

# *Il27ra* Cas9-KO Strategy

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# Project Overview

**Project Name**

*Il27ra*

**Project type**

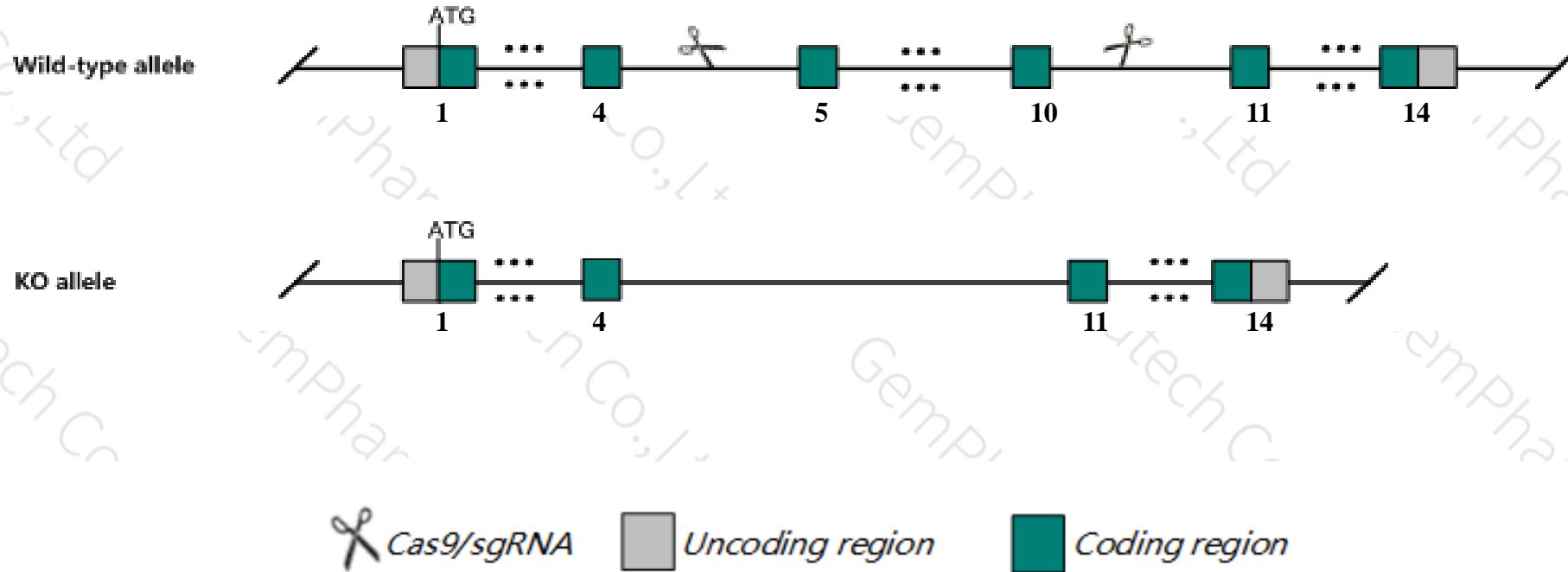
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Il27ra* gene. The schematic diagram is as follows:



- The *Il27ra* gene has 3 transcripts. According to the structure of *Il27ra* gene, exon5-exon10 of *Il27ra-201* (ENSMUST00000005601.8) transcript is recommended as the knockout region. The region contains 865bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Il27ra* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA 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.

- According to the existing MGI data, T helper 1 response and responses to parasitic and bacterial infection are altered in homozygous mutant mice.
- Transcript *Il27ra-203* may not be affected. The KO region is close to 3'UTR region of the *Palm3* and *Rln3* gene. Knockout the region may affect the regulation of *Palm3* and *Rln3* gene.
- The *Il27ra* gene is located on the Chr8. 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)

## Il27ra interleukin 27 receptor, alpha [Mus musculus (house mouse)]

Gene ID: 50931, updated on 9-Apr-2019

### Summary



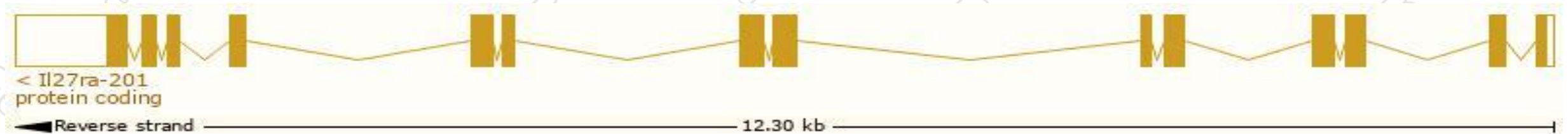
<b>Official Symbol</b>	Il27ra provided by <a href="#">MGI</a>
<b>Official Full Name</b>	interleukin 27 receptor, alpha provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:1355318</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000005465</a>
<b>Gene type</b>	protein coding
<b>RefSeq status</b>	VALIDATED
<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>	CRL1, IL-27R, Tccr, WSX-1, Wsx1, zcytor1
<b>Expression</b>	Biased expression in spleen adult (RPKM 26.4), thymus adult (RPKM 23.9) and 8 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

