Llgl1 Cas9-KO Strategy

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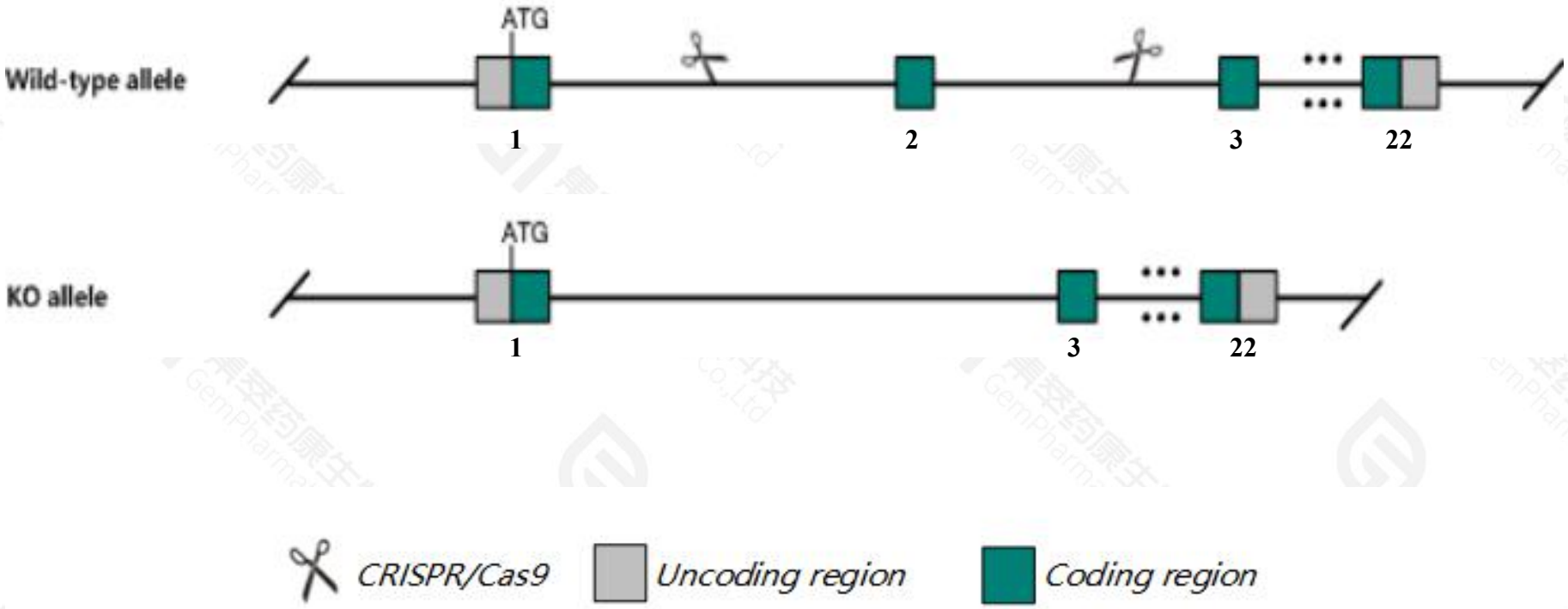
Design Date: 2021-9-22

Project Overview

Project Name	***Llgl1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Llgl1* gene. The schematic diagram is as follows:



Technical routes

➢ The *Llgl1* gene has 3 transcripts. According to the structure of *Llgl1* gene, exon2 of *Llgl1-201*(ENSMUST00000052346.10) transcript is recommended as the knockout region.The region contains 98bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Llgl1* gene. The brief process is as follows: CRISPR/Cas9 system 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.

Notice

➢ According to the existing MGI data,homozygous mutant mice die neonatally exhibiting hydroencephaly. Neural progenitor cell physiology is abnormal, resulting in a loss of cell polarity and the development of neuroepithelial rosette-like structures throughout the brain.

