

Elp1 Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Elp1

Project type

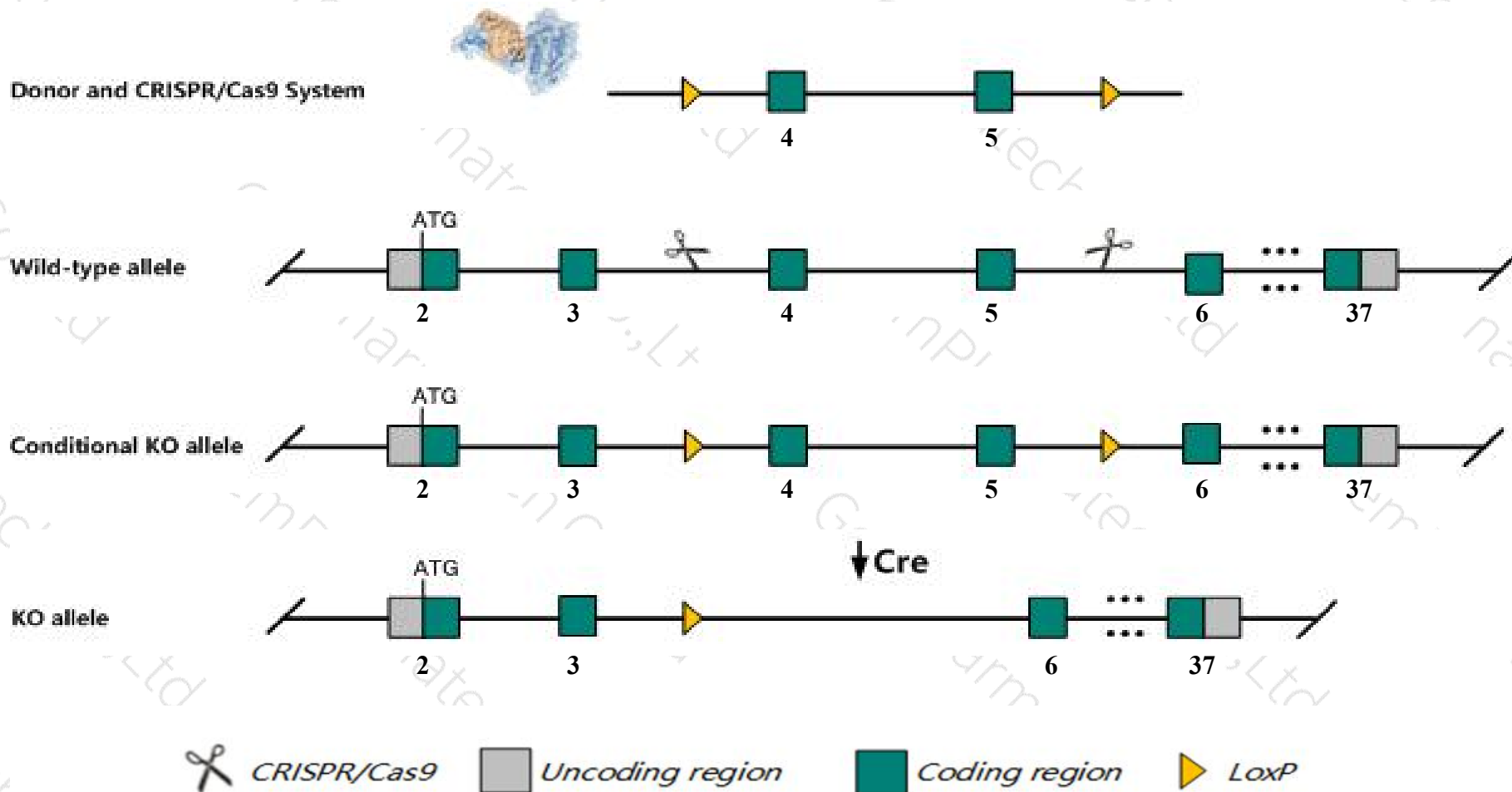
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Elp1* gene. The schematic diagram is as follows:



