Rps7 Cas9-CKO Strategy

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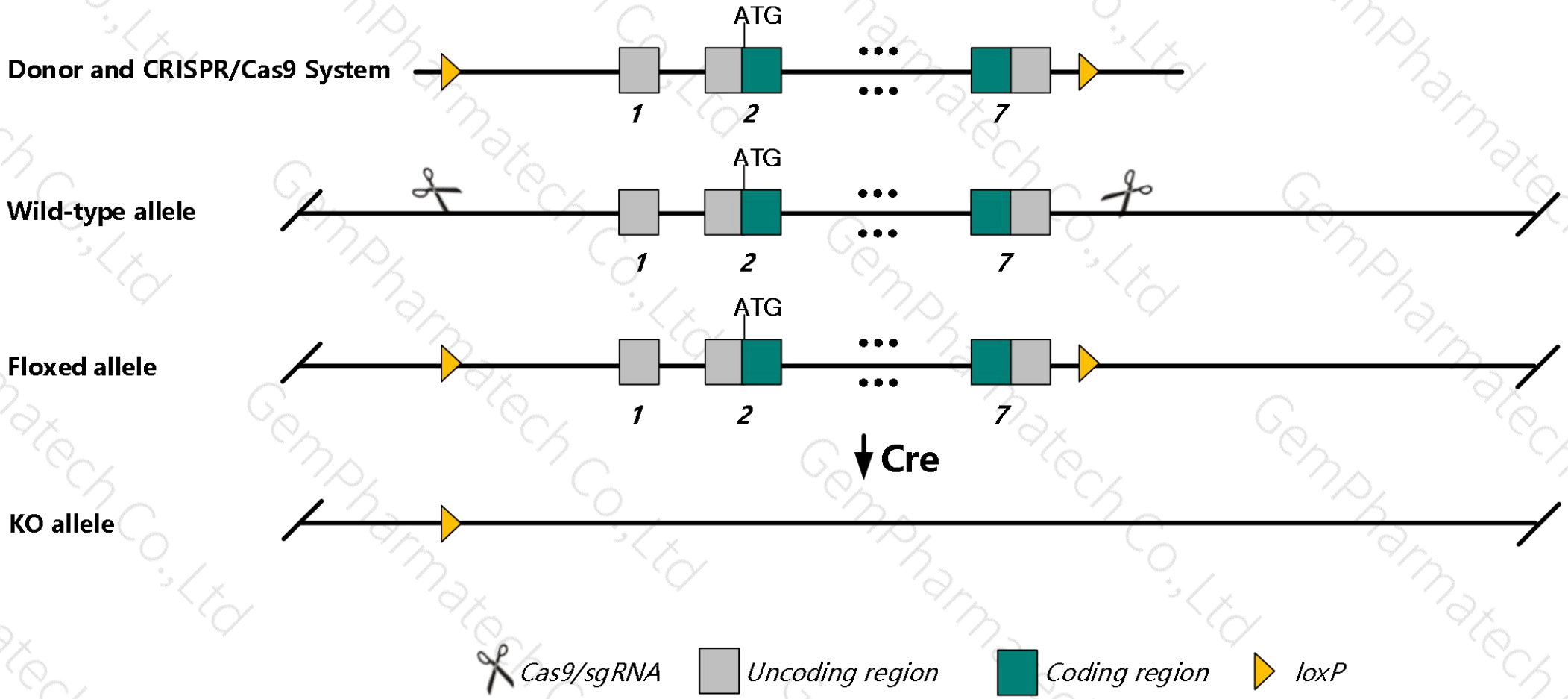
Project Overview

Project Name	***Rps7***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rps7* gene. The schematic diagram is as follows:



Technical routes

- The *Rps7* gene has 7 transcripts. According to the structure of *Rps7* gene, exon1-exon7 of *Rps7-201* (ENSMUST00000074267.4) 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 *Rps7* 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 heterozygous for this ENU-induced mutation exhibit a white ventral patch and an extremely kinked or looped tail. Homozygotes exhibit an open hindbrain and defective neural crest production at E9.5.

- The *Rps7* gene is located on the Chr12. 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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Rps7 ribosomal protein S7 [Mus musculus (house mouse)]

Gene ID: 20115, updated on 31-Jan-2019

Summary

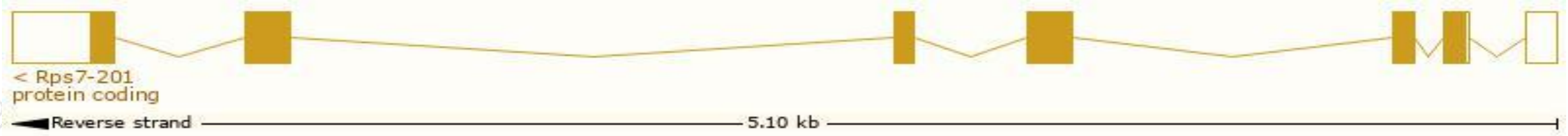
Official Symbol	Rps7 provided by MGI
Official Full Name	ribosomal protein S7 provided by MGI
Primary source	MGI:MGI:1333818
See related	Ensembl:ENSMUSG00000061477
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Mtu, Rps7A, S7
Expression	Ubiquitous expression in liver E14 (RPKM 319.3), CNS E11.5 (RPKM 307.0) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

