Osmr Cas9-CKO Strategy

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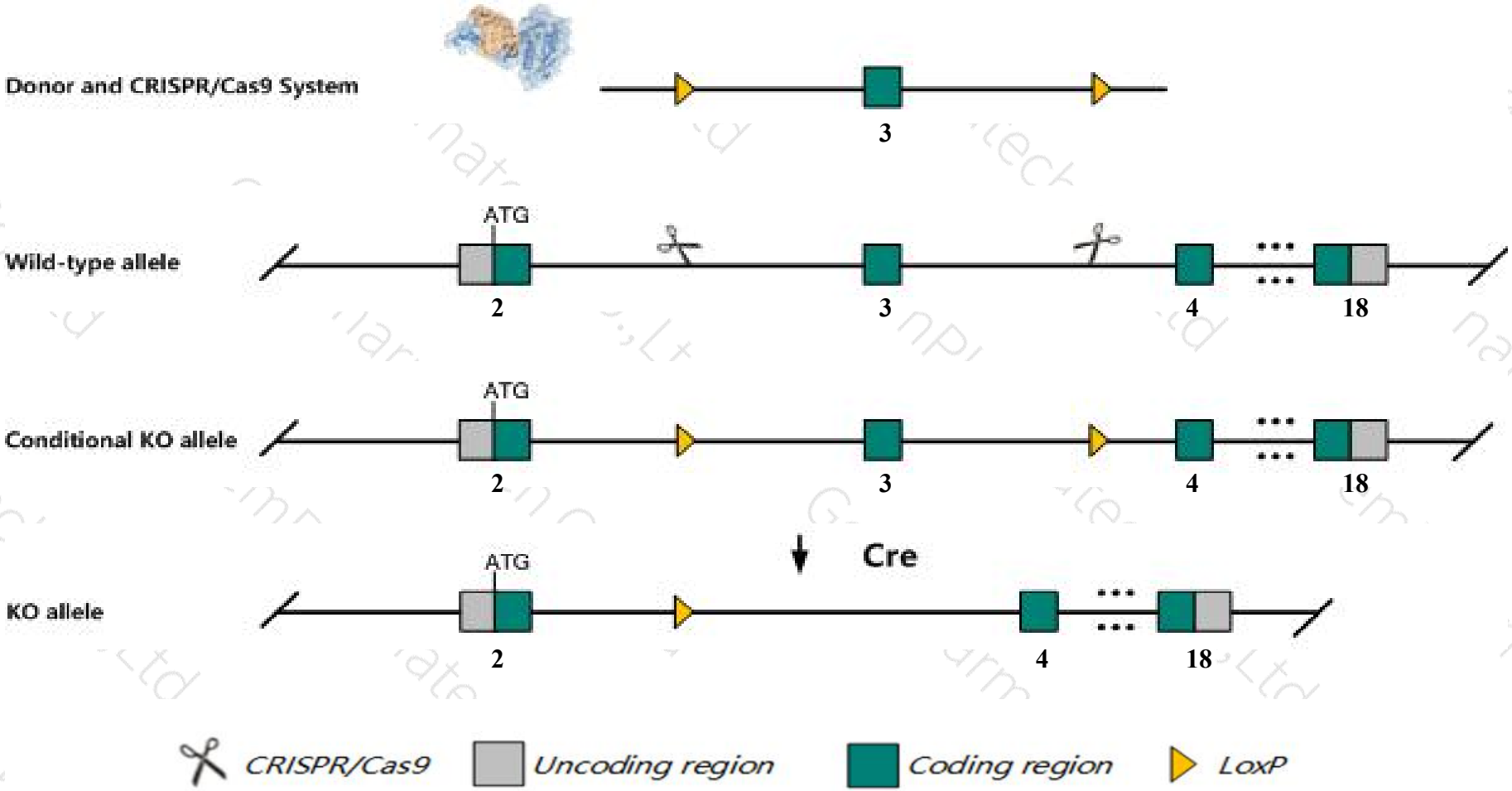
Project Overview

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

Conditional Knockout strategy

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



Technical routes

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- The *Osmr* gene has 6 transcripts. According to the structure of *Osmr* gene, exon3 of *Osmr-201* (ENSMUST00000022746.12) transcript is recommended as the knockout region.The region contains 170bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Osmr* 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 knock-out allele exhibit anemia, decreased hematocrit, and reduced erythroid progenitor, erythrocyte, platelet, and megakaryocyte cells. Homozygotes also show increased susceptibility to diet-induced obesity.

