

Nectin2 Cas9-CKO Strategy

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Project Overview

Project Name

Nectin2

Project type

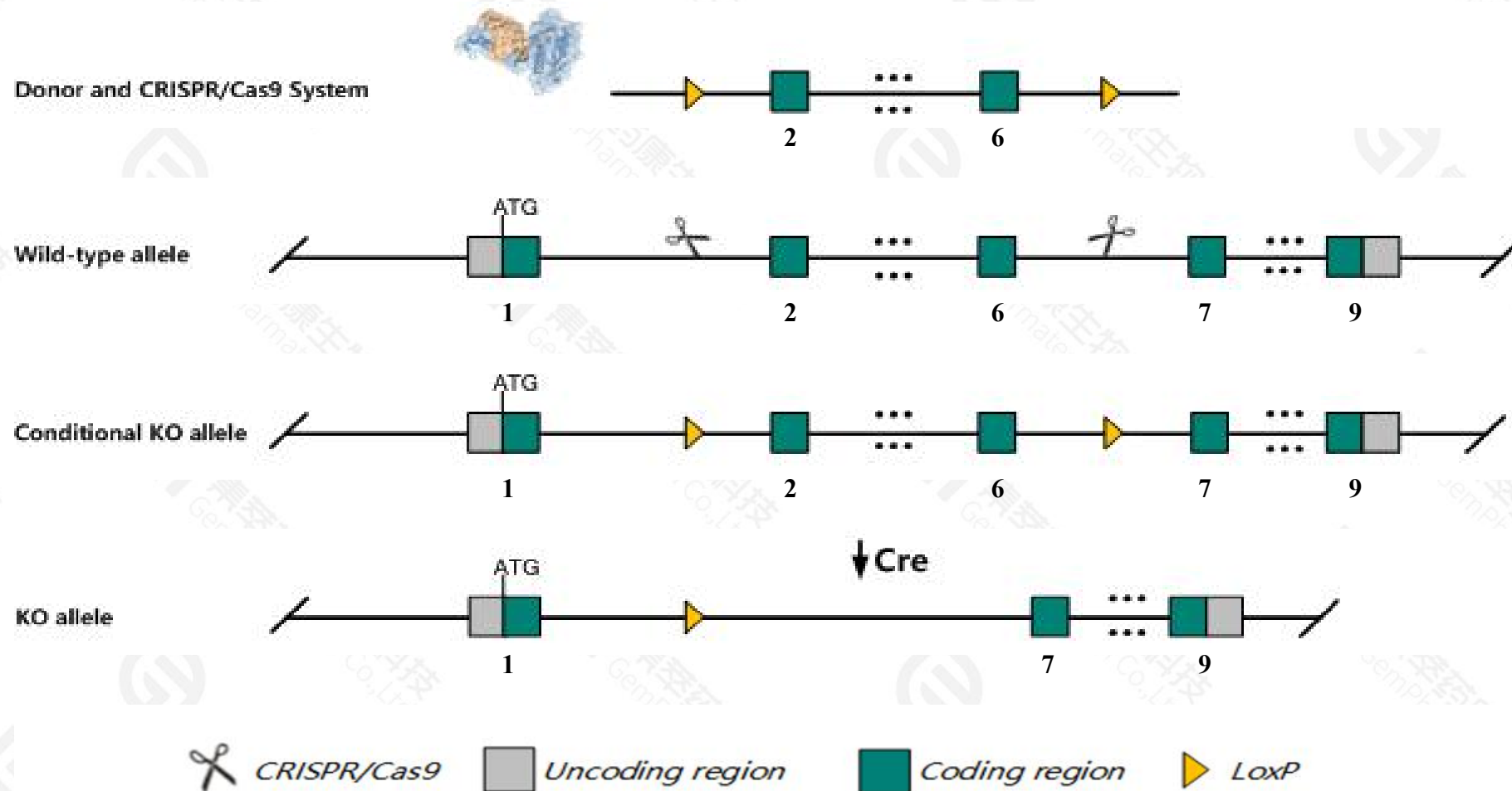
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Nectin2* gene. The schematic diagram is as follows:



- The *Nectin2* gene has 3 transcripts. According to the structure of *Nectin2* gene, exon2-exon6 of *Nectin2-201*(ENSMUST00000075447.14) transcript is recommended as the knockout region. The region contains 1081bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Nectin2* 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.

