S100a6 Cas9-KO Strategy

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Project Overview

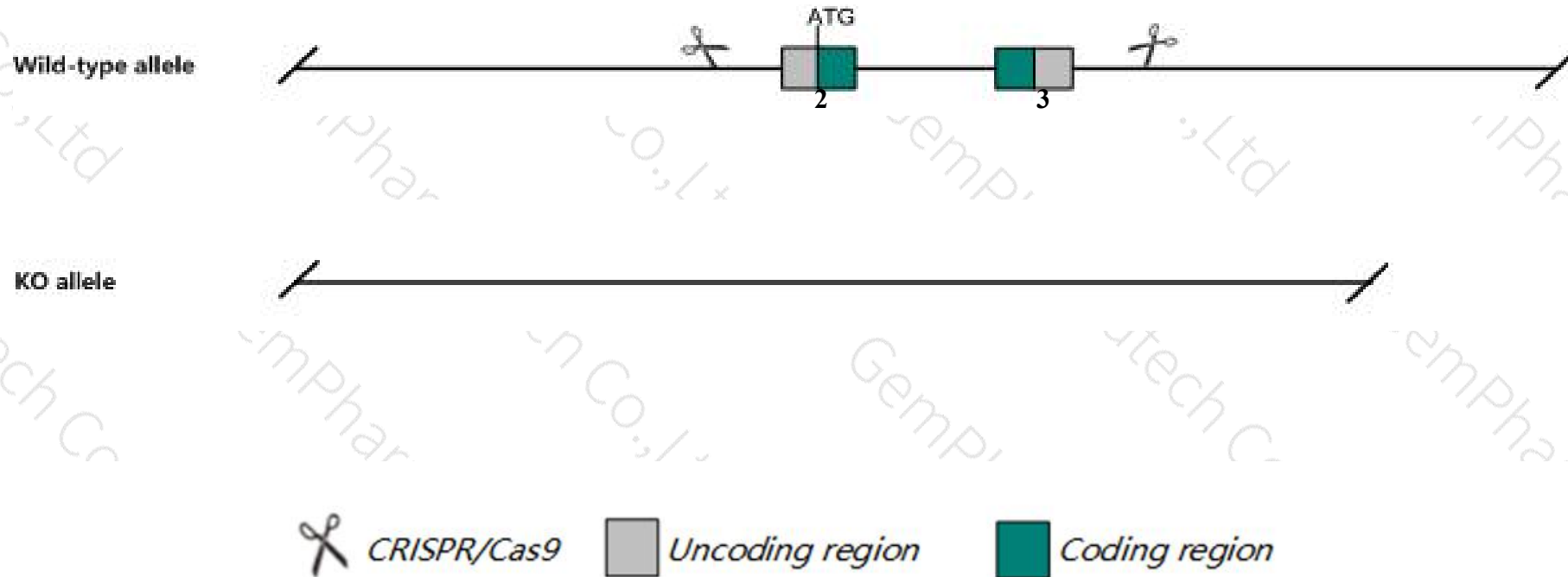|	
Project Name	*S100a6*
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *S100a6* gene. The schematic diagram is as follows:

Technical routes

➢ The *S100a6* gene has 4 transcripts. According to the structure of *S100a6* gene, exon2-exon3 of *S100a6-201* (ENSMUST00000001051.8) transcript is recommended as the knockout region.The region contains all 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 *S100a6* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

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➤ The konckout region is near to the C-terminal of and *S100a5* gene,this strategy may influence the regulatory function of the C-terminal of and *S100a5* gene.

