Sept8 Cas9-CKO Strategy

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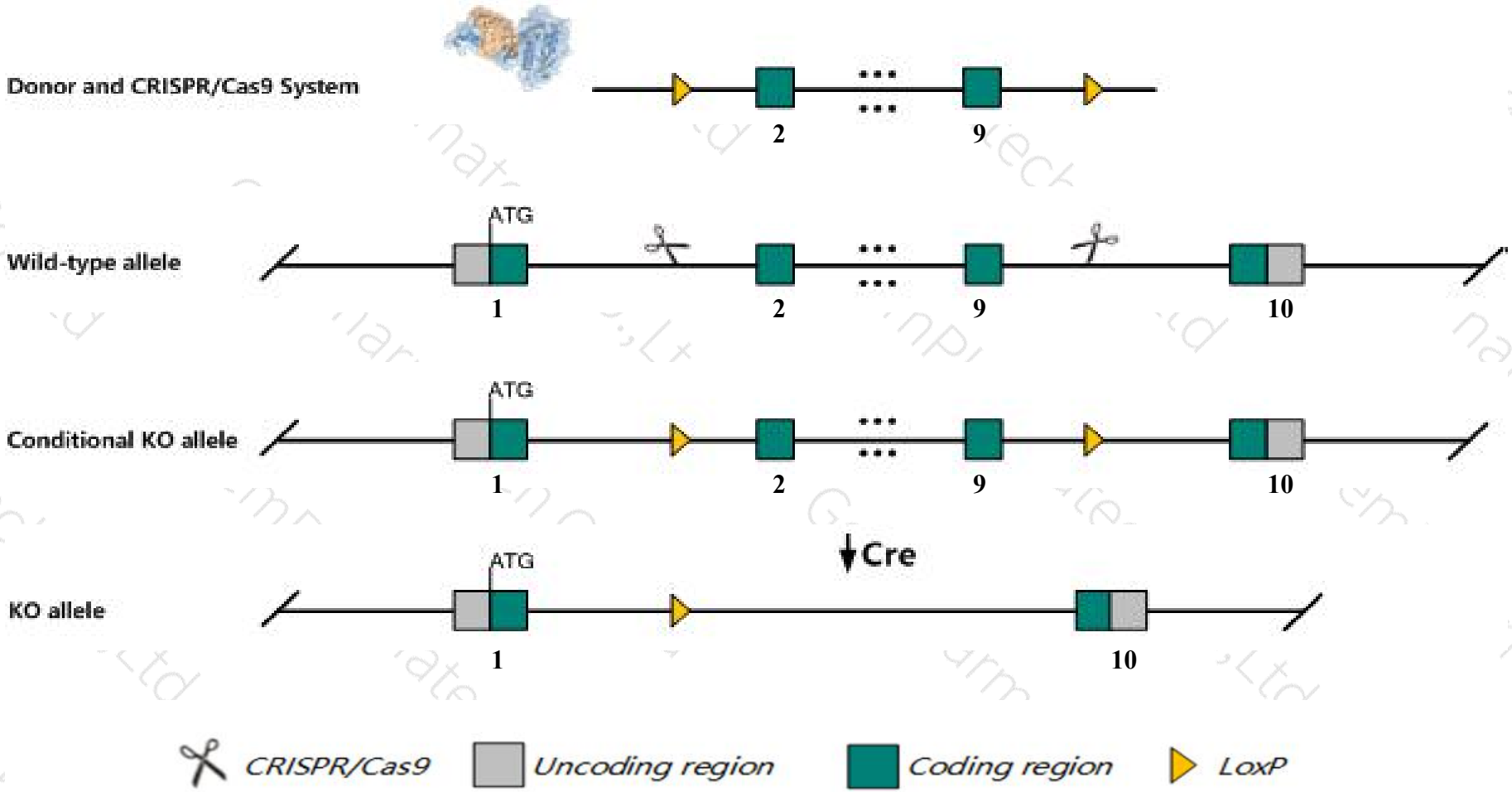
Project Overview

Project Name	***Sept8***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Sept8* gene. The schematic diagram is as follows:



Technical routes

- The *Sept8* gene has 7 transcripts. According to the structure of *Sept8* gene, exon2-exon9 of *Sept8-202* (ENSMUST00000117061.7) transcript is recommended as the knockout region.The region contains 1256bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Sept8* 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 myelin outfoldings and reduced nerve conduction velocity.