Technical routes

- The *Elp1* gene has 6 transcripts. According to the structure of *Elp1* gene, exon4-exon5 of *Elp1-201* (ENSMUST00000030140.2) transcript is recommended as the knockout region. The region contains 163bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Elp1* 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 a null allele exhibit embryonic lethality with arrested neural and vascular development.
- The *Elp1* gene is located on the Chr4. 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)

Elp1 elongator complex protein 1 [Mus musculus (house mouse)]

Gene ID: 230233, updated on 19-Mar-2019

Summary



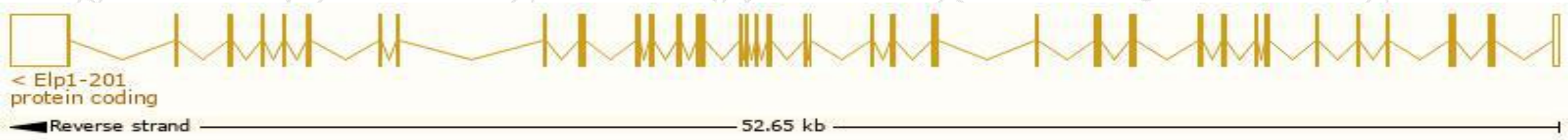
Official Symbol	Elp1 provided by MGI
Official Full Name	elongator complex protein 1 provided by MGI
Primary source	MGI:MGI:1914544
See related	Ensembl:ENSMUSG00000028431
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	3110040G09Rik, 6030413P05, C78473, IKAP, Ikbkap
Expression	Broad expression in CNS E18 (RPKM 13.8), CNS E11.5 (RPKM 13.3) and 25 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

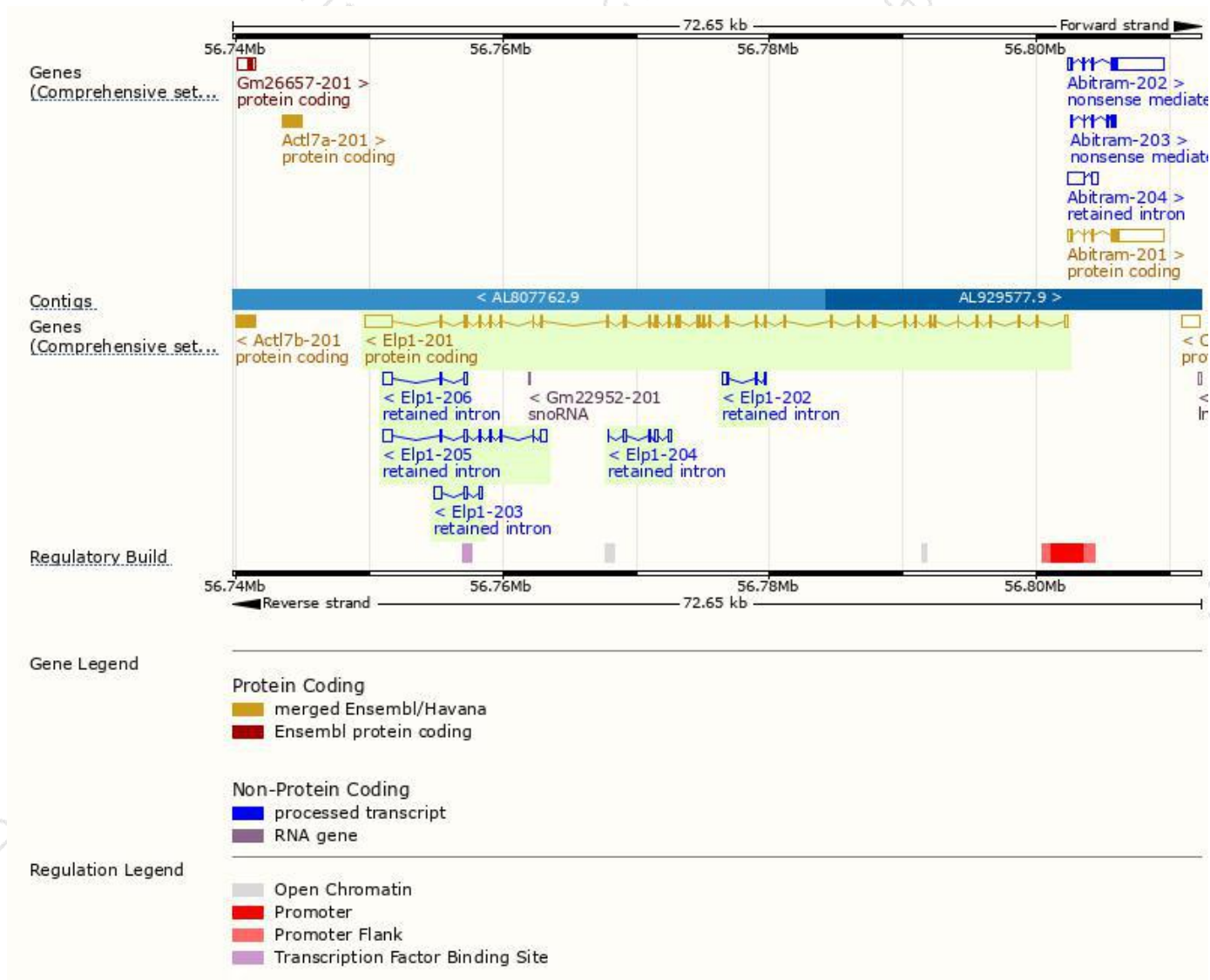
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Elp1-201	ENSMUST00000030140.2	6160	1333aa	Protein coding	CCDS38765	Q7TT37	TSL:1 GENCODE basic APPRIS P1
Elp1-205	ENSMUST00000150002.7	1841	No protein	Retained intron	-	-	TSL:1
Elp1-206	ENSMUST00000171411.7	953	No protein	Retained intron	-	-	TSL:1
Elp1-203	ENSMUST00000139445.1	846	No protein	Retained intron	-	-	TSL:3
Elp1-204	ENSMUST00000140595.1	680	No protein	Retained intron	-	-	TSL:5
Elp1-202	ENSMUST00000126441.1	571	No protein	Retained intron	-	-	TSL:5