➤ The *S100a6* gene is located on the Chr3. 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information （NCBI）

S100a6   S100 calcium binding protein A6 (calcyclin) [*Mus musculus* (house mouse)]

Gene ID: 20200, updated on 12-Aug-2019

Summary

Official Symbol	S100a6 provided by MGI
Official Full Name	S100 calcium binding protein A6 (calcyclin) provided by MGI
Primary source	MGI:MGI:1339467
See related	Ensembl:ENSMUSG00000001025
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	2A9; PRA; 5B10; Cacy; CALCYCLIN
Expression	Biased expression in bladder adult (RPKM 1598.0), colon adult (RPKM 575.5) and 9 other tissues See more
Orthologs	human all

Genomic context

Location: 3 F1; 3 39.35 cM

See S100a6 in Genome Data Viewer

Exon count: 3

| Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	3	NC_000069.6 (90612894..90614414)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	3	NC_000069.5 (90416816..90418336)

Transcript information（Ensembl）

The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
S100a6-201	ENSMUST00000001051.8	731	89aa	Protein coding	CCDS38506	P14069 Q545I9	TSL:1 GENCODE basic APPRIS P1
S100a6-203	ENSMUST0000198128.1	464	89aa	Protein coding	CCDS38506	P14069 Q545I9	TSL:3 GENCODE basic APPRIS P1
S100a6-204	ENSMUST0000200289.1	783	89aa	Nonsense mediated decay	-	P14069 Q545I9	TSL:3
S100a6-202	ENSMUST0000197189.1	338	No protein	Retained intron	-	-	TSL:2

