Snap25 Cas9-CKO Strategy

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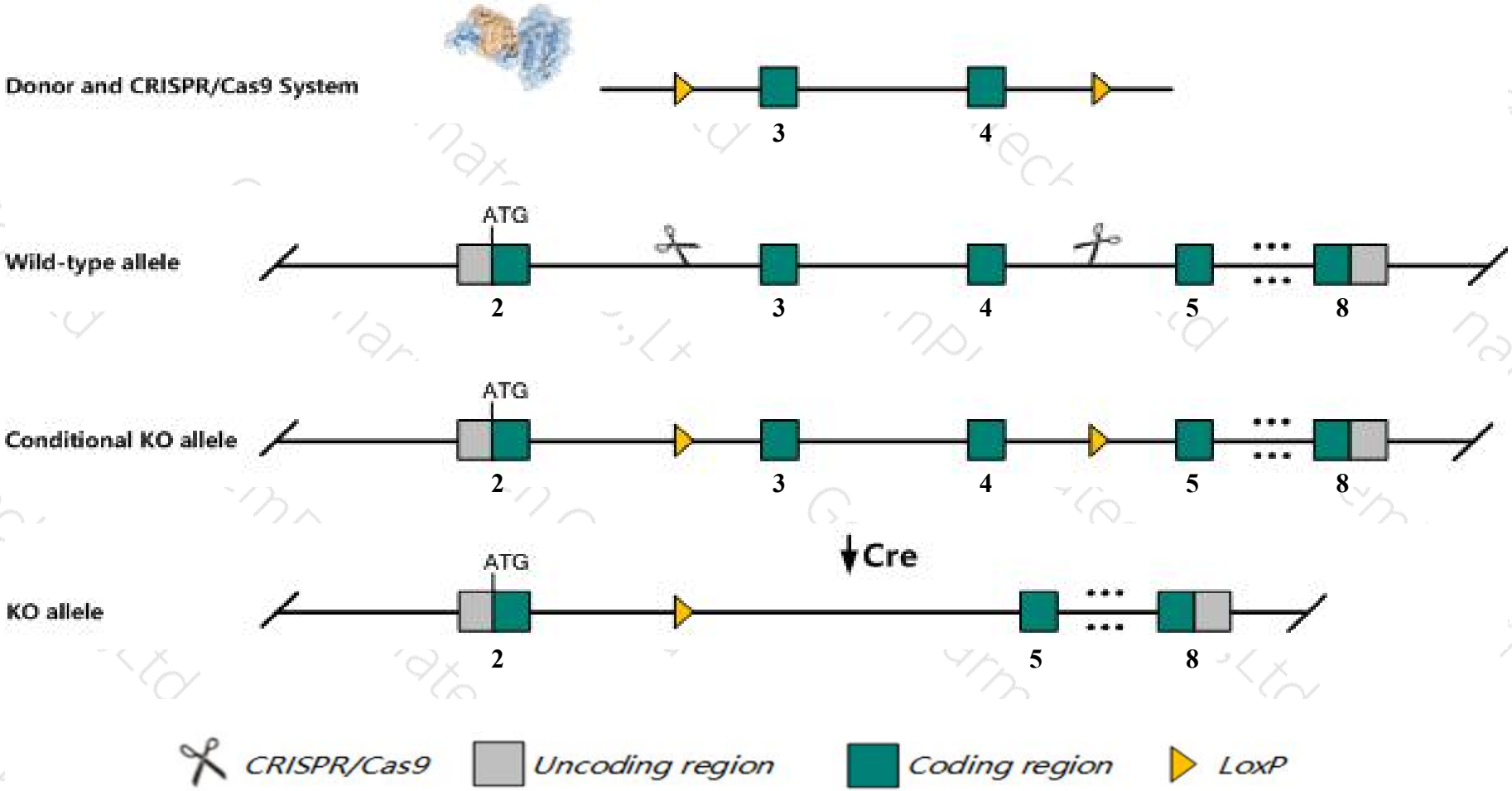
Project Overview