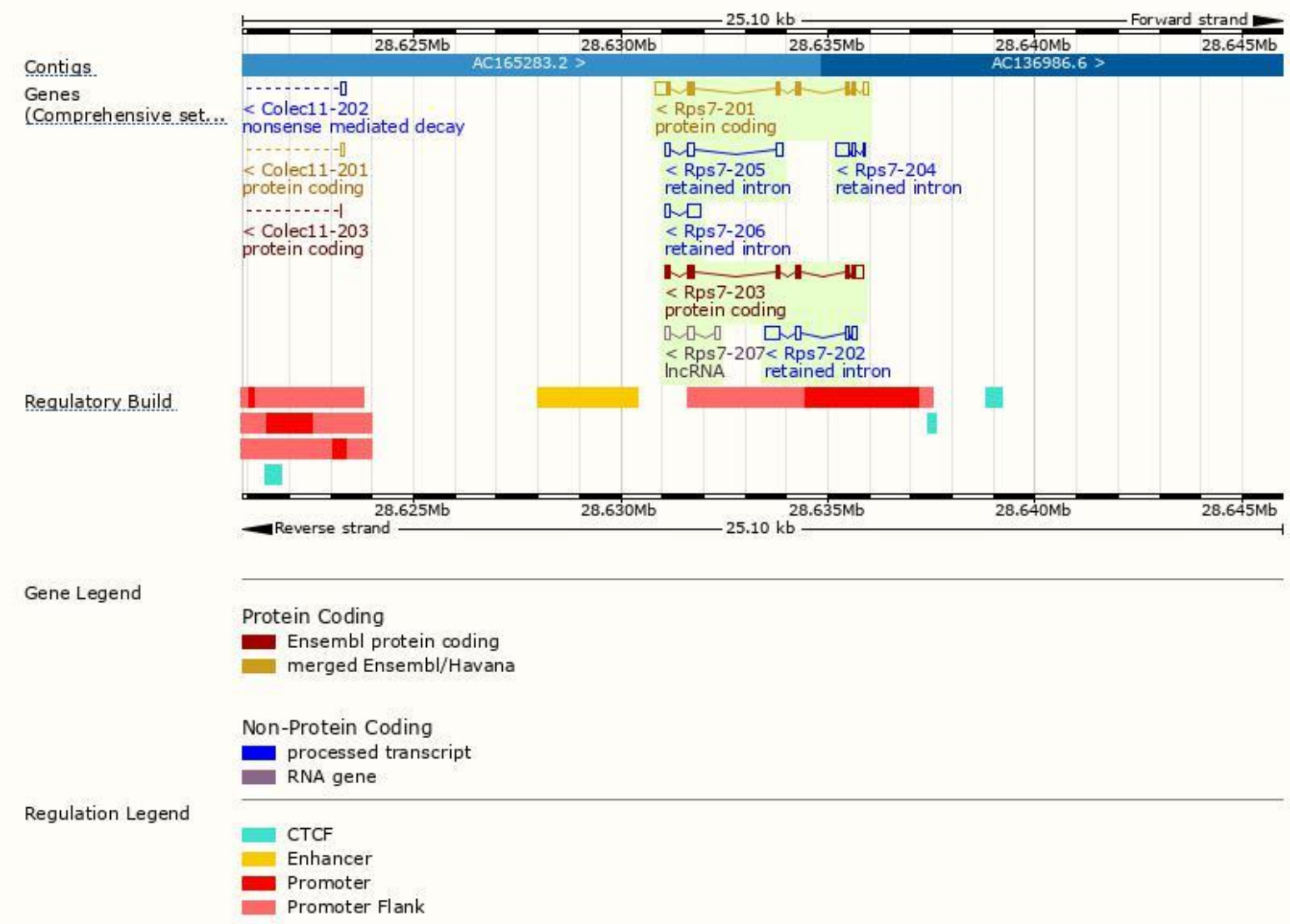
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rps7-201	ENSMUST00000074267.4	954	194aa	Protein coding	CCDS25851	P62082 Q4FZE6	TSL:1 GENCODE basic APPRIS P1
Rps7-203	ENSMUST00000221871.1	820	194aa	Protein coding	CCDS25851	P62082 Q4FZE6	TSL:1 GENCODE basic APPRIS P1
Rps7-202	ENSMUST00000220860.1	697	No protein	Retained intron	-	-	TSL:2
Rps7-204	ENSMUST00000222228.1	420	No protein	Retained intron	-	-	TSL:2
Rps7-206	ENSMUST00000223153.1	405	No protein	Retained intron	-	-	TSL:2
Rps7-205	ENSMUST00000222808.1	403	No protein	Retained intron	-	-	TSL:2
Rps7-207	ENSMUST00000223318.1	369	No protein	lncRNA	-	-	TSL:3

