Siah2 Cas9-CKO Strategy

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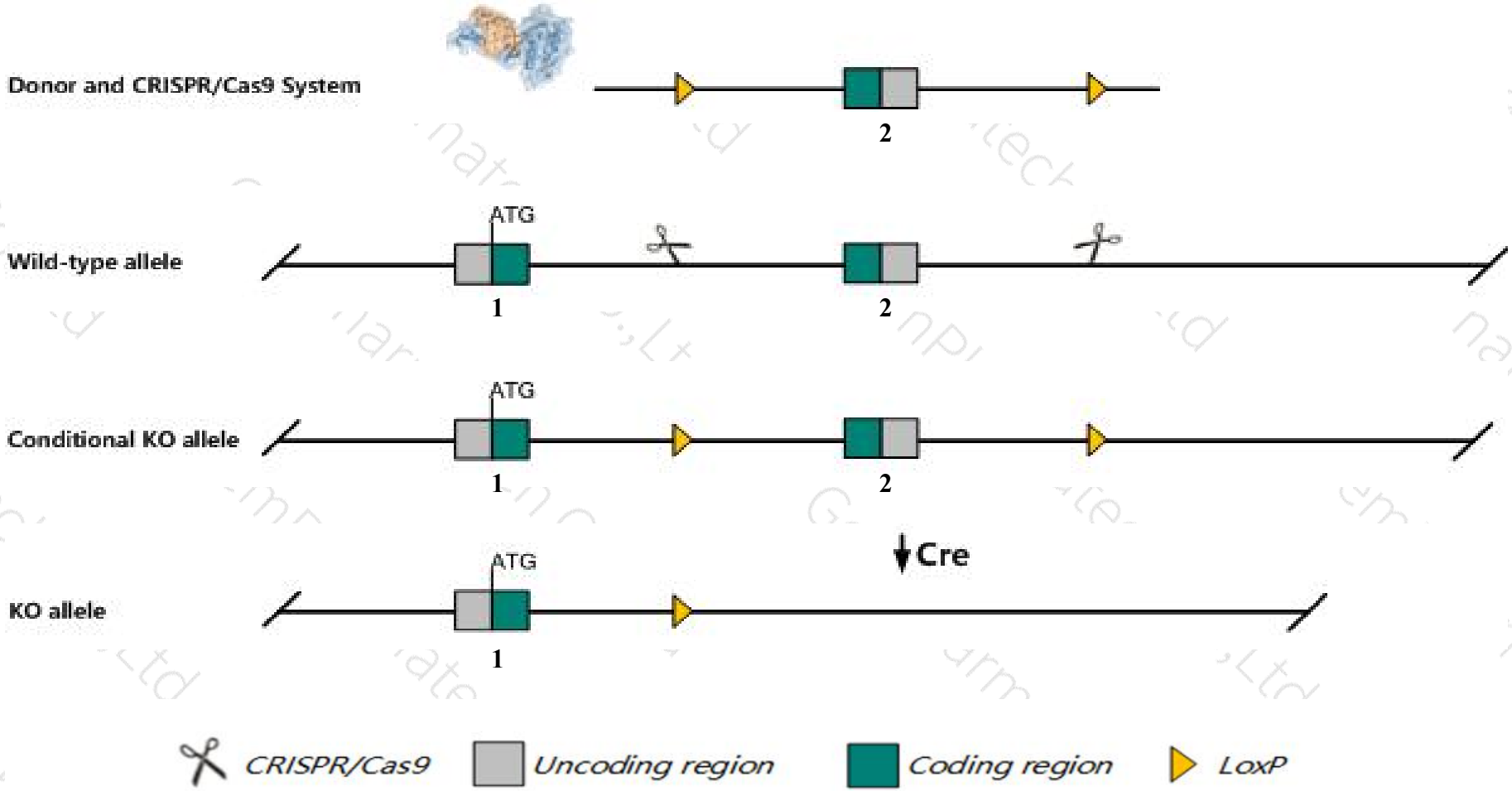
Project Overview

Project Name	***Siah2***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Siah2* gene. The schematic diagram is as follows:



Technical routes

- The *Siah2* gene has 2 transcripts. According to the structure of *Siah2* gene, exon2 of *Siah2-201* (ENSMUST00000070368.7) transcript is recommended as the knockout region.The region contains most of coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Siah2* gene. The brief process is as follows:gRNA was transcribed in vitro, donor was constructed.Cas9, gRNA 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 disruptions in this gene display an essentially normal phenotype.