Project Name	***Snap25***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Snap25* gene. The schematic diagram is as follows:



Technical routes

- The *Snap25* gene has 3 transcripts. According to the structure of *Snap25* gene, exon3-exon4 of *Snap25-201* (ENSMUST00000028727.10) transcript is recommended as the knockout region.The region contains 91bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Snap25* 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,Homozygotes for a targeted null mutation are small size, blotchy in appearance, have dilated vascular channels, and brain defects, lack spontaneous or reflexive movement and evoked neurotransmitter release at E18.5, and die at birth. An ENU-induced mutant displays neurological abnormalities.

- The *Snap25* gene is located on the Chr2. 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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Snap25 synaptosomal-associated protein 25 [Mus musculus (house mouse)]

Gene ID: 20614, updated on 7-Apr-2019

Summary

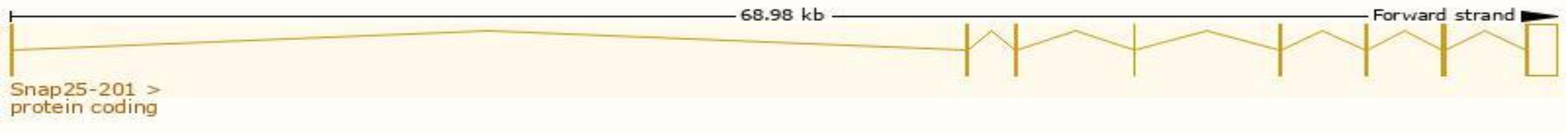
Official Symbol	Snap25 provided by MGI
Official Full Name	synaptosomal-associated protein 25 provided by MGI
Primary source	MGI:MGI:98331
See related	Ensembl:ENSMUSG00000027273
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Bdr, GENA70, SNAP-25, SUP, sp
Expression	Biased expression in cerebellum adult (RPKM 622.2), cortex adult (RPKM 577.5) and 3 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

