Erbin Cas9-CKO Strategy

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Project Overview

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

Conditional Knockout strategy

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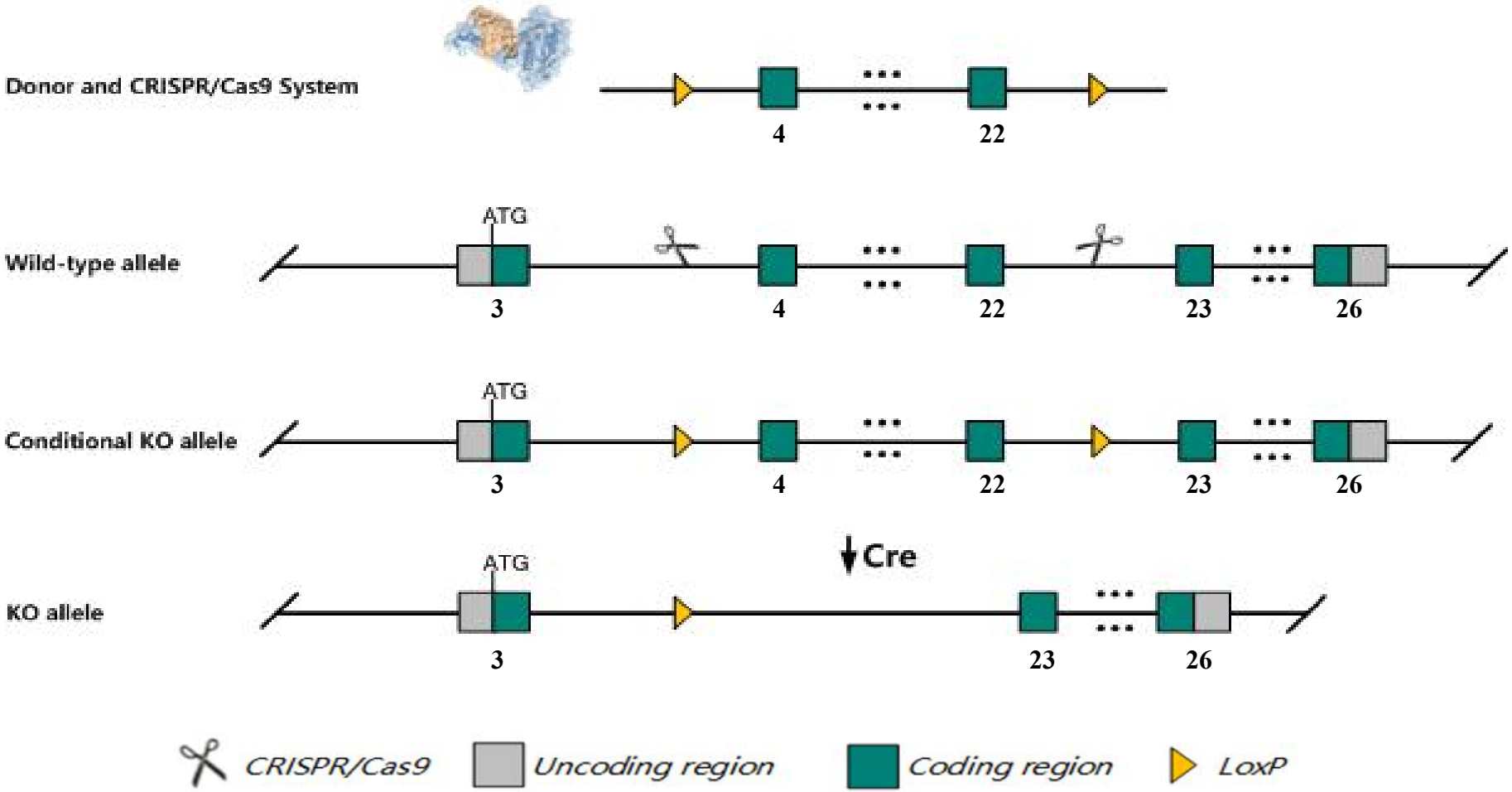
This model will use CRISPR/Cas9 technology to edit the *Erbin* gene. The schematic diagram is as follows:



Technical routes

The *Erbin* gene has 7 transcripts. According to the structure of *Erbin* gene, exon4-exon22 of *Erbin-203* (ENSMUST00000091269.10) transcript is recommended as the knockout region.The region contains most of the coding sequence.Knock out the region will result in disruption of protein function.