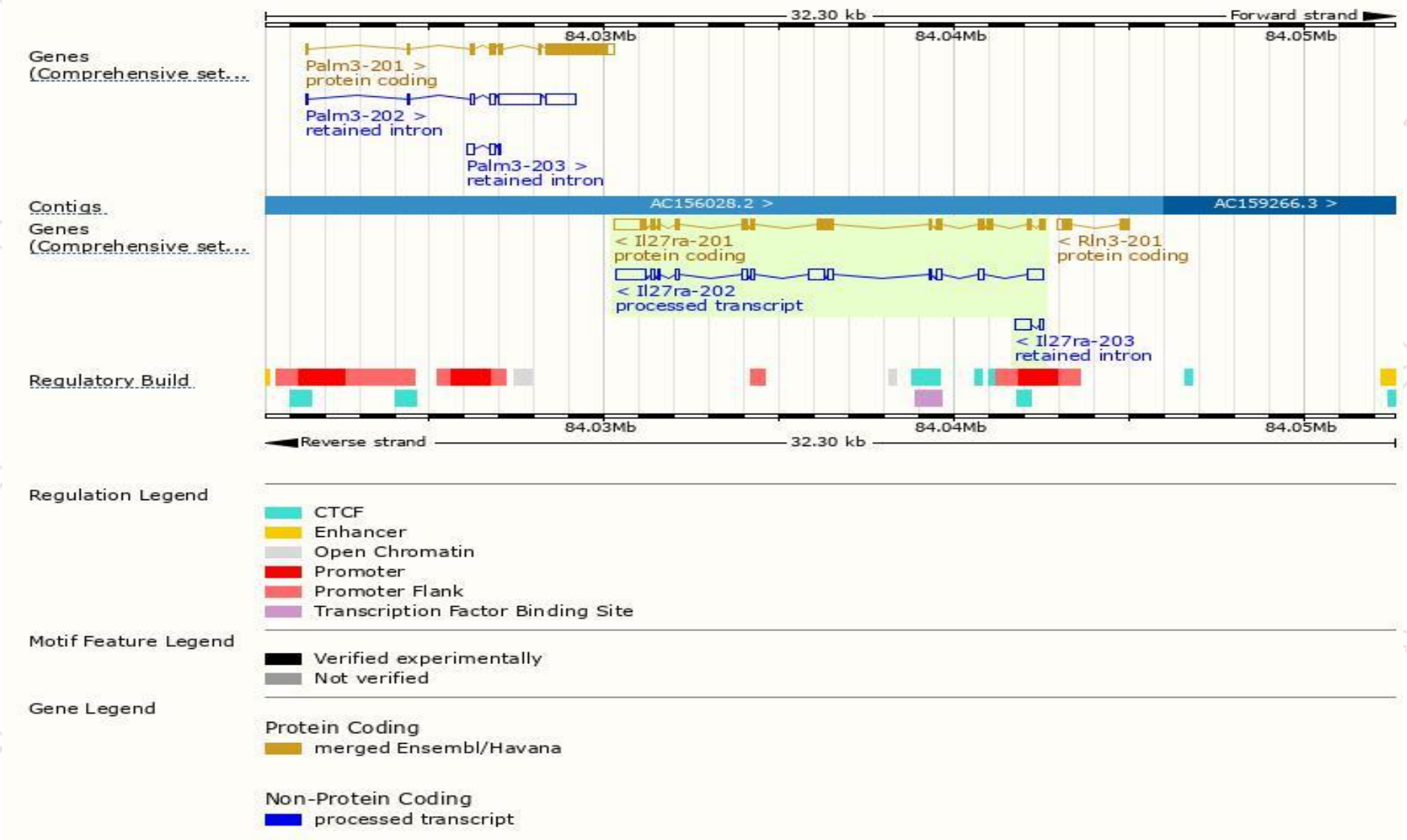
The gene has 3 transcripts, all transcripts are shown below:

Name ▲	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Il27ra-201	<a href="#">ENSMUST00000005601.8</a>	2664	<a href="#">623aa</a>	<a href="#">ENSMUSP00000005601.7</a>	Protein coding	<a href="#">CCDS22465</a>	<a href="#">O70394</a>	TSL:1 GENCODE basic APPRIS P1
Il27ra-202	<a href="#">ENSMUST00000210245.1</a>	2931	No protein	-	lncRNA	-	-	TSL:2
Il27ra-203	<a href="#">ENSMUST00000210790.1</a>	527	No protein	-	Retained intron	-	-	TSL:2

The strategy is based on the design of *Il27ra-201* transcript, The transcription is shown below