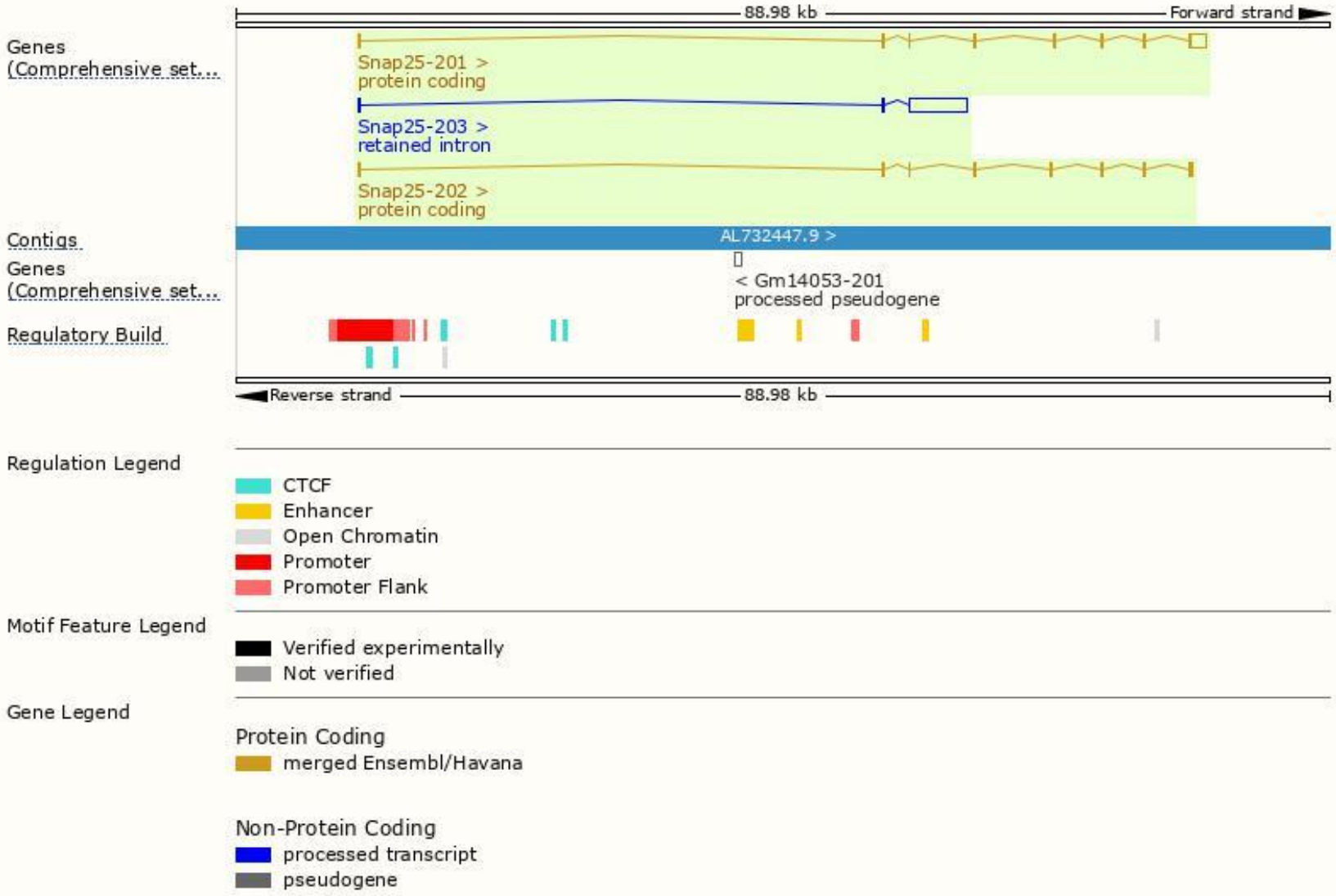
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Snap25-201	ENSMUST00000028727.10	2116	206aa	Protein coding	CCDS16793	P60879	TSL:1 GENCODE basic APPRIS P3
Snap25-202	ENSMUST00000110098.3	1014	206aa	Protein coding	CCDS71153	P60879	TSL:3 GENCODE basic APPRIS ALT1
Snap25-203	ENSMUST00000125486.1	4880	No protein	Retained intron	-	-	TSL:1

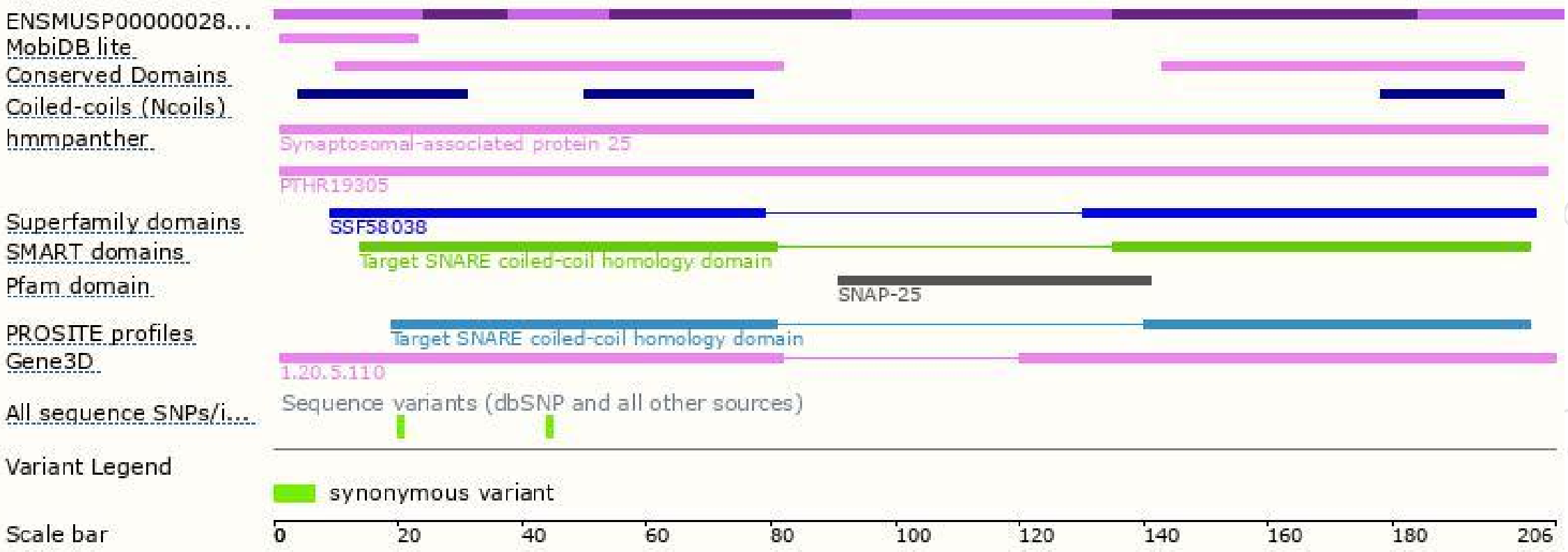
The strategy is based on the design of *Snap25-201* transcript,The transcription is shown below