In this project we use CRISPR/Cas9 technology to modify *Erbin* 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,Mice homozygous for a null or gene trapped allele exhibit impaired myelination, reduced nerve conduction, and hyporesponsiveness to tactile stimuli.

The *Erbin* gene is located on the Chr13. 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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Erbin Erbb2 interacting protein [Mus musculus (house mouse)]

Gene ID: 59079, updated on 31-Jan-2019

Summary

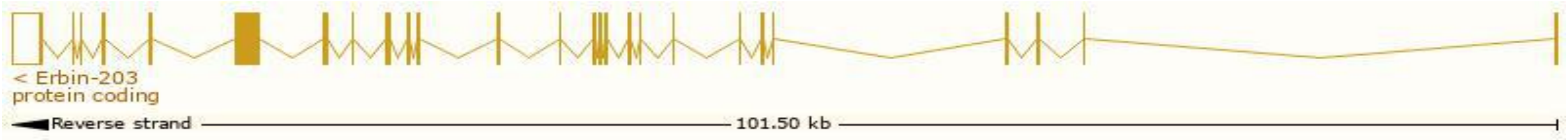
Official Symbol	Erbin provided by MGI
Official Full Name	Erbb2 interacting protein provided by MGI
Primary source	MGI:MGI:1890169
See related	Ensembl:ENSMUSG00000021709
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1700028E05Rik, Erbb2ip, mKIAA1225
Expression	Ubiquitous expression in CNS E11.5 (RPKM 14.7), limb E14.5 (RPKM 12.6) and 28 other tissues See more
Orthologs	human all

Transcript information Ensembl

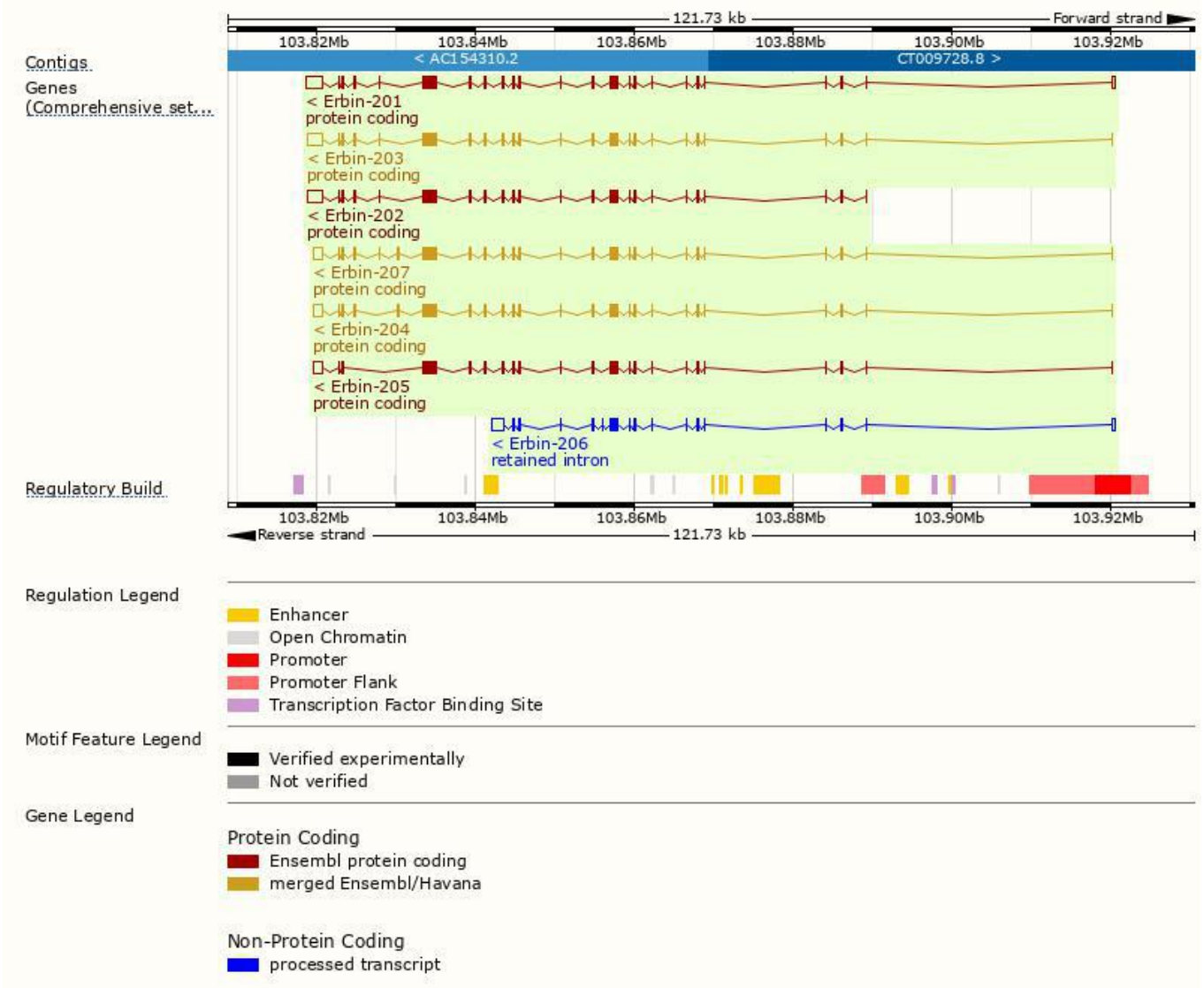
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Erbin-203	ENSMUST00000091269.10	6224	1402aa	Protein coding	CCDS79233	Q80TH2	TSL:1 GENCODE basic APPRIS ALT2
Erbin-207	ENSMUST00000191275.6	5552	1450aa	Protein coding	CCDS26744	B2RUK2 Q80TH2	TSL:1 GENCODE basic APPRIS P3
Erbin-204	ENSMUST00000169083.7	5435	1411aa	Protein coding	CCDS79234	B7ZNX6	TSL:1 GENCODE basic APPRIS ALT2
Erbin-205	ENSMUST00000188997.6	5084	1294aa	Protein coding	CCDS79232	B2RUJ2	TSL:1 GENCODE basic APPRIS ALT2
Erbin-201	ENSMUST00000022222.11	6369	1376aa	Protein coding	-	Q80TH2	TSL:5 GENCODE basic APPRIS ALT2
Erbin-202	ENSMUST00000053927.11	6103	1376aa	Protein coding	-	Q80TH2	TSL:5 GENCODE basic APPRIS ALT2
Erbin-206	ENSMUST00000189323.1	3446	No protein	Retained intron	-	-	TSL:5

