Ppfibp2 Cas9-CKO Strategy

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Project Overview

Project Name	***Ppfibp2***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

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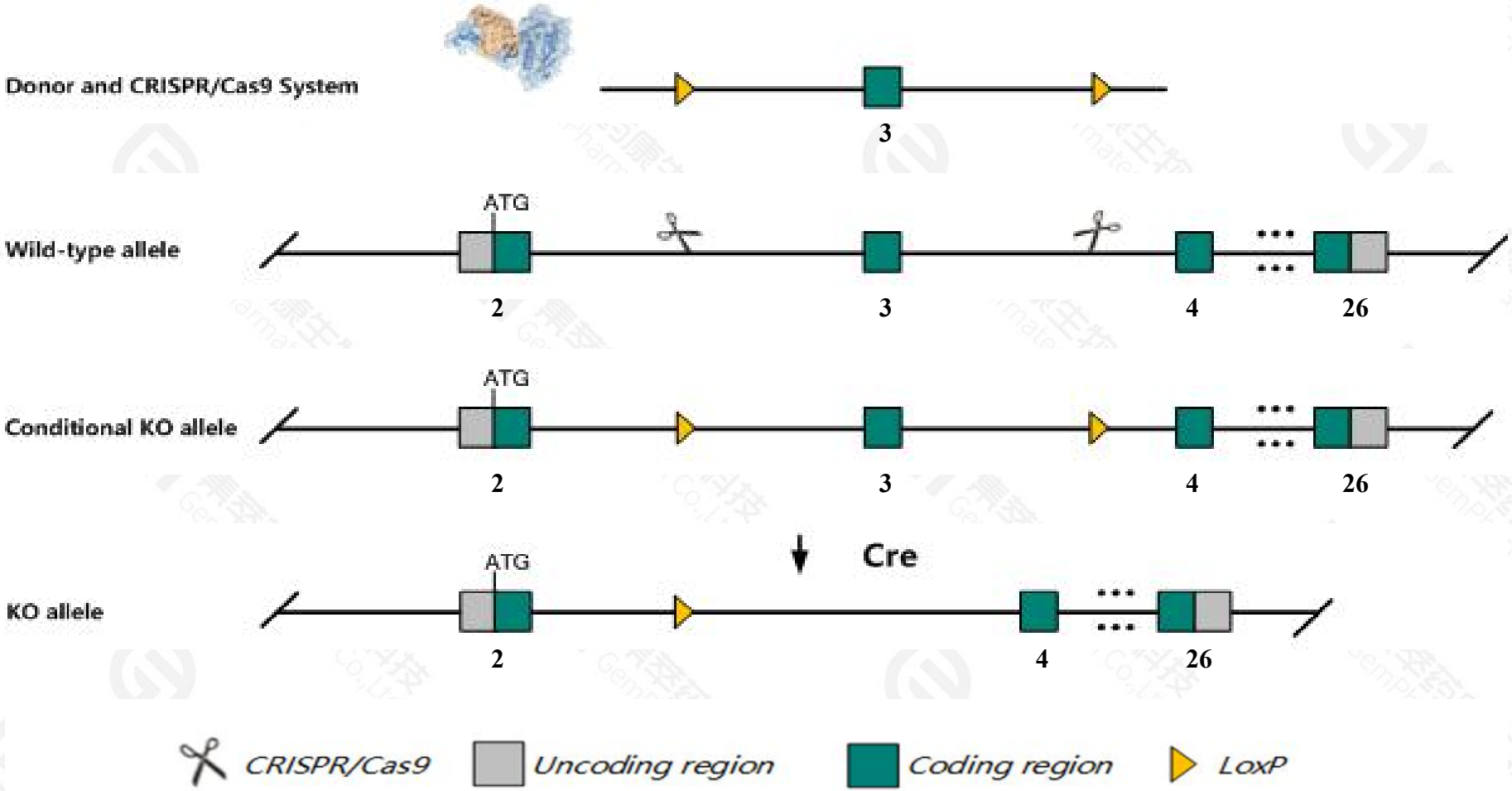
This model will use CRISPR/Cas9 technology to edit the *Ppfibp2* gene. The schematic diagram is as follows:



Technical routes

➢ The *Ppfibp2* gene has 7 transcripts. According to the structure of *Ppfibp2* gene, exon3 of *Ppfibp2-202*(ENSMUST00000098134.4) transcript is recommended as the knockout region.The region contains 215bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Ppfibp2* 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

➢ Transcript *Ppfibp2*-204 may not be affected.