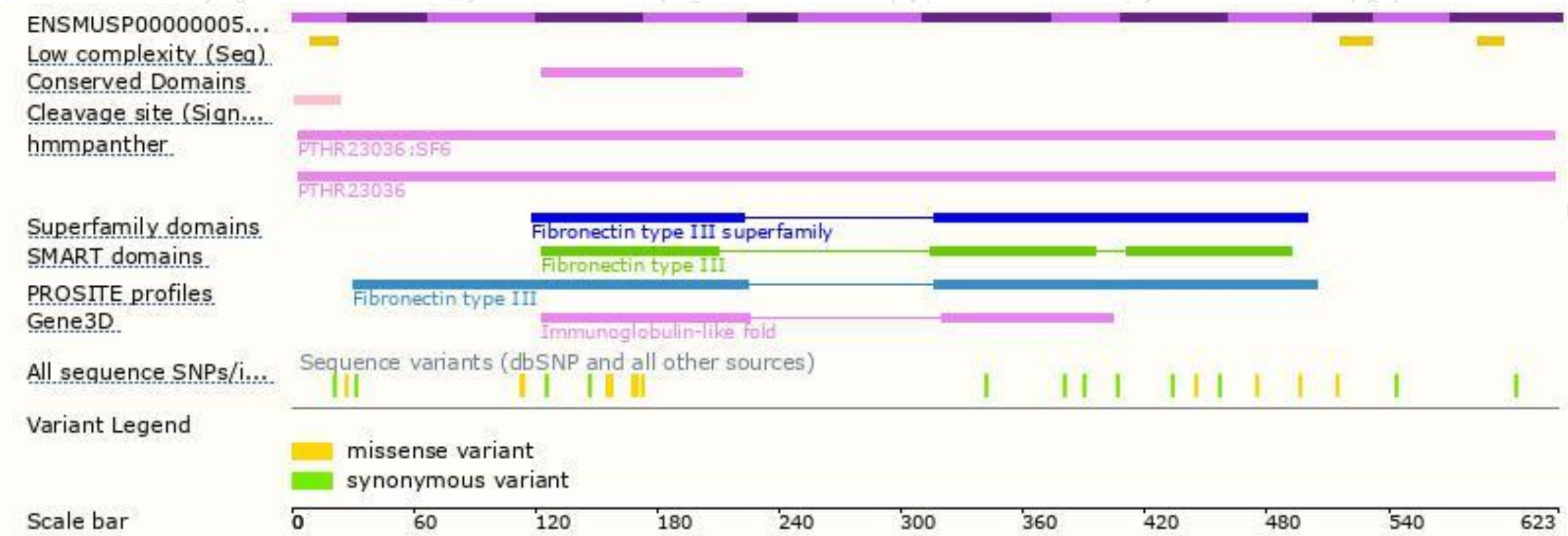


# Genomic location distribution

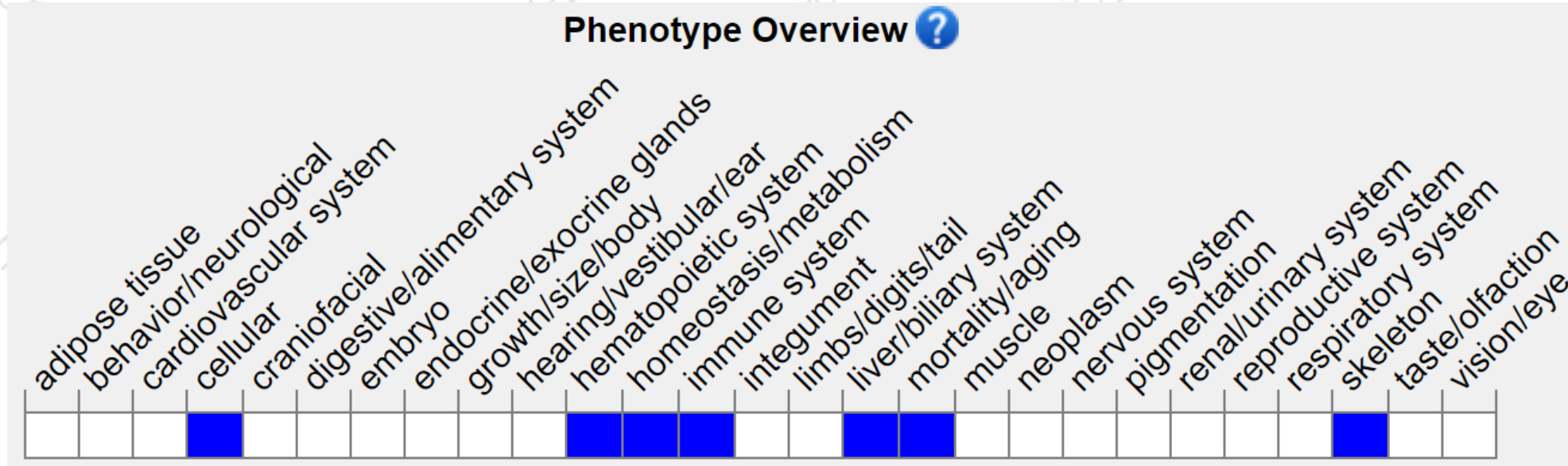




# Protein domain



# Mouse phenotype description(MGI )



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

According to the existing MGI data, T helper 1 response and responses to parasitic and bacterial infection are altered in homozygous mutant mice.

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

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