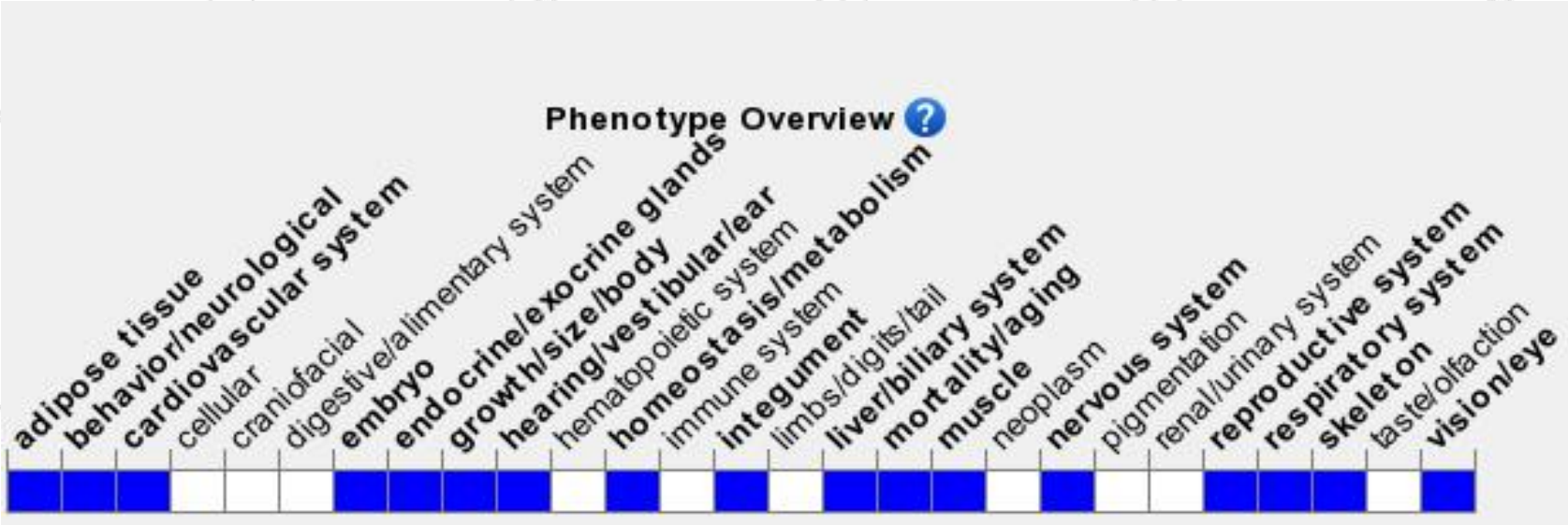
Genomic location distribution



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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