- According to the existing MGI data, mice homozygous for targeted null mutations exhibit male sterility associated with sperm head and midpiece malformation, impaired zona binding, and lack of oocyte penetration.
- The *Nectin2* gene is located on the Chr7. 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)

Nectin2 nectin cell adhesion molecule 2 [Mus musculus (house mouse)]

Gene ID: 19294, updated on 2-Feb-2021

Summary



Official Symbol Nectin2 provided by [MGI](#)

Official Full Name nectin cell adhesion molecule 2 provided by [MGI](#)

Primary source [MGI:MGI:97822](#)

See related [Ensembl:ENSMUSG00000062300](#)

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 AI325026, AI987993, Cd112, MP, MPH, P, Pvr, Pvr12, Pvs, necti, nectin-2

Expression Broad expression in duodenum adult (RPKM 62.2), colon adult (RPKM 44.8) and 24 other tissues [See more](#)

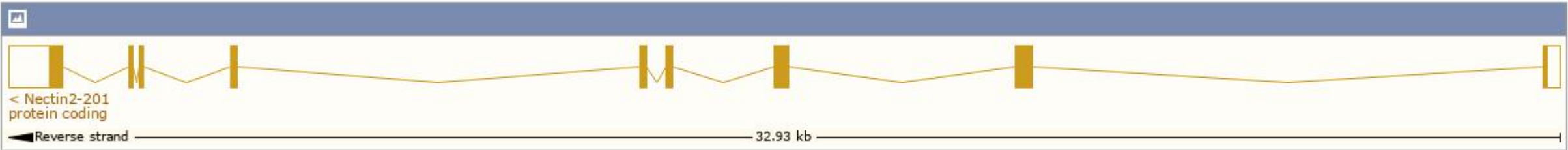
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

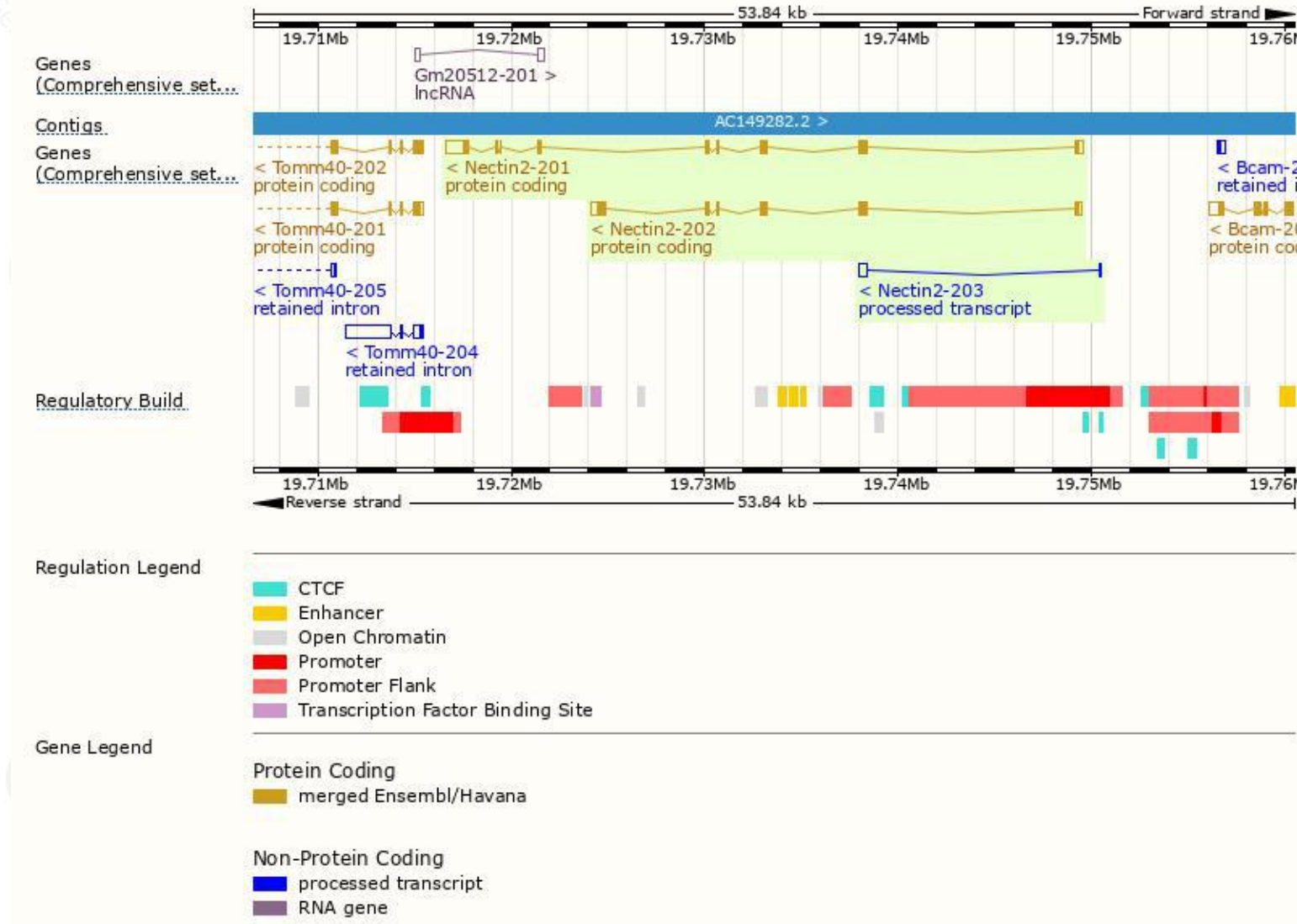
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Nectin2-201	ENSMUST00000075447.14	2735	530aa	Protein coding	CCDS20913		TSL:1 , GENCODE basic , APPRIS P3 ,
Nectin2-202	ENSMUST00000108450.5	1955	467aa	Protein coding	CCDS52063		TSL:1 , GENCODE basic , APPRIS ALT2 ,
Nectin2-203	ENSMUST00000207271.2	399	No protein	Processed transcript	-		TSL:3 ,