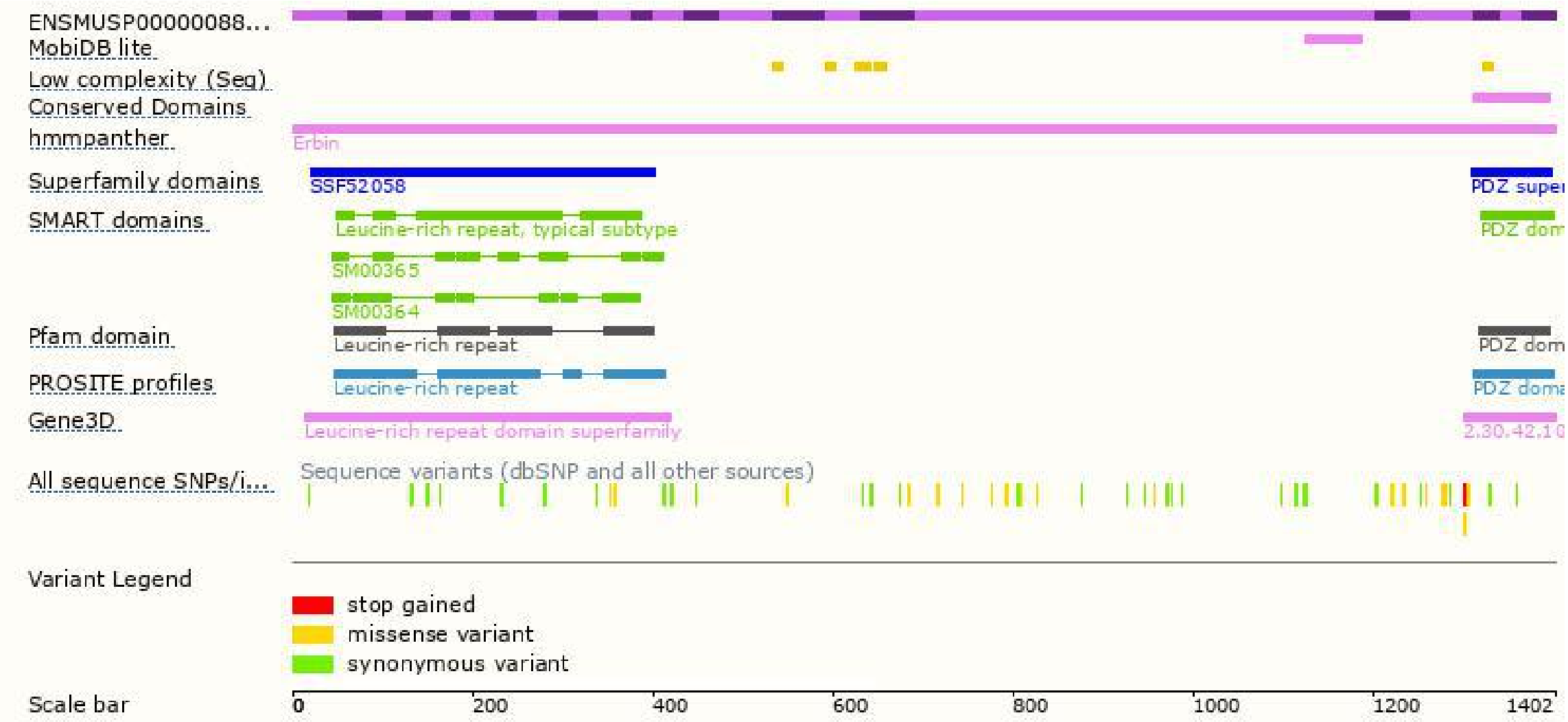
The strategy is based on the design of *Erbin-203* transcript,The transcription is shown below



