

Nectin4 Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Nectin4

Project type

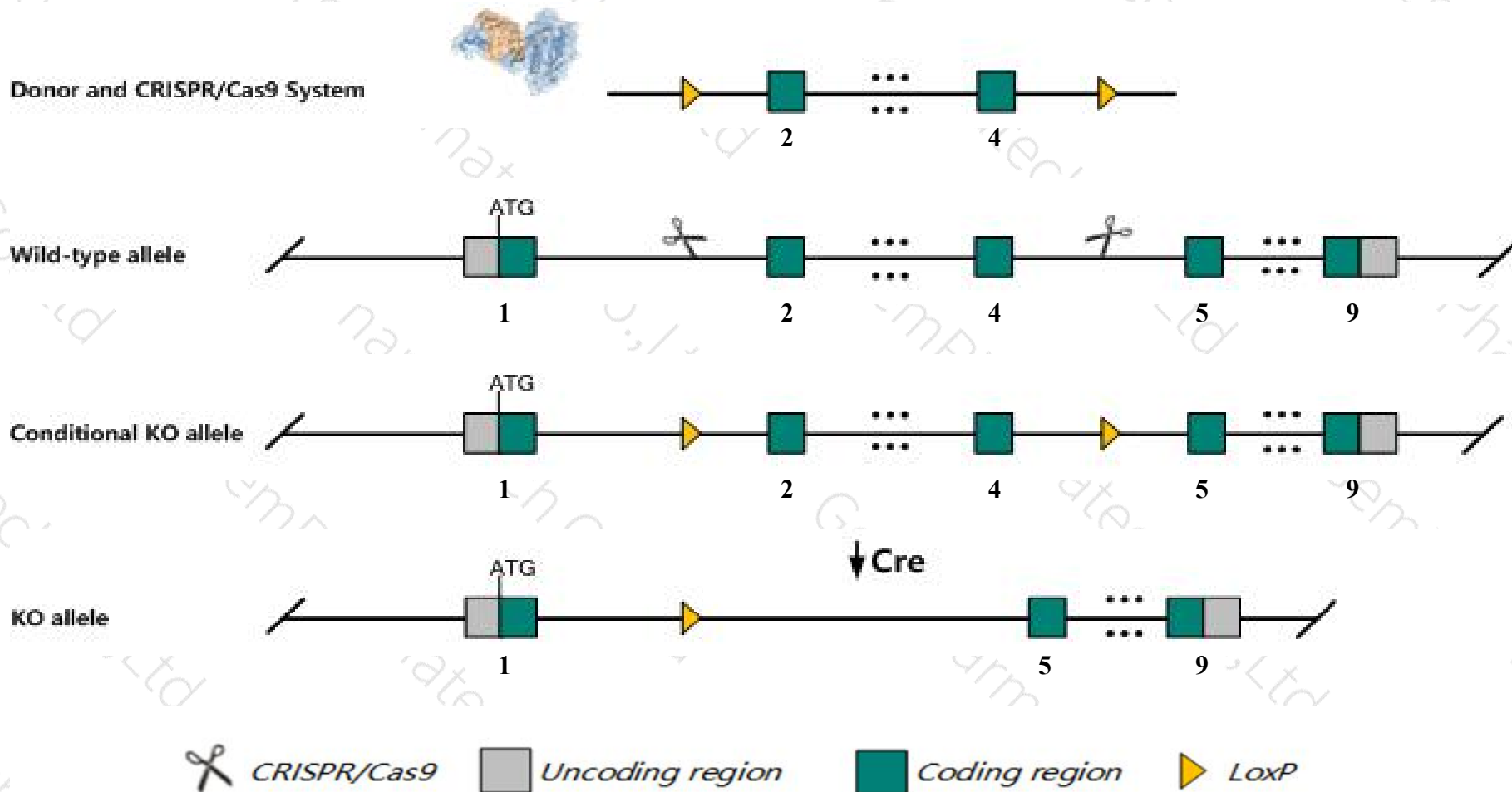
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Nectin4* gene. The schematic diagram is as follows:



Technical routes

- The *Nectin4* gene has 3 transcripts. According to the structure of *Nectin4* gene, exon2-exon4 of *Nectin4-201* (ENSMUST00000006578.9) transcript is recommended as the knockout region. The region contains 772bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Nectin4* 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

- The *Nectin4* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Nectin4 nectin cell adhesion molecule 4 [*Mus musculus* (house mouse)]

Gene ID: 71740, updated on 13-Mar-2020

Summary

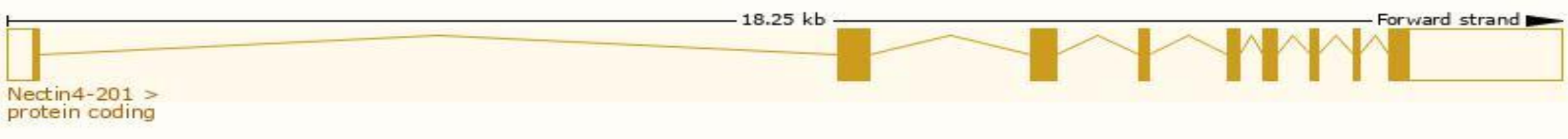
Official Symbol	Nectin4 provided by MGI
Official Full Name	nectin cell adhesion molecule 4 provided by MGI
Primary source	MGI:MGI:1918990
See related	Ensembl:ENSMUSG00000006411
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Prr4; Pvr14; 1200017F15Rik
Expression	Broad expression in bladder adult (RPKM 13.9), genital fat pad adult (RPKM 9.3) and 15 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

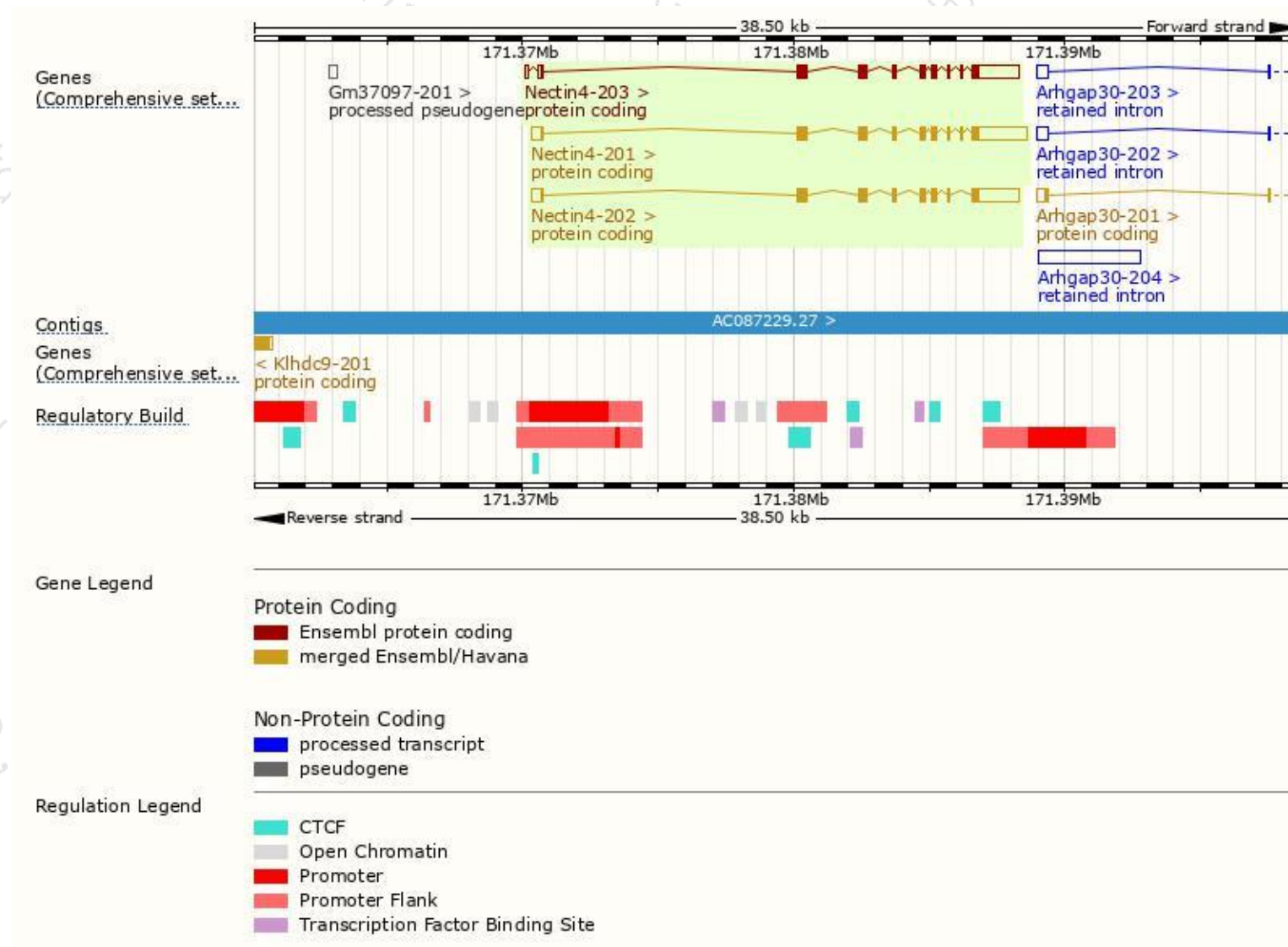
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Nectin4-201	ENSMUST00000006578.9	3636	508aa	Protein coding	CCDS15493	Q8R007	TSL:1 GENCODE basic APPRIS P3
Nectin4-202	ENSMUST00000094325.4	3245	483aa	Protein coding	CCDS48442	Q8R007	TSL:1 GENCODE basic APPRIS ALT1
Nectin4-203	ENSMUST00000111286.8	3201	508aa	Protein coding	CCDS15493	Q8R007	TSL:1 GENCODE basic APPRIS P3