- The *Osmr* gene is located on the Chr15. 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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Osmr oncostatin M receptor [*Mus musculus* (house mouse)]

Gene ID: 18414, updated on 12-Aug-2019

Summary

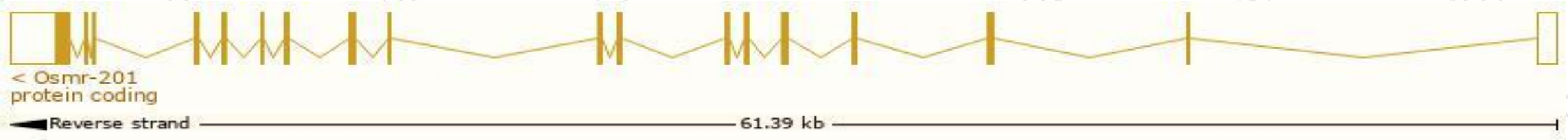
Official Symbol	Osmr provided by MGI
Official Full Name	oncostatin M receptor provided by MGI
Primary source	MGI:MGI:1330819
See related	Ensembl:ENSMUSG00000022146
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	OSMRB
Expression	Broad expression in bladder adult (RPKM 9.5), subcutaneous fat pad adult (RPKM 5.8) and 18 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

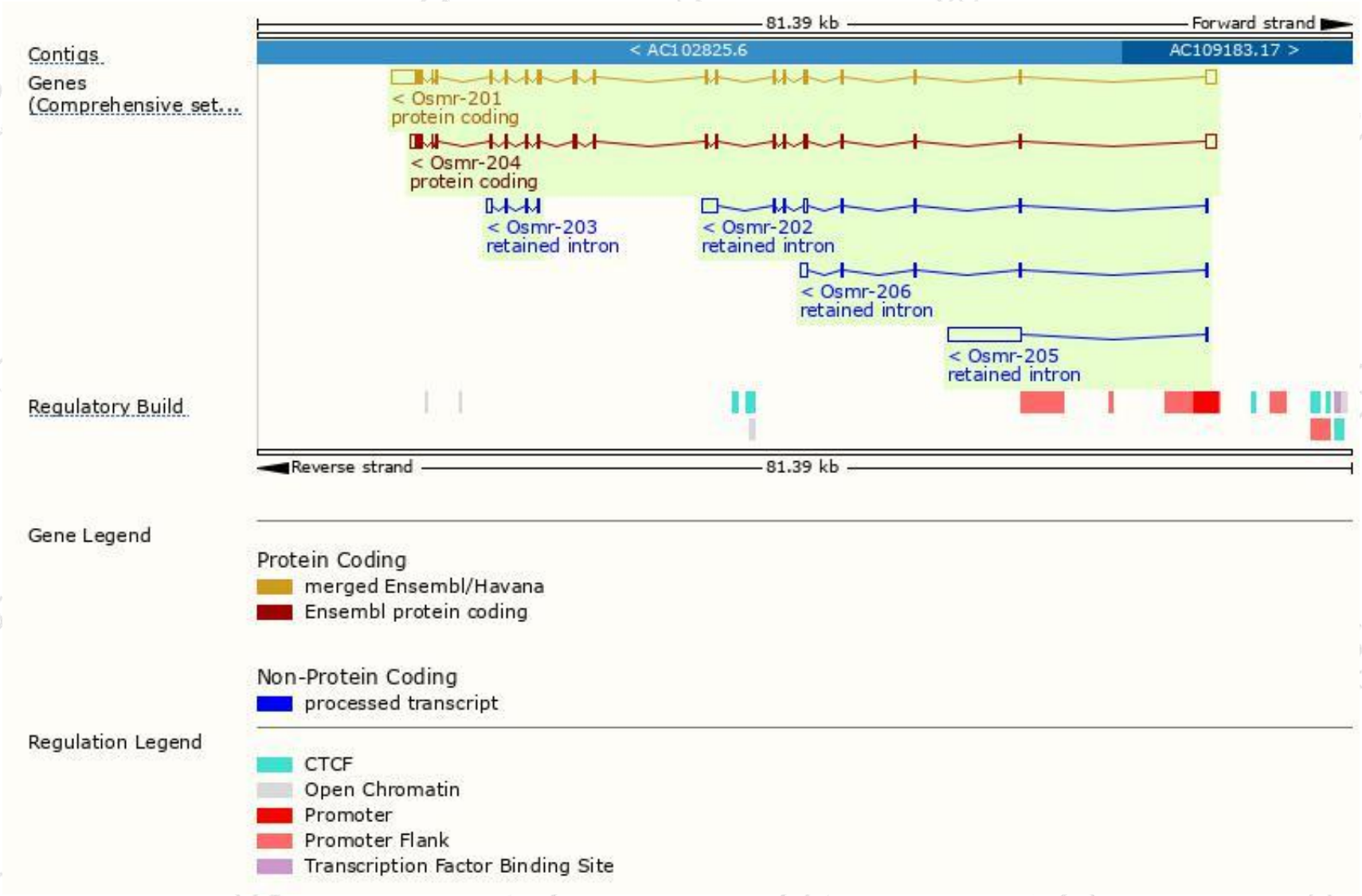
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Osmr-201	ENSMUST00000022746.12	5491	971aa	Protein coding	CCDS27368	G3X8V6	TSL:1 GENCODE basic APPRIS P3
Osmr-204	ENSMUST00000176826.1	4028	970aa	Protein coding	CCDS79358	A0A0R4J268	TSL:1 GENCODE basic APPRIS ALT2
Osmr-205	ENSMUST00000177263.1	5487	No protein	Retained intron	-	-	TSL:1
Osmr-202	ENSMUST00000175862.7	2136	No protein	Retained intron	-	-	TSL:1
Osmr-206	ENSMUST00000177478.1	1015	No protein	Retained intron	-	-	TSL:1
Osmr-203	ENSMUST00000176554.1	854	No protein	Retained intron	-	-	TSL:3