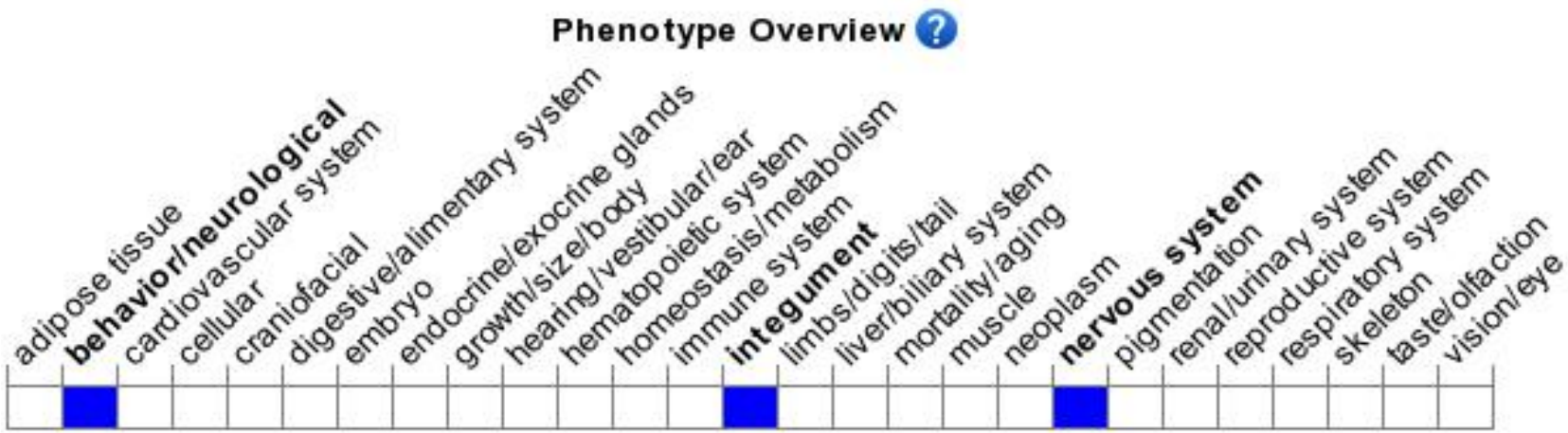
Genomic location distribution



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 a null or gene trapped allele exhibit impaired myelination, reduced nerve conduction, and hyporesponsiveness to tactile stimuli.

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