Nectin1 Cas9-CKO Strategy

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Project Overview

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Project Name	***Nectin1***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

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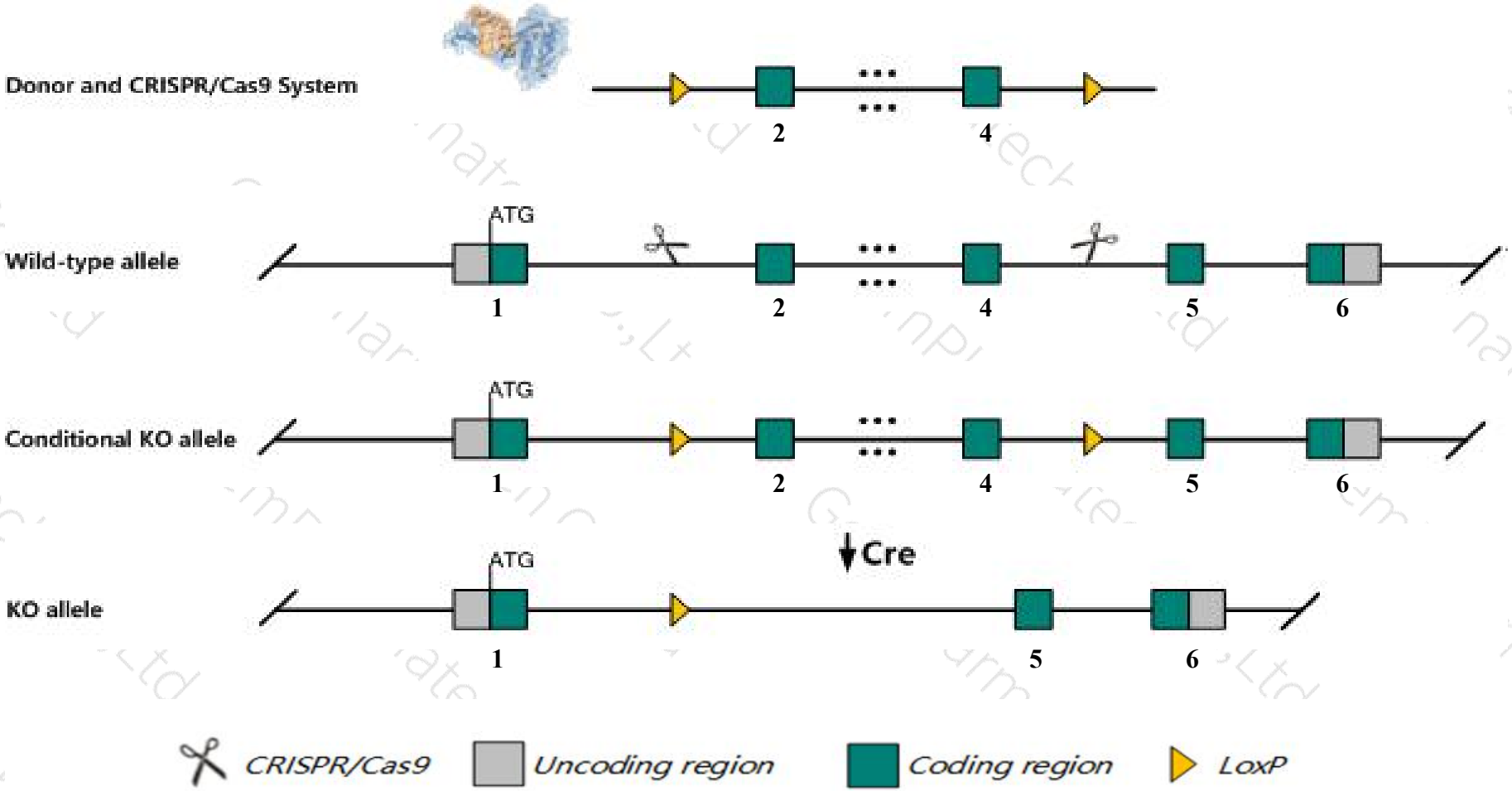
This model will use CRISPR/Cas9 technology to edit the *Nectin1* gene. The schematic diagram is as follows:



Technical routes

- The *Nectin1* gene has 2 transcripts. According to the structure of *Nectin1* gene, exon2-exon4 of *Nectin1-201* (ENSMUST00000034510.8) 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 *Nectin1* 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

➢ According to the existing MGI data,Homozygous null mice exhibit eye abnormalities including microphthalmia, absent vitreous body, abnormal ciliary body, retinal layers, and lenses, and open eyelids at birth.

