Rbpms2 Cas9-CKO Strategy

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Project Overview

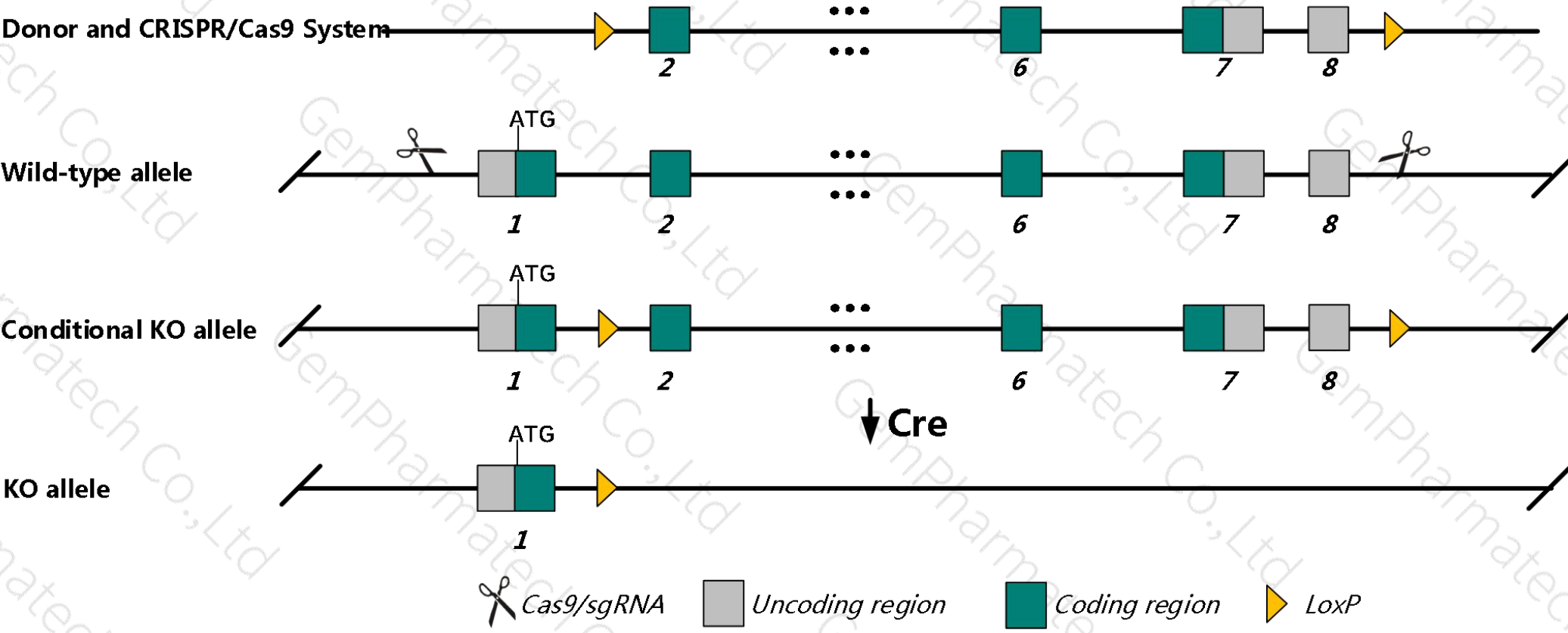|	
Project Name	***Rbpms2***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rbpms2* gene. The schematic diagram is as follows:

Technical routes

➤ The *Rbpms2* gene has 6 transcripts. According to the structure of *Rbpms2* gene, exon2-exon8 of *Rbpms2-201*(ENSMUST00000055844.9) 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 *Rbpms2* gene. The brief process is as follows:sgRNA was transcribed in vitro, donor vector was constructed.Cas9, sgRNA 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 was 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

➢ The *Rbpms2* gene is located on the Chr9. 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）