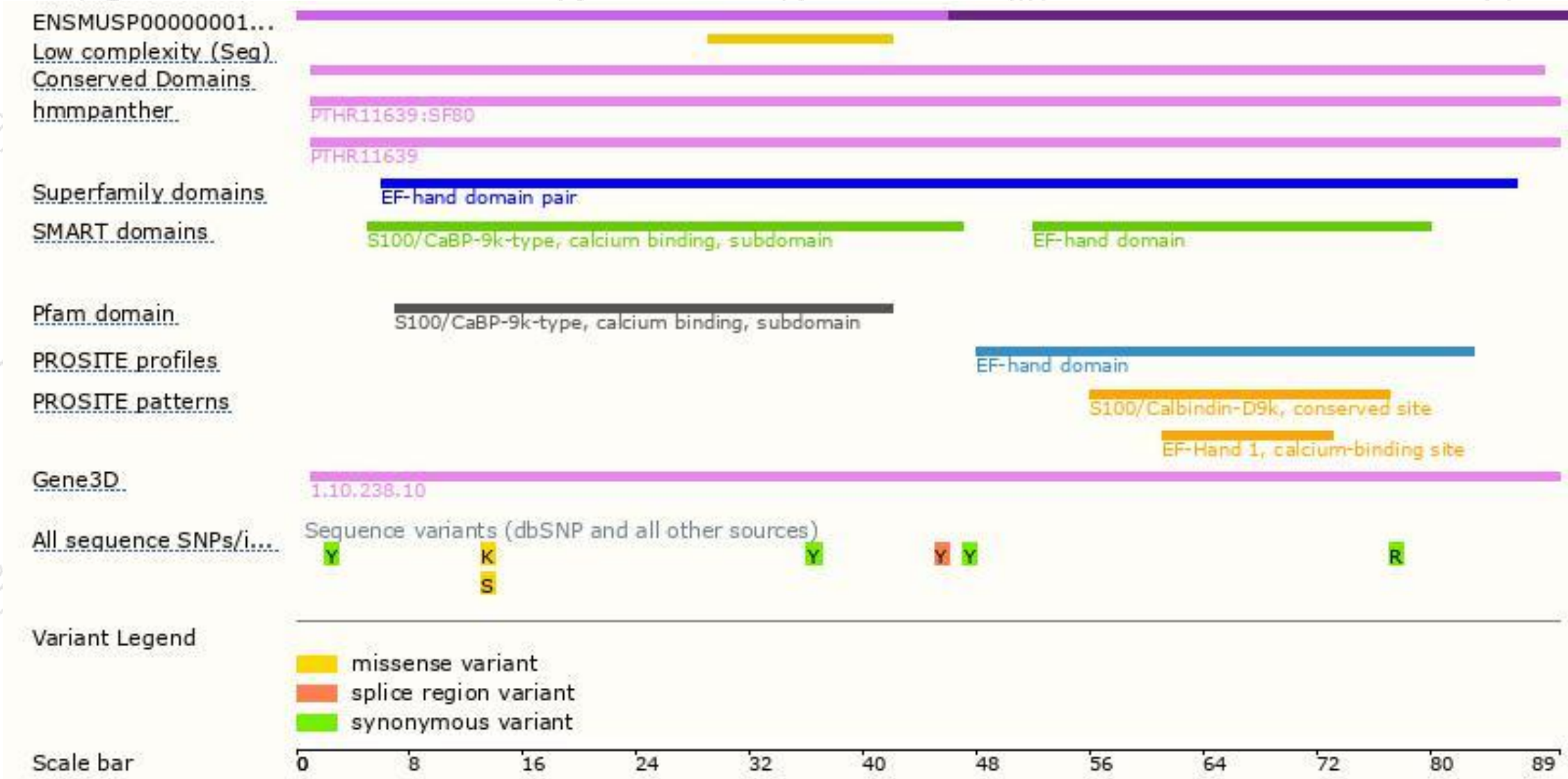The strategy is based on the design of *S100a6-201* transcript,The transcription is shown below
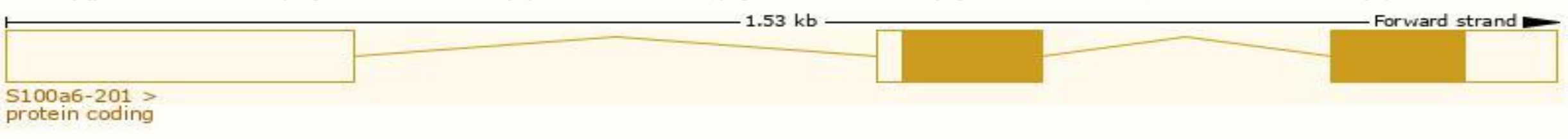
Genomic location distribution