➢The effect on transcript *Nectin1*-202 is unknown.

➢ The *Nectin1* gene is located on the Chr9. 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）

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Nectin1 nectin cell adhesion molecule 1 [*Mus musculus* (house mouse)]

Gene ID: 58235, updated on 1-Oct-2019

Summary

Official Symbol	Nectin1 provided by MGI
Official Full Name	nectin cell adhesion molecule 1 provided by MGI
Primary source	MGI:MGI:1926483
See related	Ensembl:ENSMUSG00000032012
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	PRR; HIgR; HveC; PRR1; Cd111; Pvrl1; AI835281; AW549174; nectin-1
Expression	Ubiquitous expression in liver adult (RPKM 17.9), ovary adult (RPKM 13.9) and 28 other tissues See more
Orthologs	human all

Genomic context

Location: 9; 9 A5.1

See Nectin1 in Genome Data Viewer

Exon count: 9

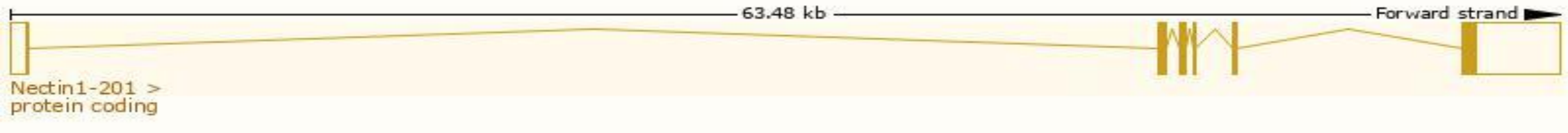
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	9	NC_000075.6 (43737075..43807461)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	9	NC_000075.5 (43552659..43615544)

Transcript information（Ensembl）

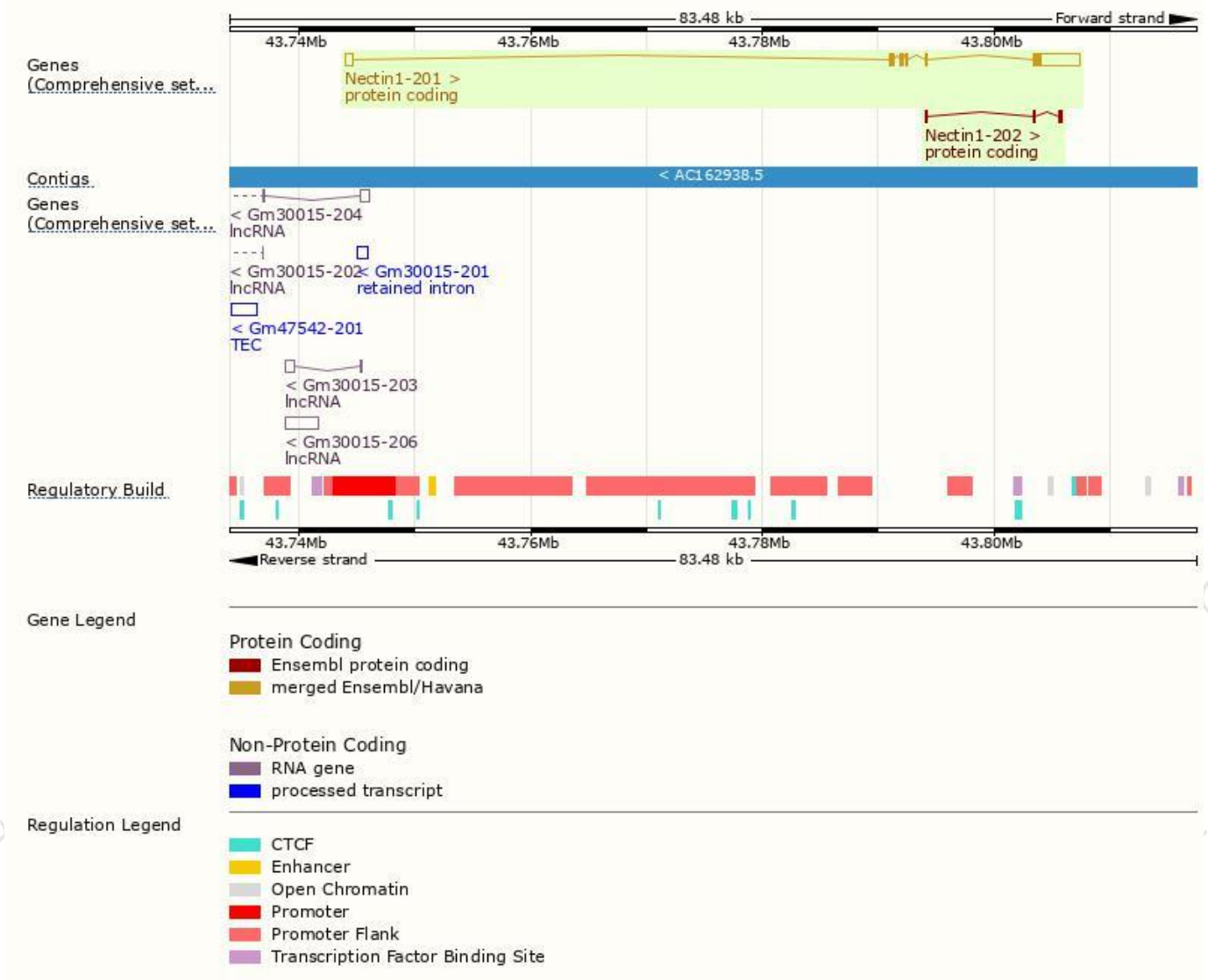
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Nectin1-201	ENSMUST00000034510.8	5653	515aa	Protein coding	CCDS23092	Q9JKF6	TSL:1 GENCODE basic APPRIS P1
Nectin1-202	ENSMUST00000216893.1	384	114aa	Protein coding	-	A0A1L1SQP1	CDS 5' incomplete TSL:5