Rbpms2 RNA binding protein with multiple splicing 2 [Mus musculus (house mouse)]
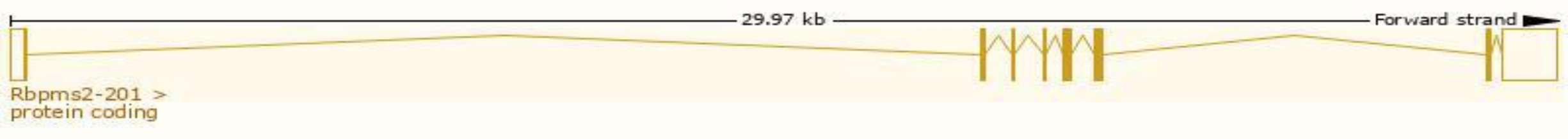
Gene ID: 71973, updated on 13-Mar-2020

▲ Summary

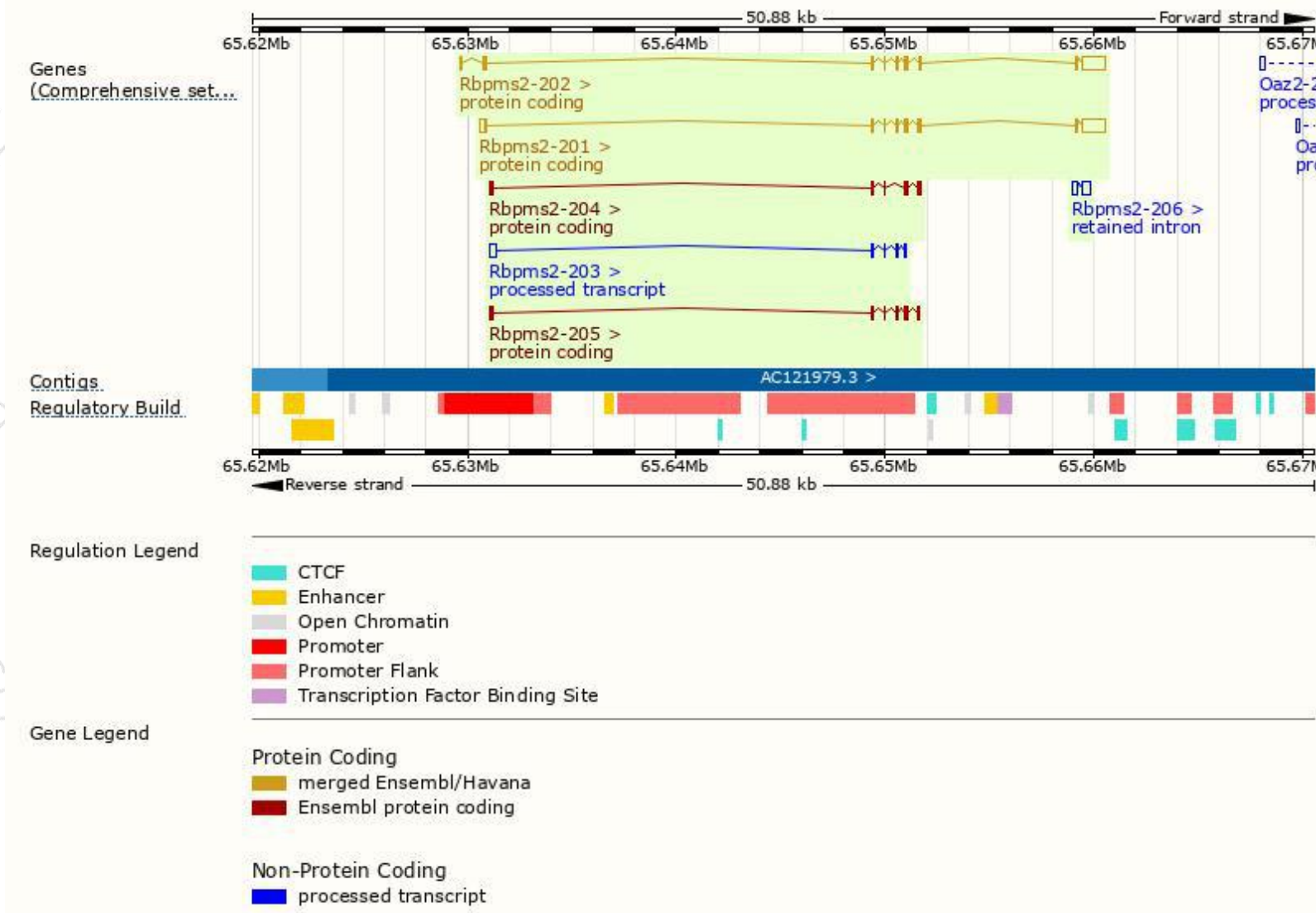|	
Official Symbol	Rbpms2 provided by MGI
Official Full Name	RNA binding protein with multiple splicing 2 provided by MGI
Primary source	MGI:MGI:1919223
See related	Ensembl:ENSMUSG00000032387
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2400008B06Rik, AI316523
Expression	Broad expression in kidney adult (RPKM 74.7), adrenal adult (RPKM 48.4) and 21 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