➢ The *Ppfibp2* 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）

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Ppfibp2 PTPRF interacting protein, binding protein 2 (liprin beta 2) [Mus musculus (house mouse)]

Gene ID: 19024, updated on 13-Mar-2020

Summary

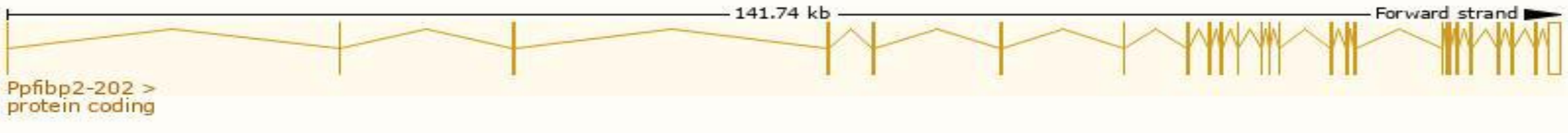
Official Symbol	Ppfibp2 provided by MGI
Official Full Name	PTPRF interacting protein, binding protein 2 (liprin beta 2) provided byMGI
Primary source	MGI:MGI:894649
See related	Ensembl:ENSMUSG00000036528
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Cclp1
Expression	Broad expression in bladder adult (RPKM 12.0), placenta adult (RPKM 5.7) and 23 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

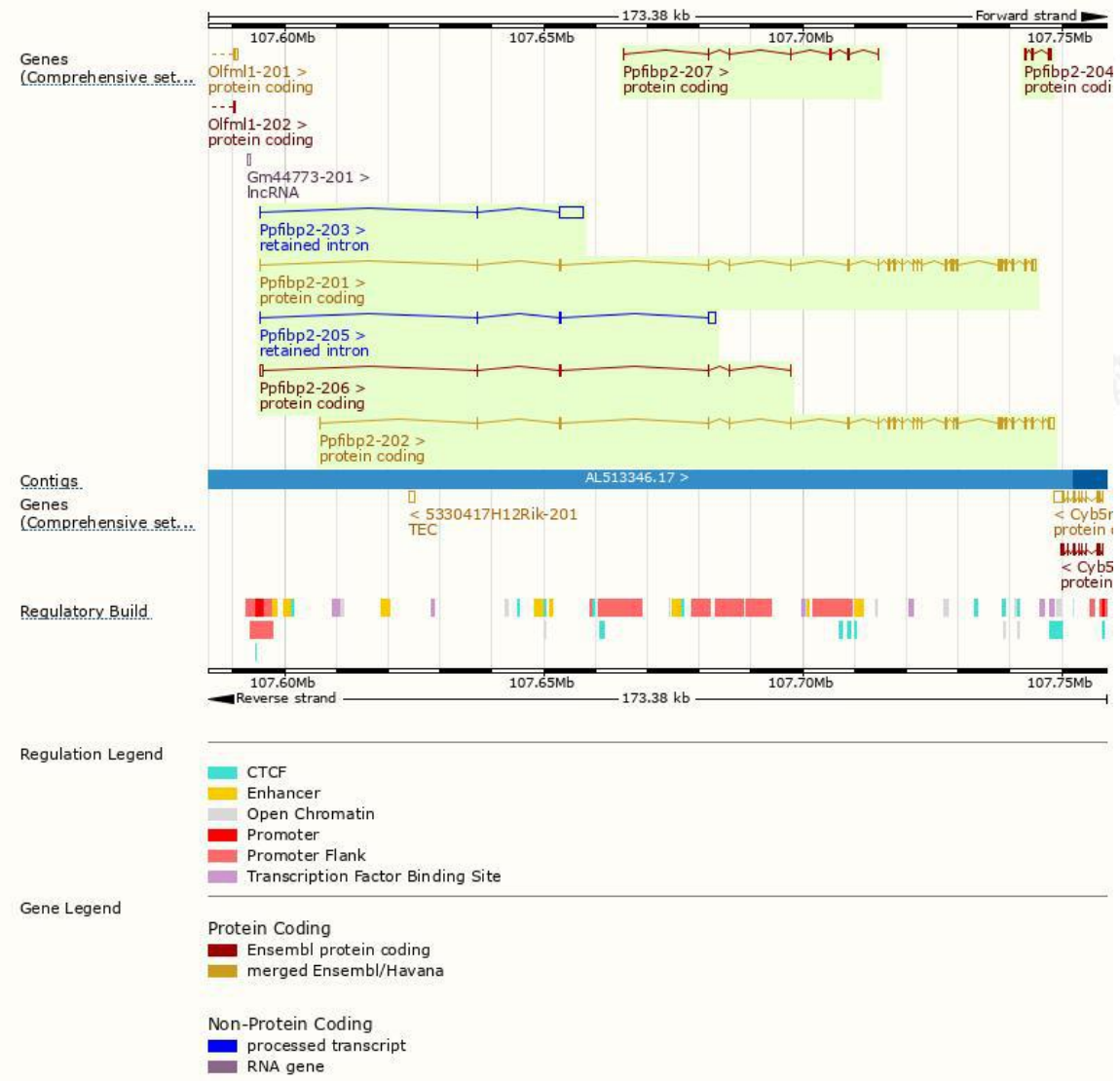
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ppfibp2-202	ENSMUST00000098134.4	3827	904aa	Protein coding	CCDS52356	O35711	TSL:1 GENCODE basic APPRIS is a system to annotate alternatively spliced transcripts based on a range of computational methods to identify the most functionally important transcript(s) of a gene. APPRIS ALT2
Ppfibp2-201	ENSMUST00000040056.14	3310	882aa	Protein coding	CCDS21691	G3X957	TSL:1 GENCODE basic APPRIS is a system to annotate alternatively spliced transcripts based on a range of computational methods to identify the most functionally important transcript(s) of a gene. APPRIS P3
Ppfibp2-206	ENSMUST00000208956.1	1090	203aa	Protein coding	-	A0A140LIN3	CDS 3' incomplete TSL:1
Ppfibp2-207	ENSMUST00000239294.1	808	157aa	Protein coding	-	-	CDS 3' incomplete
Ppfibp2-204	ENSMUST00000208159.1	706	138aa	Protein coding	-	A0A140LJ14	CDS 5' incomplete TSL:3
Ppfibp2-203	ENSMUST00000207852.1	4897	No protein	Retained intron	-	-	TSL:1
Ppfibp2-205	ENSMUST00000208504.1	1725	No protein	Retained intron	-	-	TSL:1