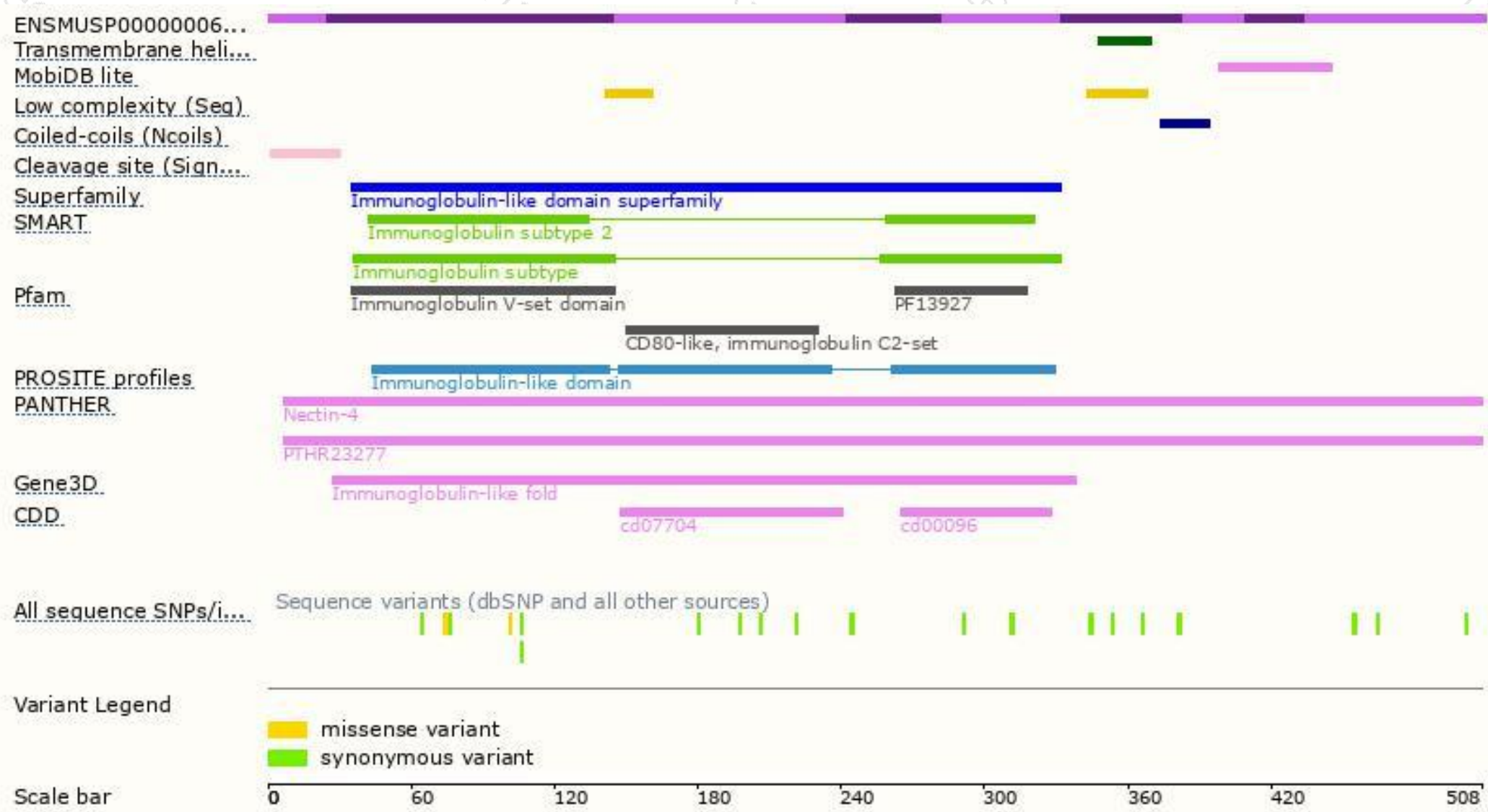
The strategy is based on the design of *Nectin4-201* transcript,The transcription is shown below