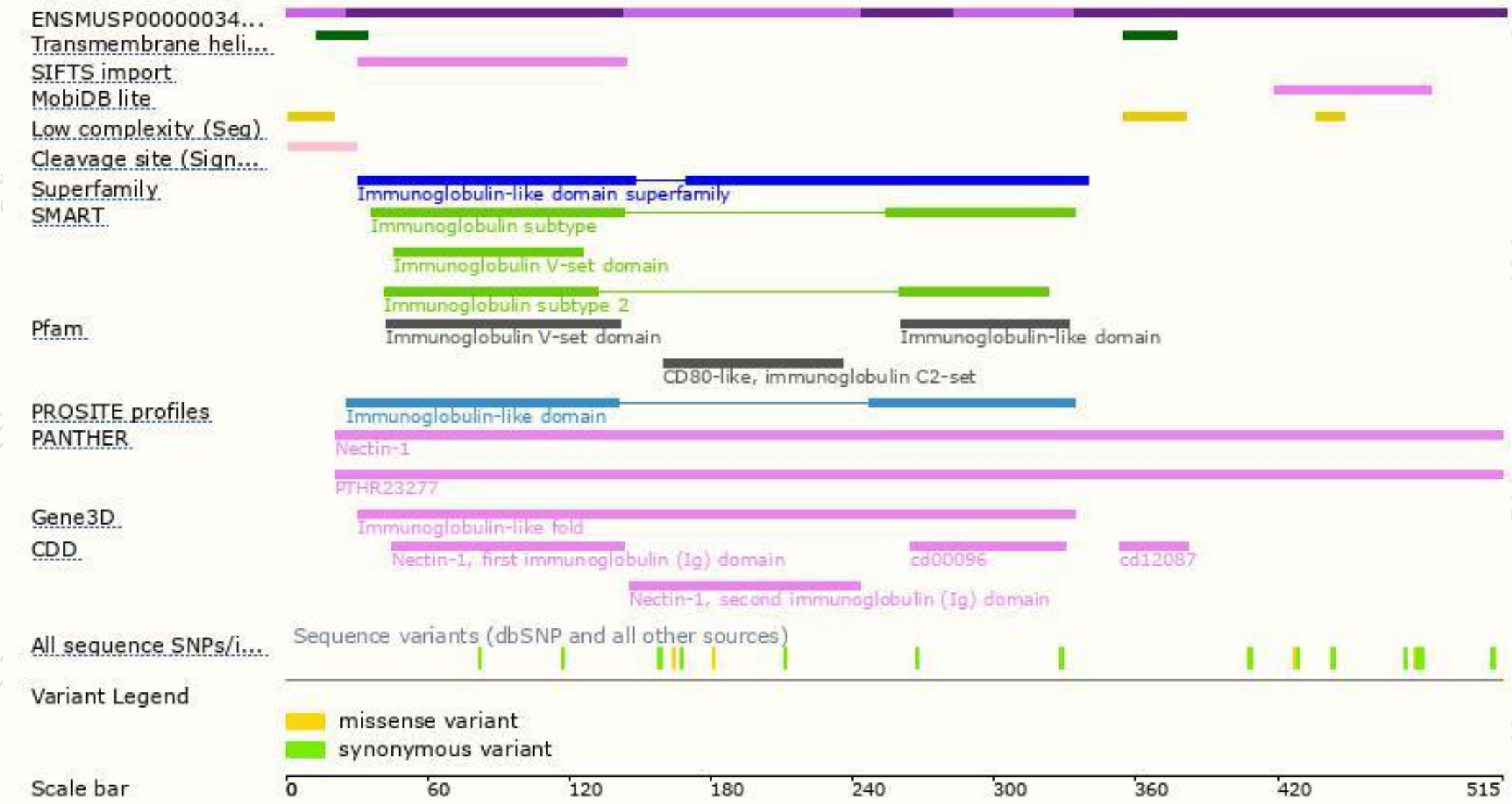
The strategy is based on the design of *Nectin1-201* transcript,The transcription is shown below