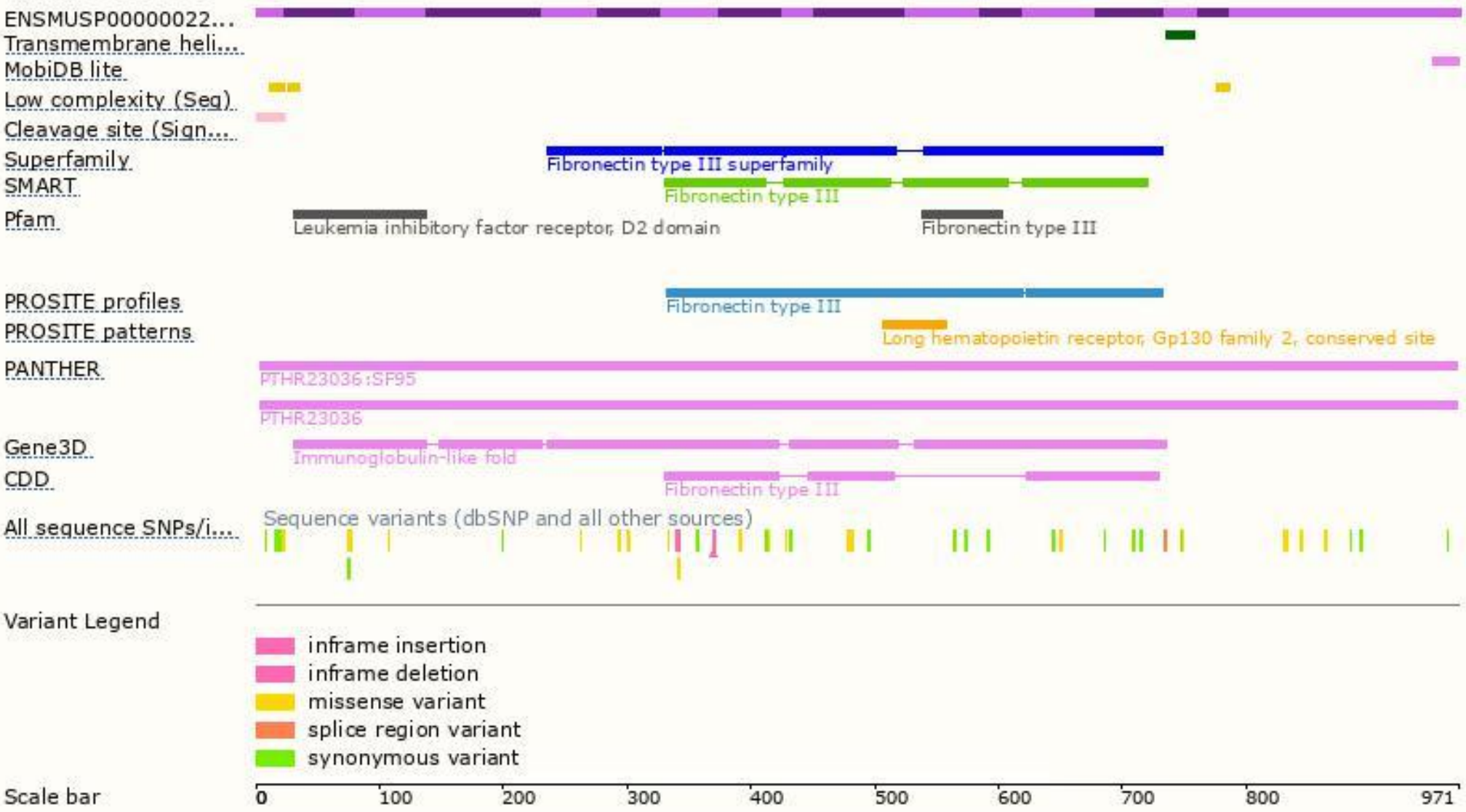
The strategy is based on the design of *Osmr-201* transcript,The transcription is shown below