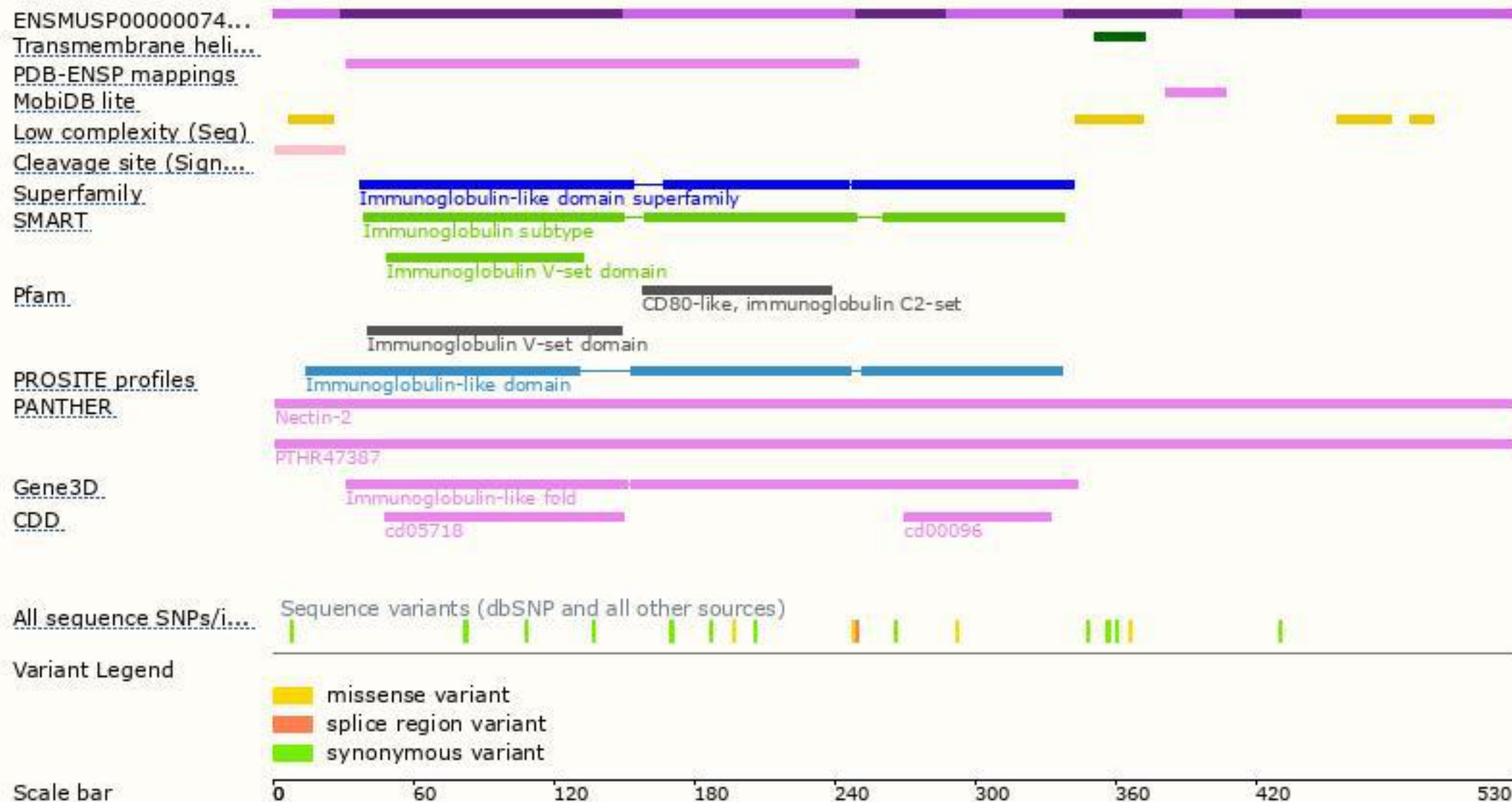
The strategy is based on the design of *Nectin2-201* transcript,the transcription is shown below:



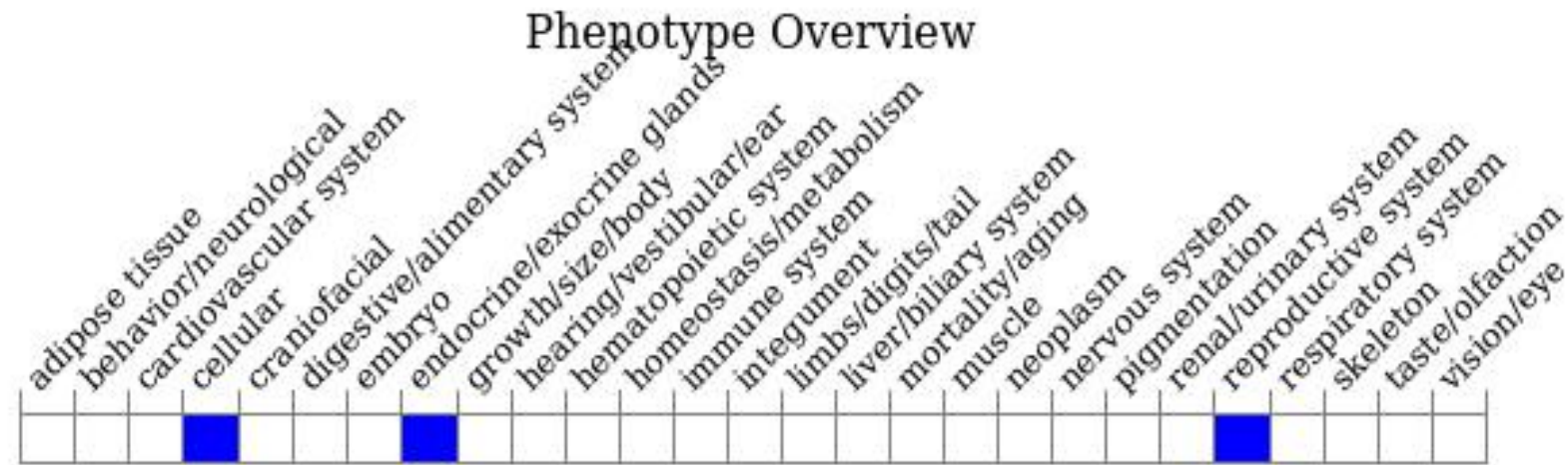
Genomic location distribution



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, mice homozygous for targeted null mutations exhibit male sterility associated with sperm head and midpiece malformation, impaired zona binding, and lack of oocyte penetration.

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