➢ The *Llgl1* gene is located on the Chr11. 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information （NCBI）

集萃药康 GemPharmatech

Llgl1 LLGL1 scribble cell polarity complex component [Mus musculus (house mouse)]

Gene ID: 16897, updated on 29-Jan-2021

Summary

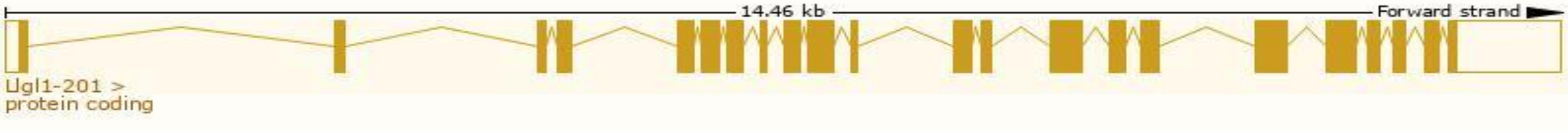
Official Symbol	Llgl1 provided by MGI
Official Full Name	LLGL1 scribble cell polarity complex component provided byMGI
Primary source	MGI:MGI:102682
See related	Ensembl:ENSMUSG00000020536
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI325176, Lg, Lgl1, Llglh, Mgl1
Expression	Ubiquitous expression in ovary adult (RPKM 58.0), thymus adult (RPKM 46.8) and 28 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

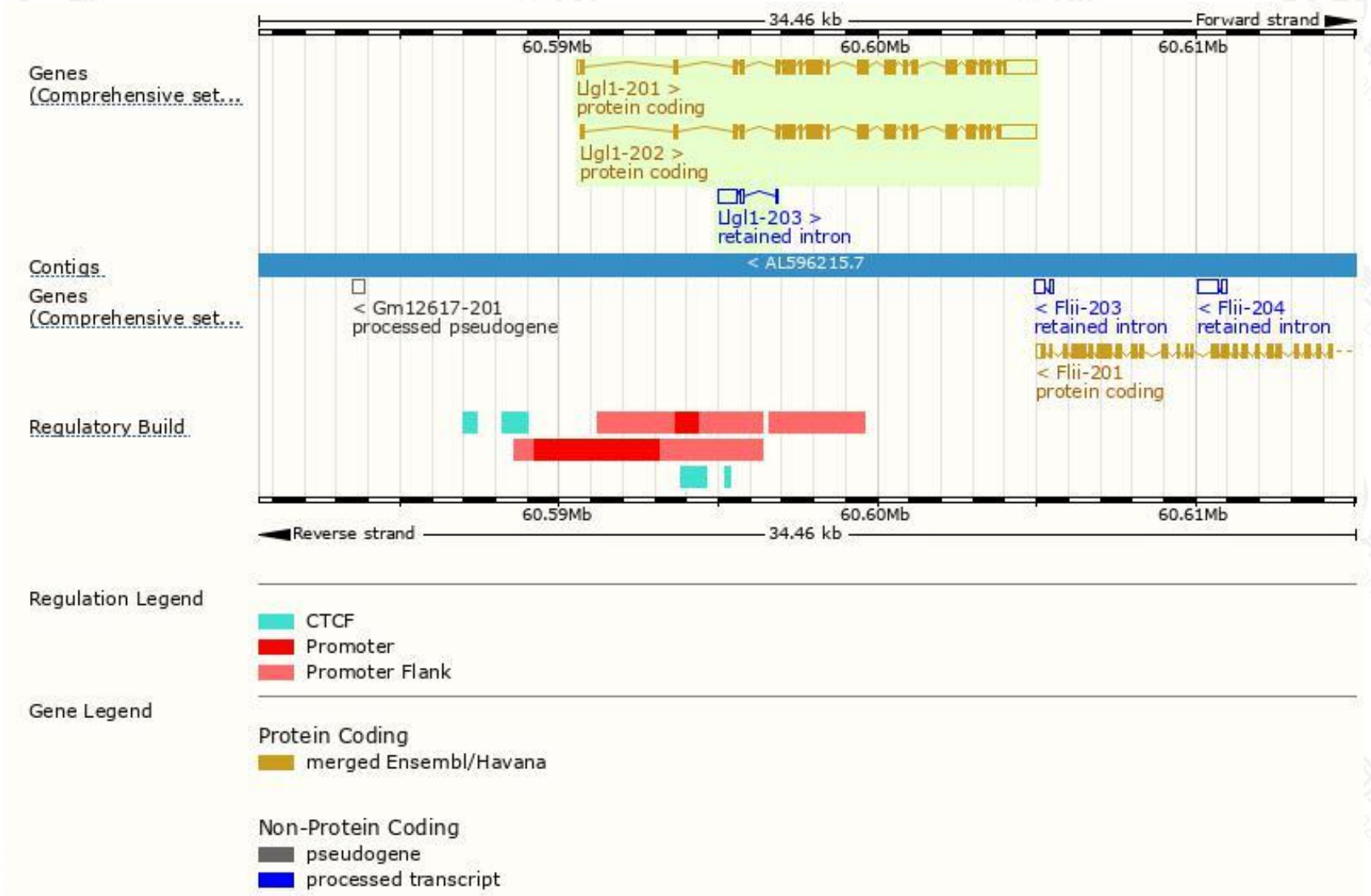
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Llgl1-201	ENSMUST00000052346.10	4303	1062aa	Protein coding	CCDS48812		TSL:1 , GENCODE basic , APPRIS P4 ,
Llgl1-202	ENSMUST00000108719.4	4268	1036aa	Protein coding	CCDS48813		TSL:1 , GENCODE basic , APPRIS ALT2 ,
Llgl1-203	ENSMUST00000128749.2	788	No protein	Retained intron	-		TSL:3 ,