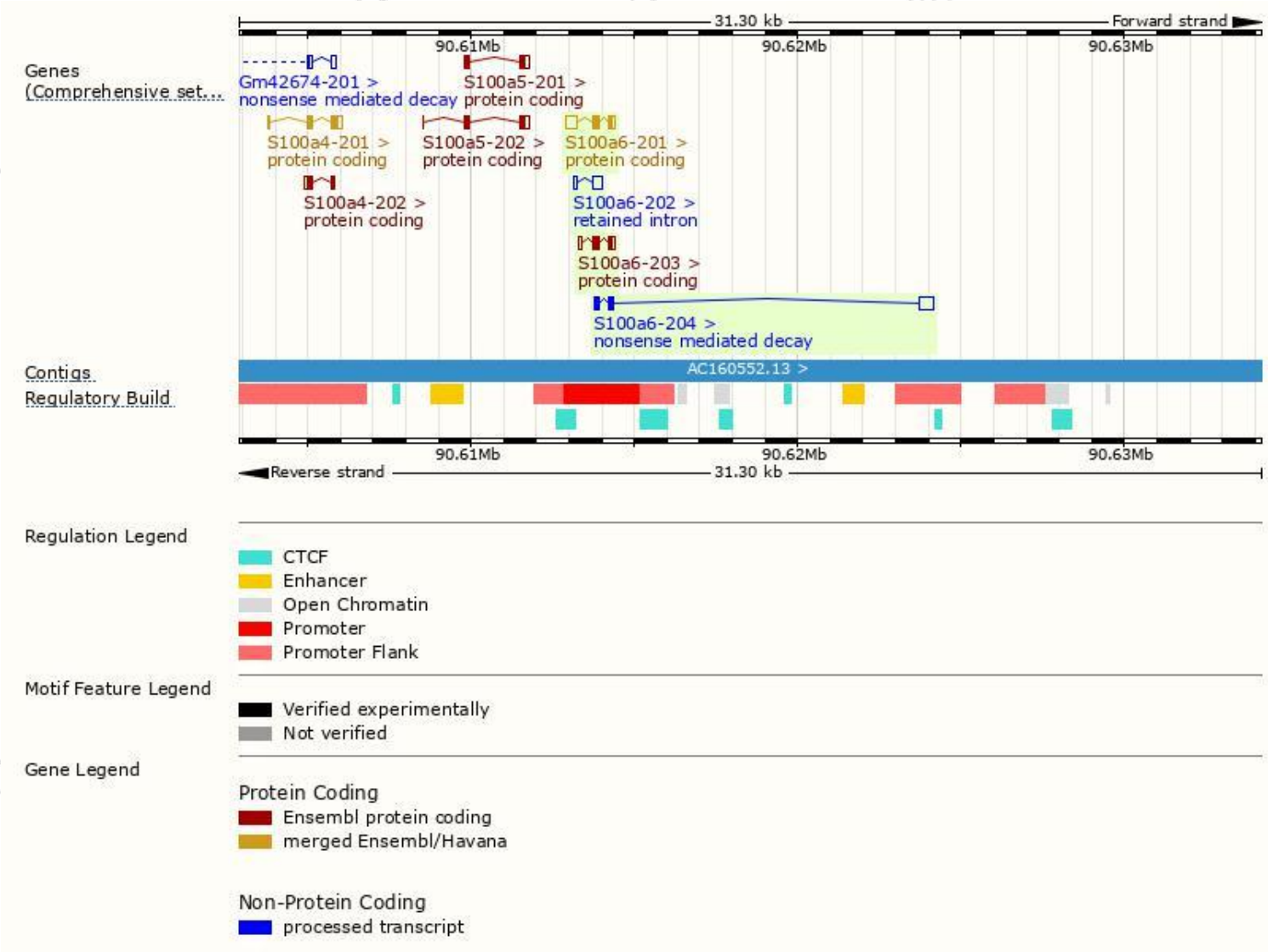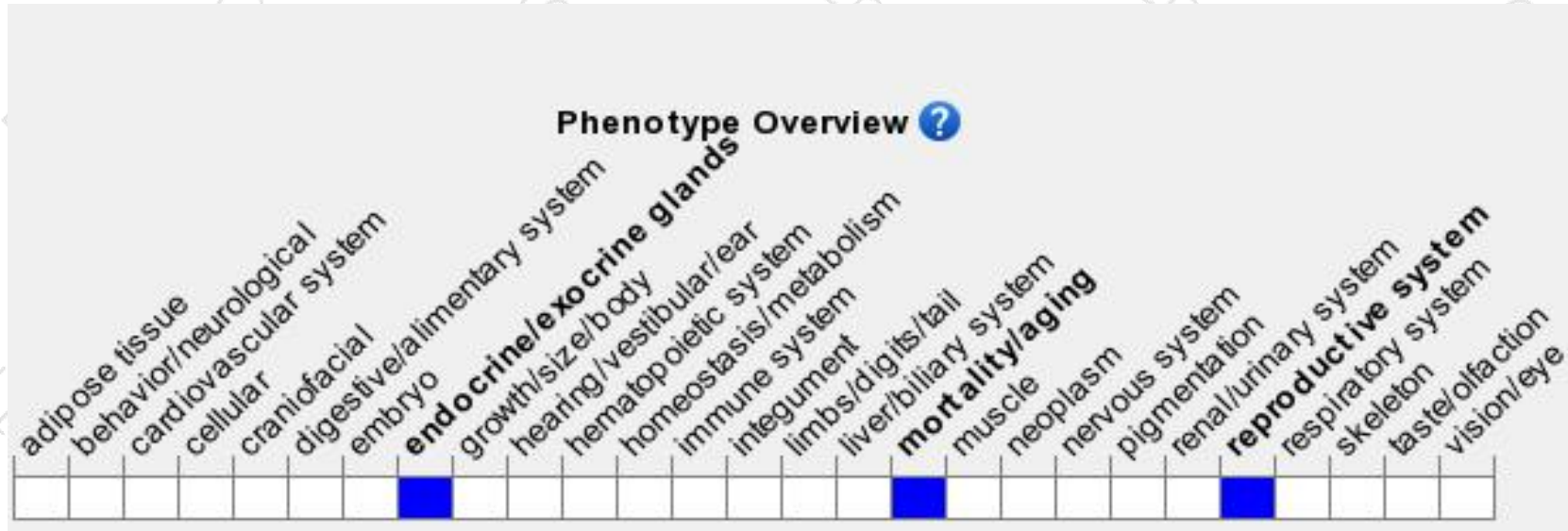
Protein domain

Mouse phenotype description(MGI)

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

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