- The *Sept8* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information （NCBI）

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Sept8 septin 8 [Mus musculus (house mouse)]

Gene ID: 20362, updated on 7-Apr-2019

Summary

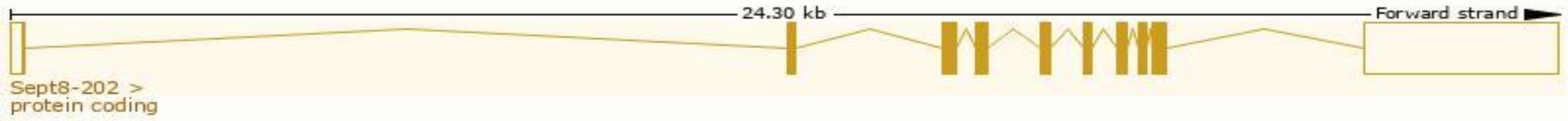
Official Symbol	Sept8 provided by MGI
Official Full Name	septin 8 provided by MGI
Primary source	MGI:MGI:894310
See related	Ensembl:ENSMUSG00000018398
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AW046166, Sepl, Septin8
Expression	Broad expression in cortex adult (RPKM 43.1), cerebellum adult (RPKM 41.9) and 26 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

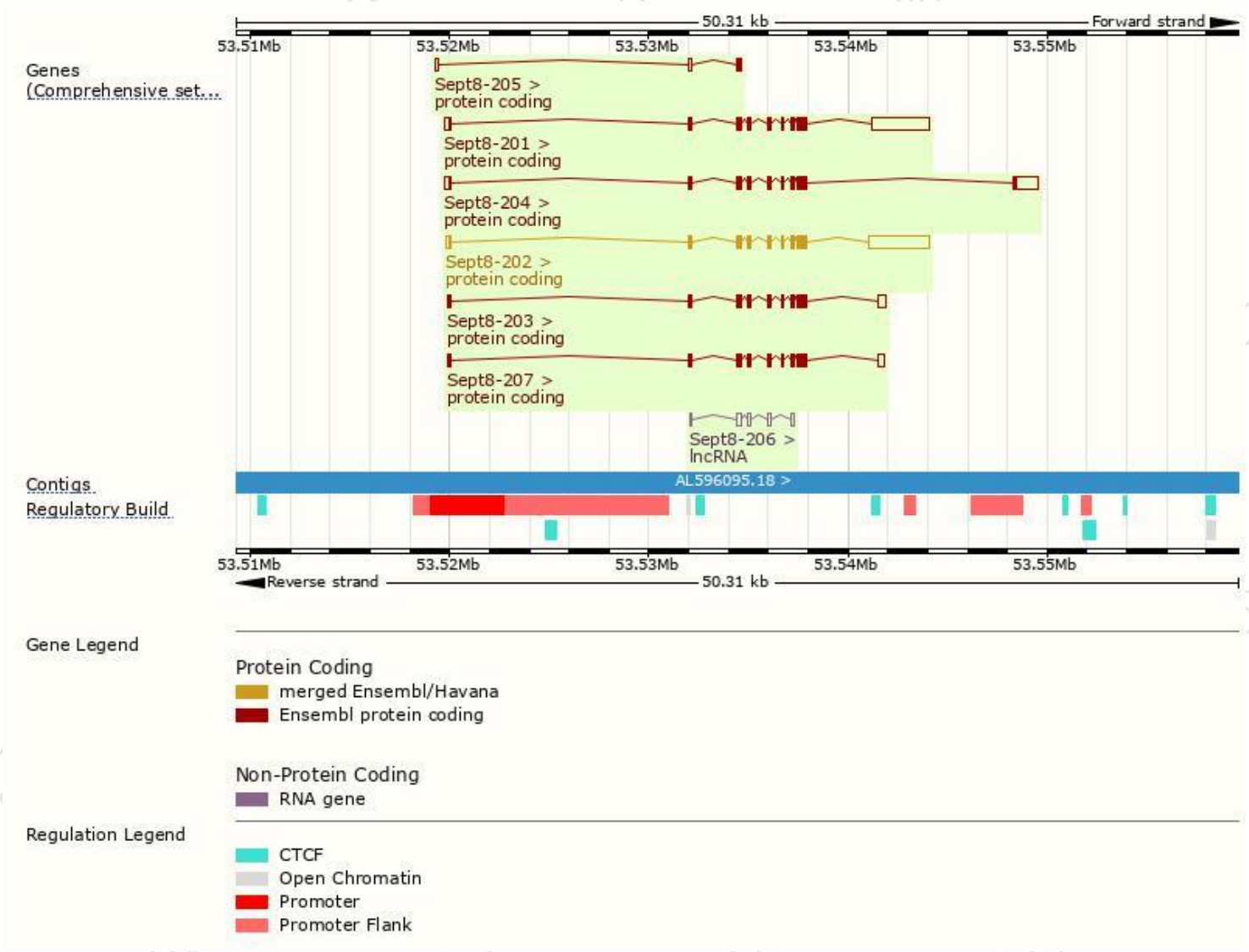
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Sept8-202	ENSMUST00000117061.7	4563	430aa	Protein coding	CCDS48794	Q8CHH9	TSL:1 GENCODE basic APPRIS P3
Sept8-201	ENSMUST00000108987.7	4436	429aa	Protein coding	CCDS56768	Q8CHH9	TSL:1 GENCODE basic APPRIS ALT1
Sept8-204	ENSMUST00000121334.7	2801	484aa	Protein coding	CCDS83805	B1AQZ0	TSL:5 GENCODE basic APPRIS ALT1
Sept8-203	ENSMUST00000120878.8	1806	440aa	Protein coding	-	B7ZC46	TSL:5 GENCODE basic APPRIS ALT1
Sept8-207	ENSMUST00000147912.1	1742	442aa	Protein coding	-	B1AQY9	TSL:5 GENCODE basic APPRIS ALT1
Sept8-205	ENSMUST00000142800.1	500	51aa	Protein coding	-	E0CYM4	CDS 3' incomplete TSL:5
Sept8-206	ENSMUST00000145927.1	737	No protein	lncRNA	-	-	TSL:5