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

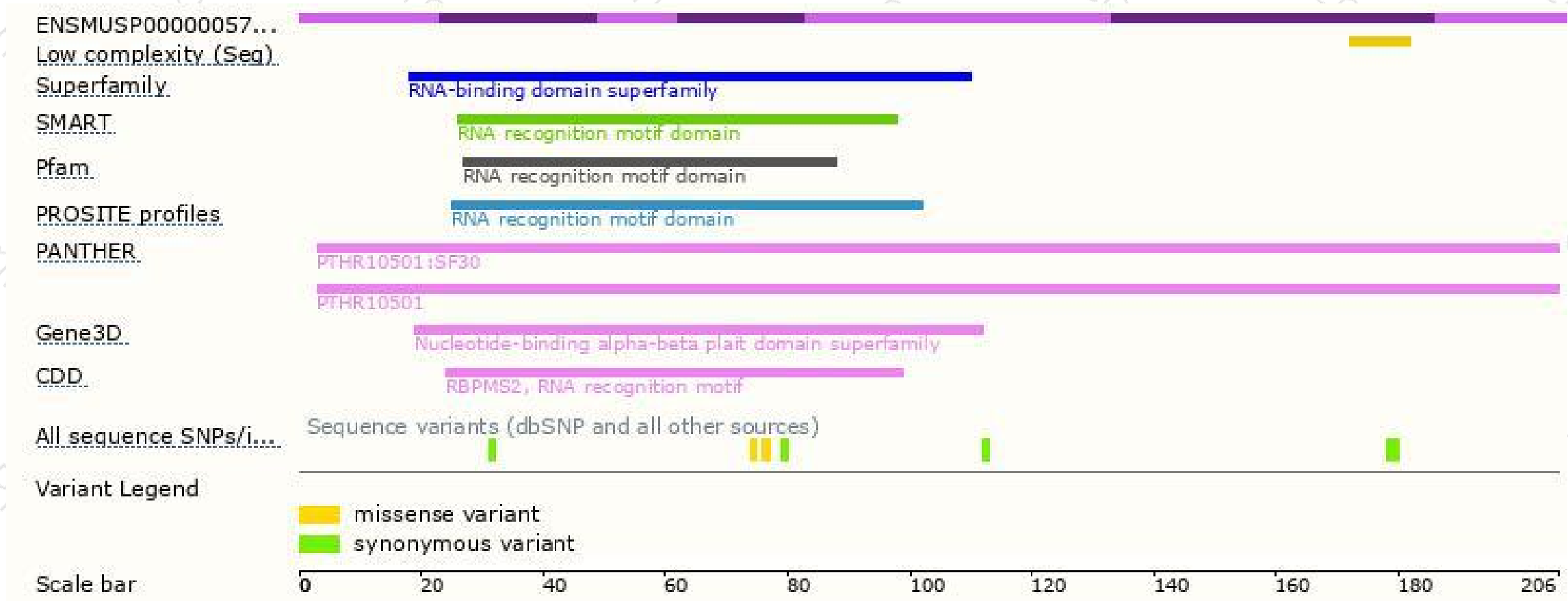| Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rbpms2-201	ENSMUST00000055844.9	1987	206aa	Protein coding	CCDS23296	Q8VC52	TSL:1 GENCODE basic APPRIS P2
Rbpms2-202	ENSMUST00000169003.7	1803	168aa	Protein coding	-	Q9CWY6	TSL:1 GENCODE basic APPRIS ALT2
Rbpms2-204	ENSMUST0000216342.1	594	198aa	Protein coding	-	A0A1L1SRM3	CDS 5' and 3' incomplete TSL:3
Rbpms2-205	ENSMUST0000216382.1	573	191aa	Protein coding	-	A0A1L1SVH5	CDS 5' and 3' incomplete TSL:5 APPRIS ALT2
Rbpms2-203	ENSMUST00000213927.1	569	No protein	Processed transcript	-	-	TSL:5
Rbpms2-206	ENSMUST00000216769.1	600	No protein	Retained intron	-	-	TSL:2