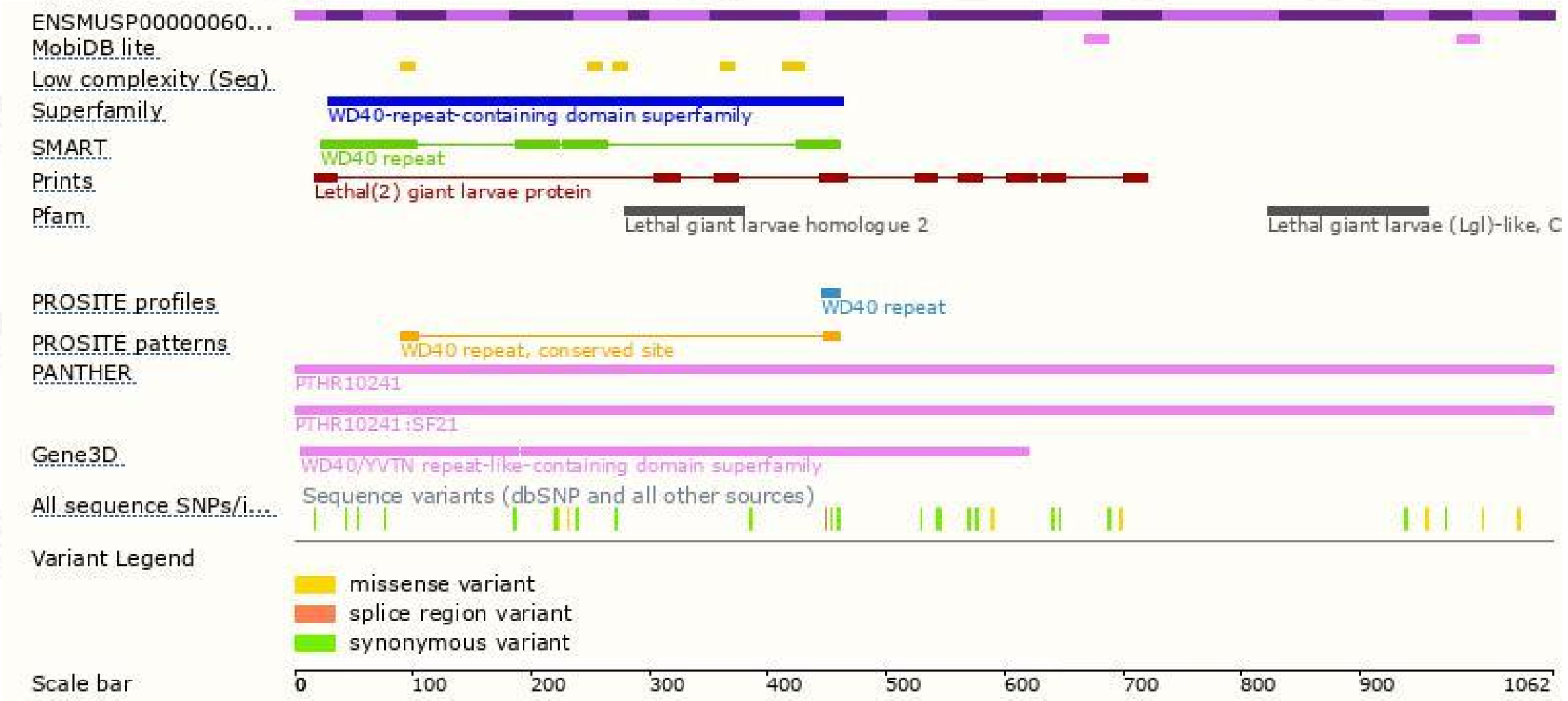
The strategy is based on the design of *Llgl1-201* transcript,the transcription is shown below:



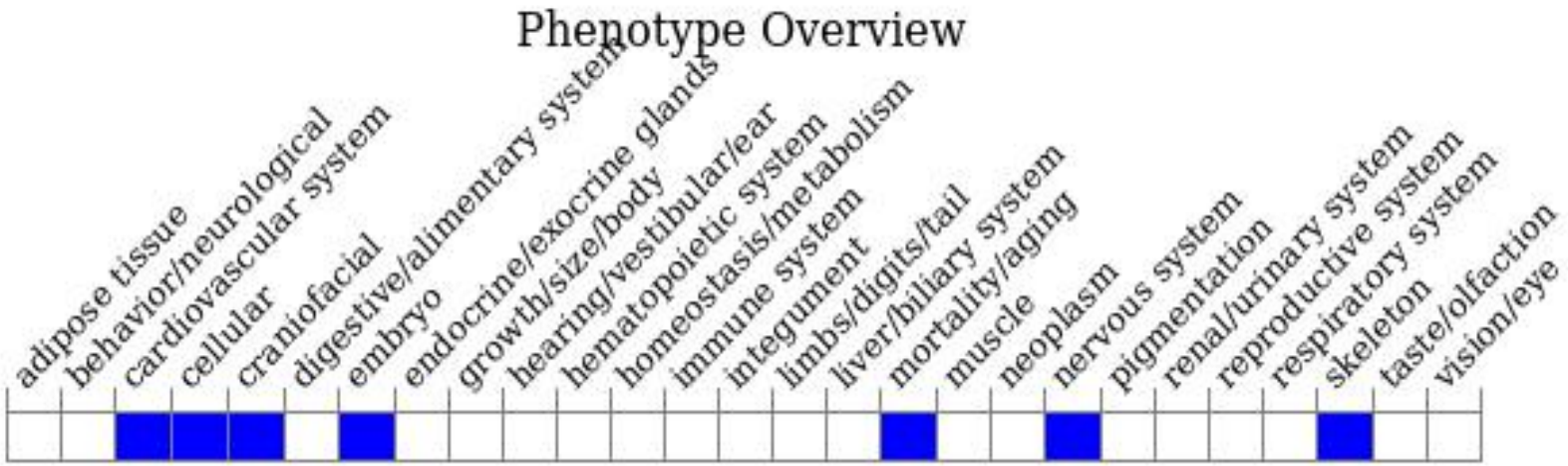
Genomic location distribution



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/).

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