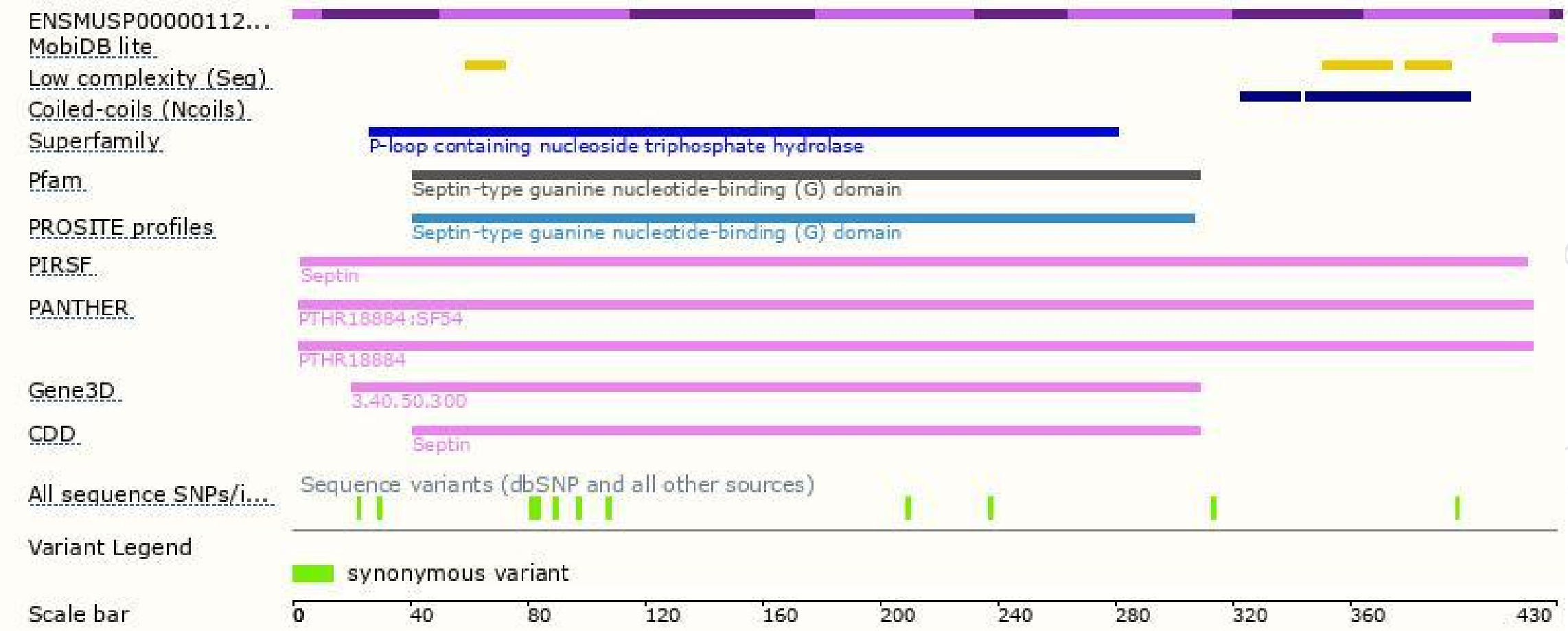
The strategy is based on the design of *Sept8-202* transcript,The transcription is shown below



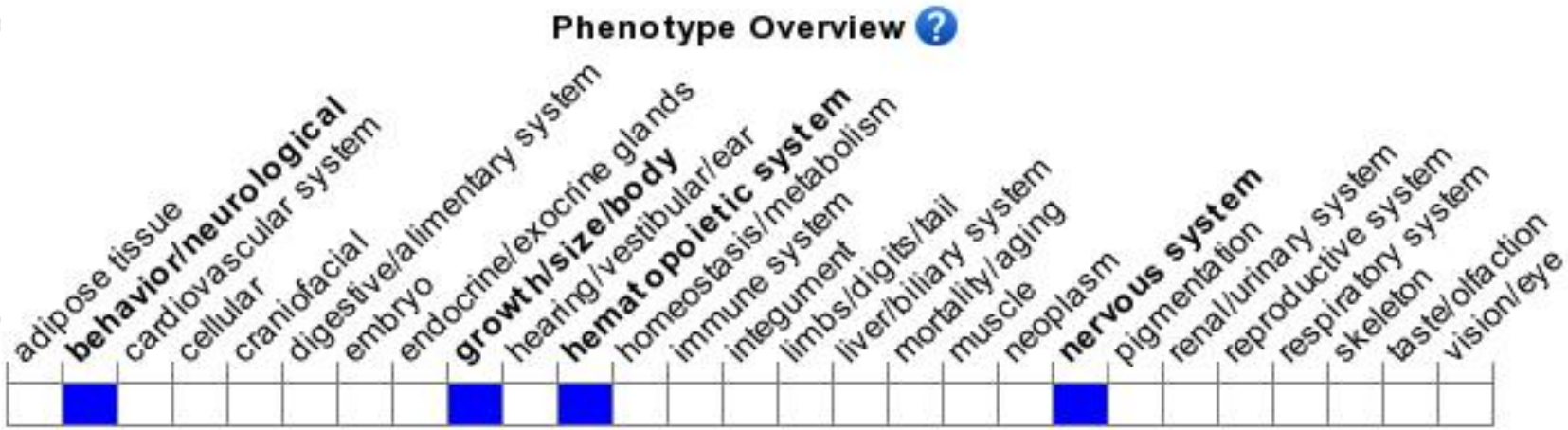
Genomic location distribution



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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