Genomic location distribution

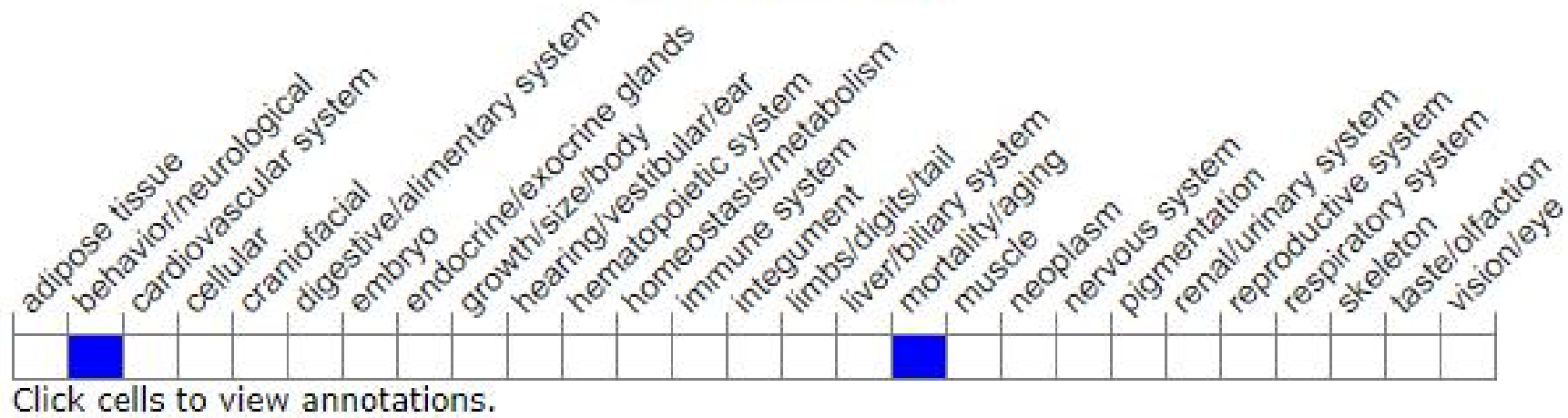


Protein domain



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/>).

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

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