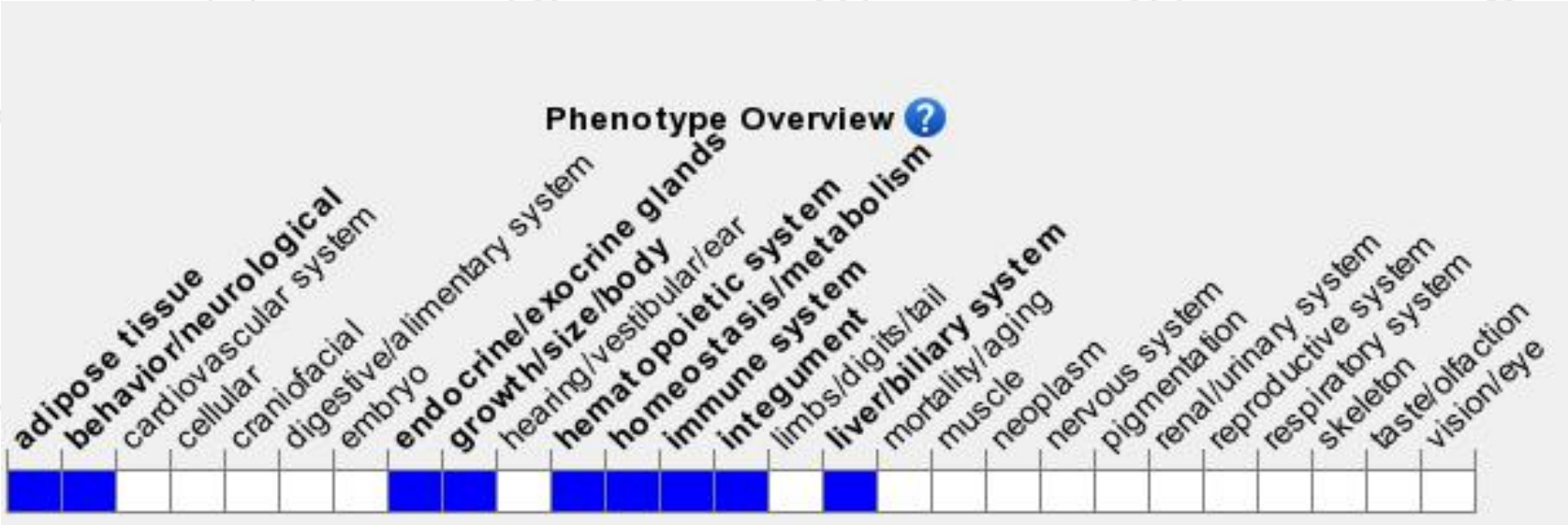
Genomic location distribution



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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