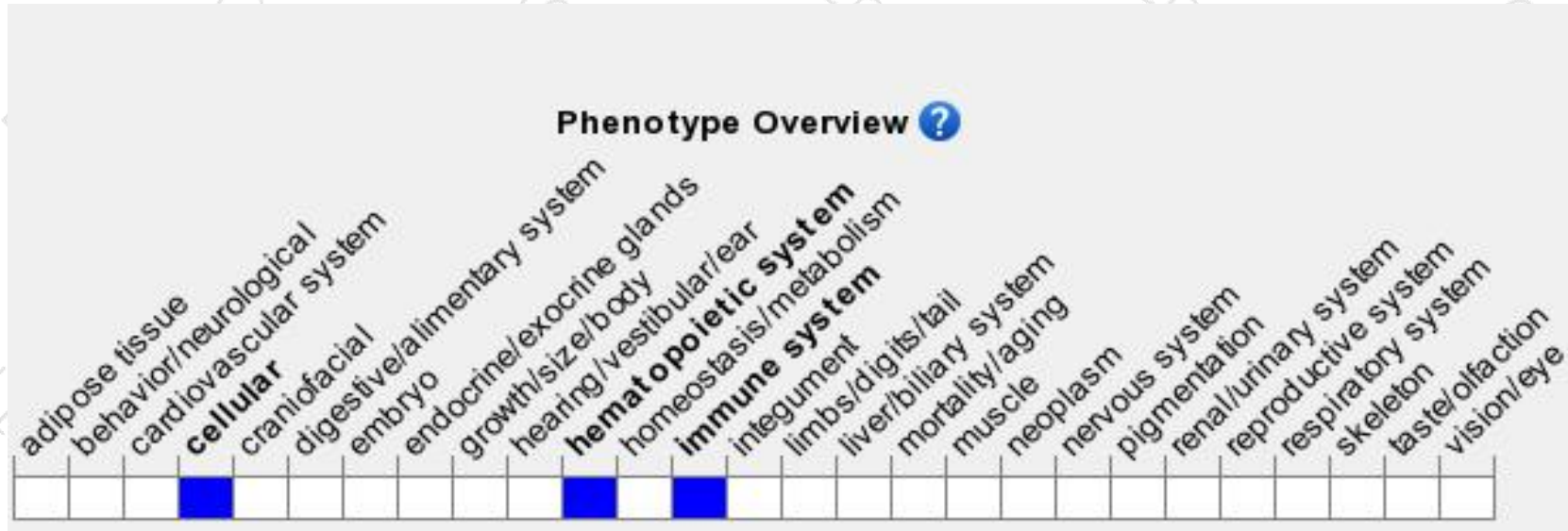




# Protein domain



# 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, Homozygotes for targeted null mutations exhibit arrested development of B cells at the pro-B cell stage due to diminished signaling of the B cell receptor.

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

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