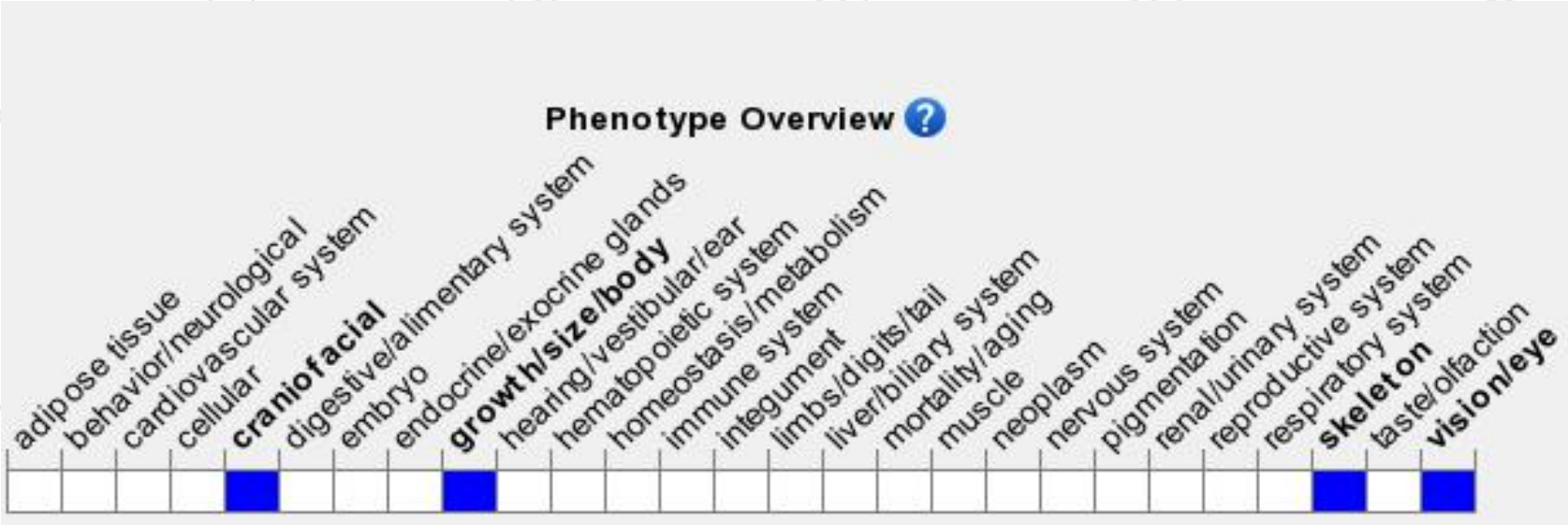
Genomic location distribution



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,Homozygous null mice exhibit eye abnormalities including microphthalmia, absent vitreous body, abnormal ciliary body, retinal layers, and lenses, and open eyelids at birth.

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

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