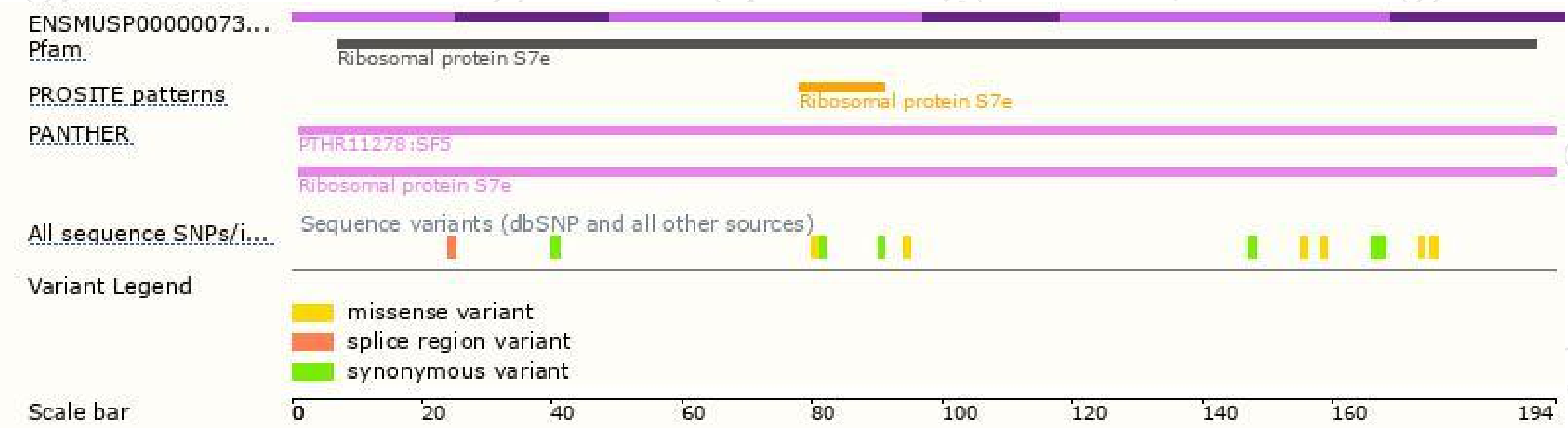
The strategy is based on the design of *Rps7-201* transcript,The transcription is shown below



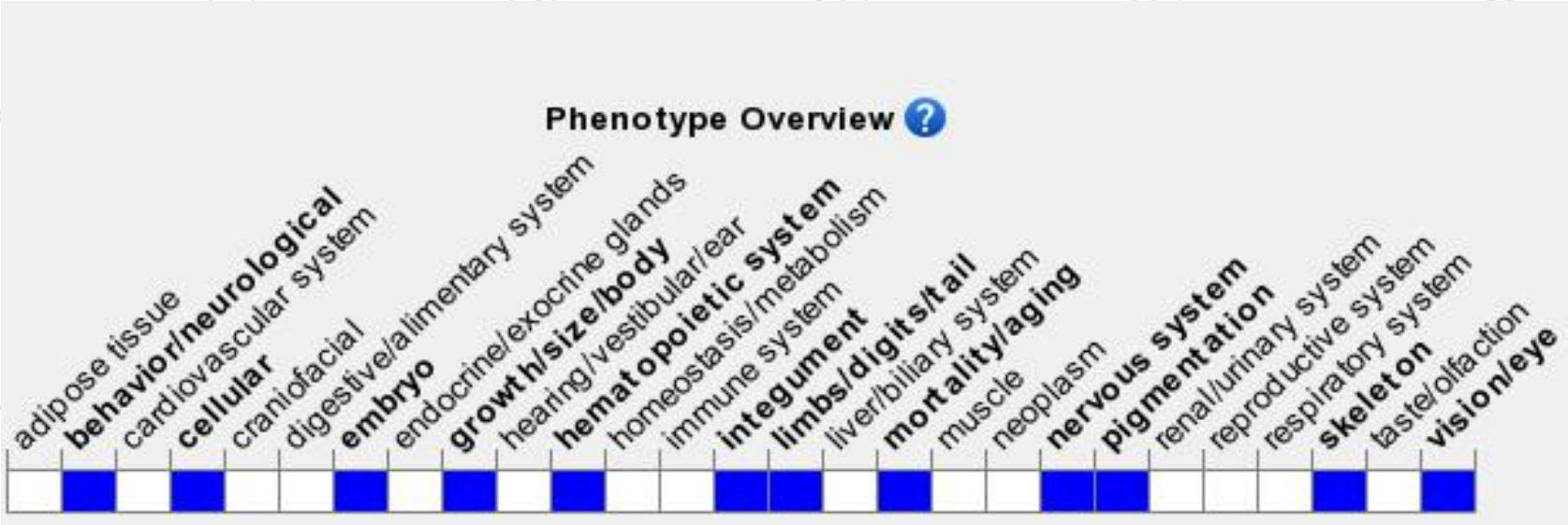
Genomic location distribution



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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