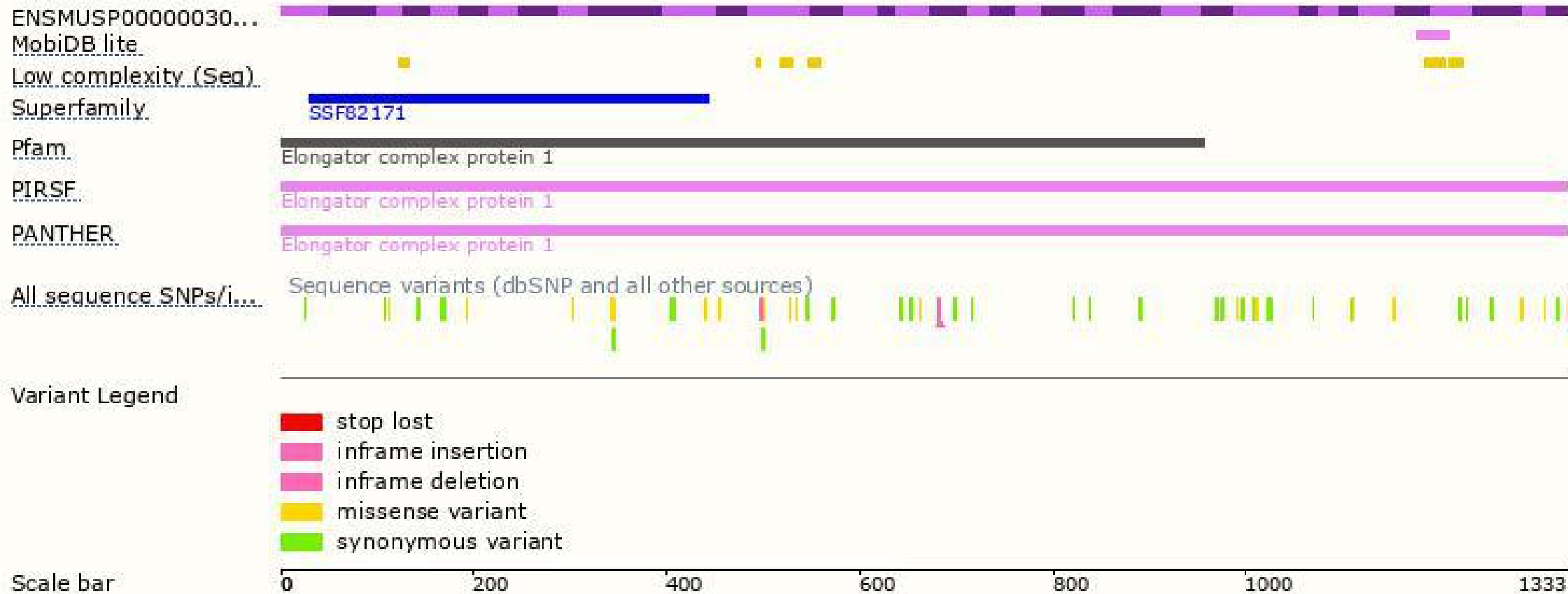
The strategy is based on the design of *Elp1-201* transcript,The transcription is shown below