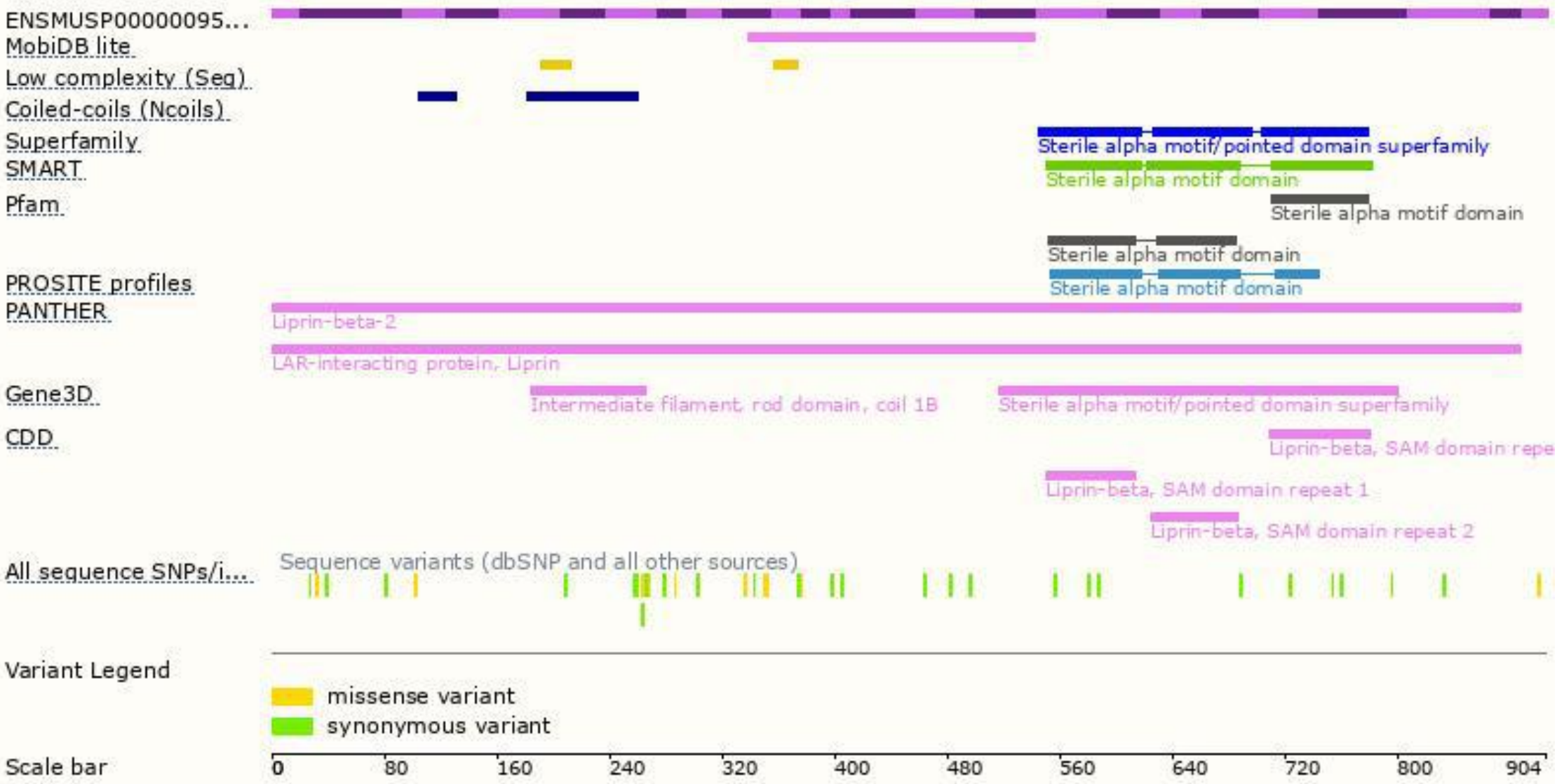
The strategy is based on the design of *Ppfibp2-202* transcript,the transcription is shown below:



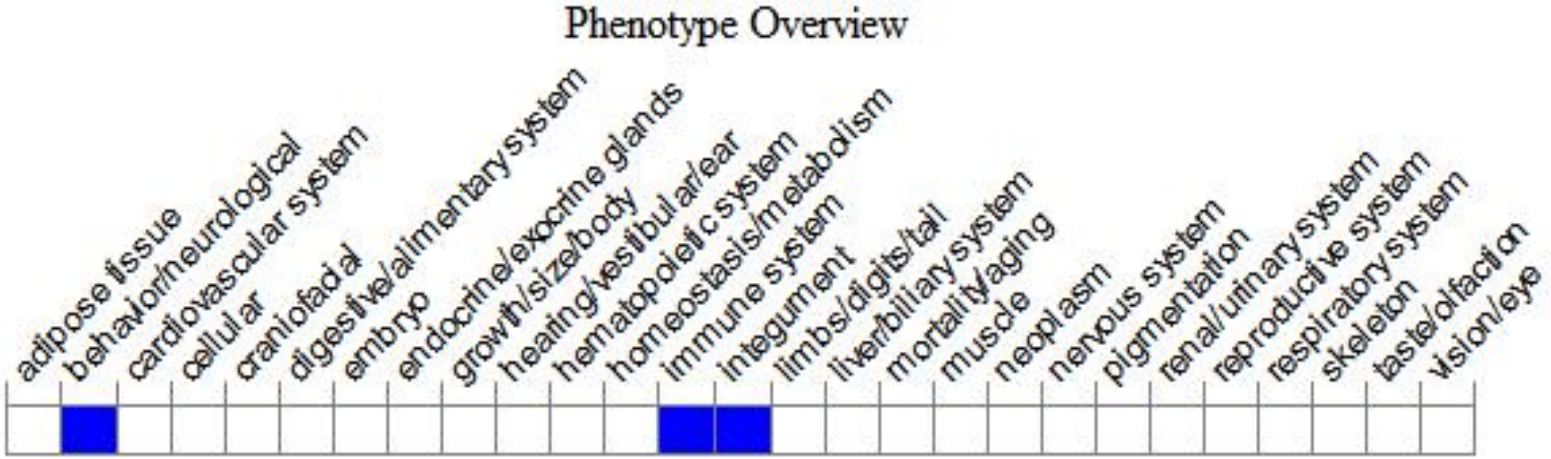
Genomic location distribution



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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