The strategy is based on the design of *Rbpms2-201* transcript,the transcription is shown below:
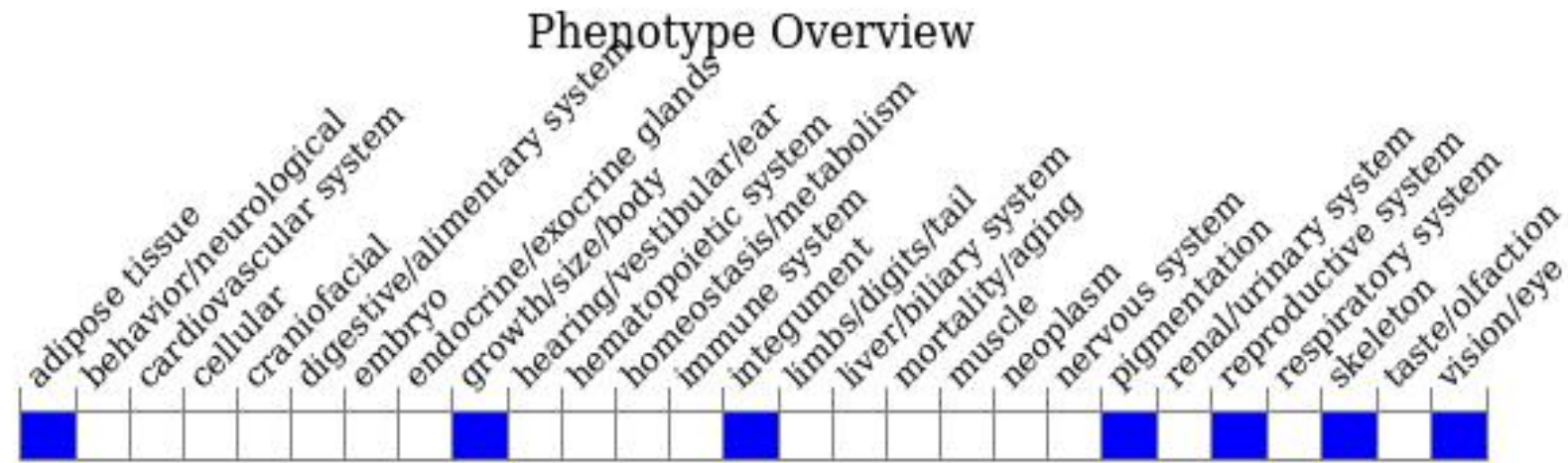
Genomic location distribution

Protein domain

ENSMUSP00000057...	
Low complexity (Seg)	
Superfamily	RNA-binding domain superfamily
SMART	RNA recognition motif domain
Pfam	RNA recognition motif domain
PROSITE profiles	RNA recognition motif domain
PANTHER	PTHR10501:SF30
	PTHR10501
Gene3D	Nucleotide-binding alpha-beta plait domain superfamily
CDD	RBPMS2, RNA recognition motif
All sequence SNPs/i...	Sequence variants (dbSNP and all other sources)

Variant Legend

- ■ missense variant (orange)
- ■ synonymous variant (green)

Scale bar

0   20   40   60   80   100   120   140   160   180   206

Mouse phenotype description(MGI)

Phenotypes affected by the gene are marked in blue.Data quoted from MGI database(http://www.informatics.jax.org/).

If you have any questions, you are welcome to inquire.
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