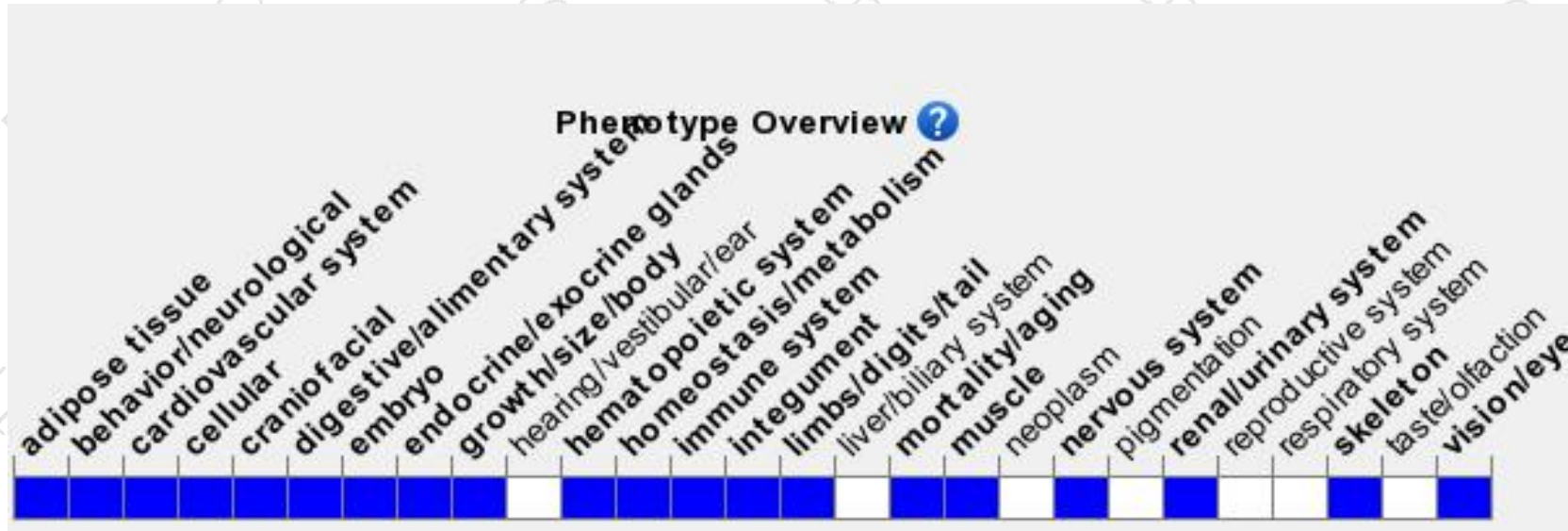
Genomic location distribution



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 a null allele exhibit embryonic lethality with arrested neural and vascular development.

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

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