- The *Siah2* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information （NCBI）

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Siah2 siah E3 ubiquitin protein ligase 2 [*Mus musculus* (house mouse)]

Gene ID: 20439, updated on 8-Oct-2019

Summary

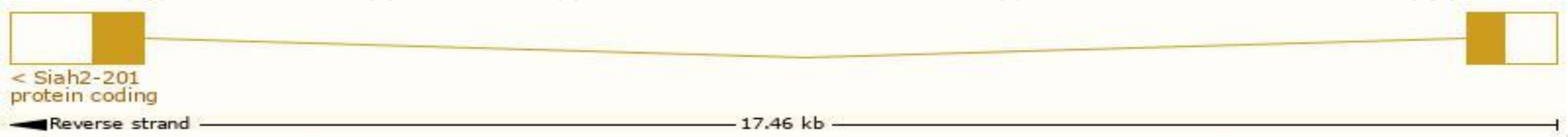
Official Symbol	Siah2 provided by MGI
Official Full Name	siah E3 ubiquitin protein ligase 2 provided by MGI
Primary source	MGI:MGI:108062
See related	Ensembl:ENSMUSG00000036432
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Sinh2; AA415433
Expression	Broad expression in testis adult (RPKM 54.6), adrenal adult (RPKM 21.1) and 27 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

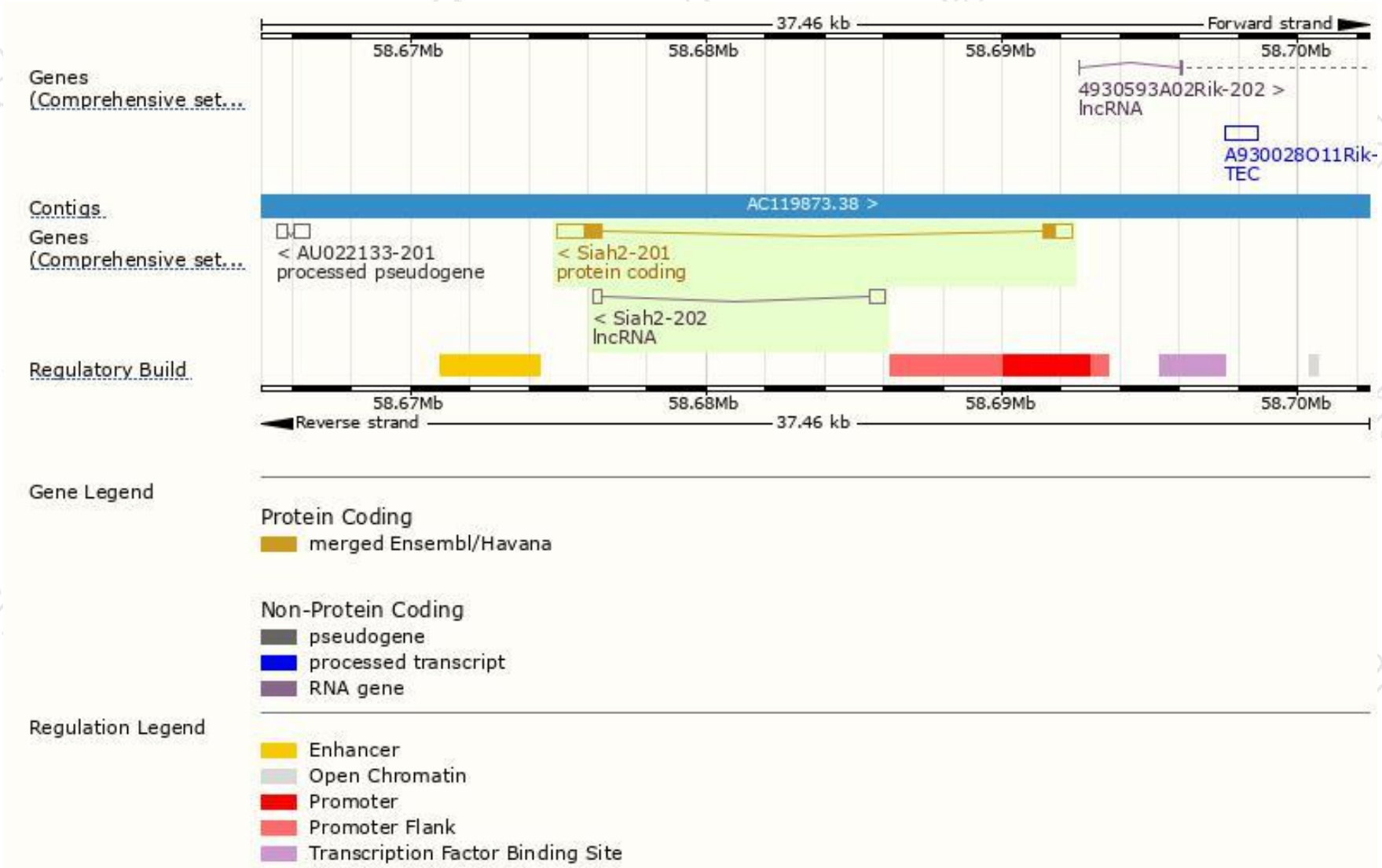
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Siah2-201	ENSMUST00000070368.7	2511	325aa	ENSMUSP00000067496.7	Protein coding	CCDS17368	Q06986 Q3UEV2	TSL:1 GENCODE basic APPRIS P1
Siah2-202	ENSMUST00000145032.1	756	No protein	-	lncRNA	-	-	TSL:3

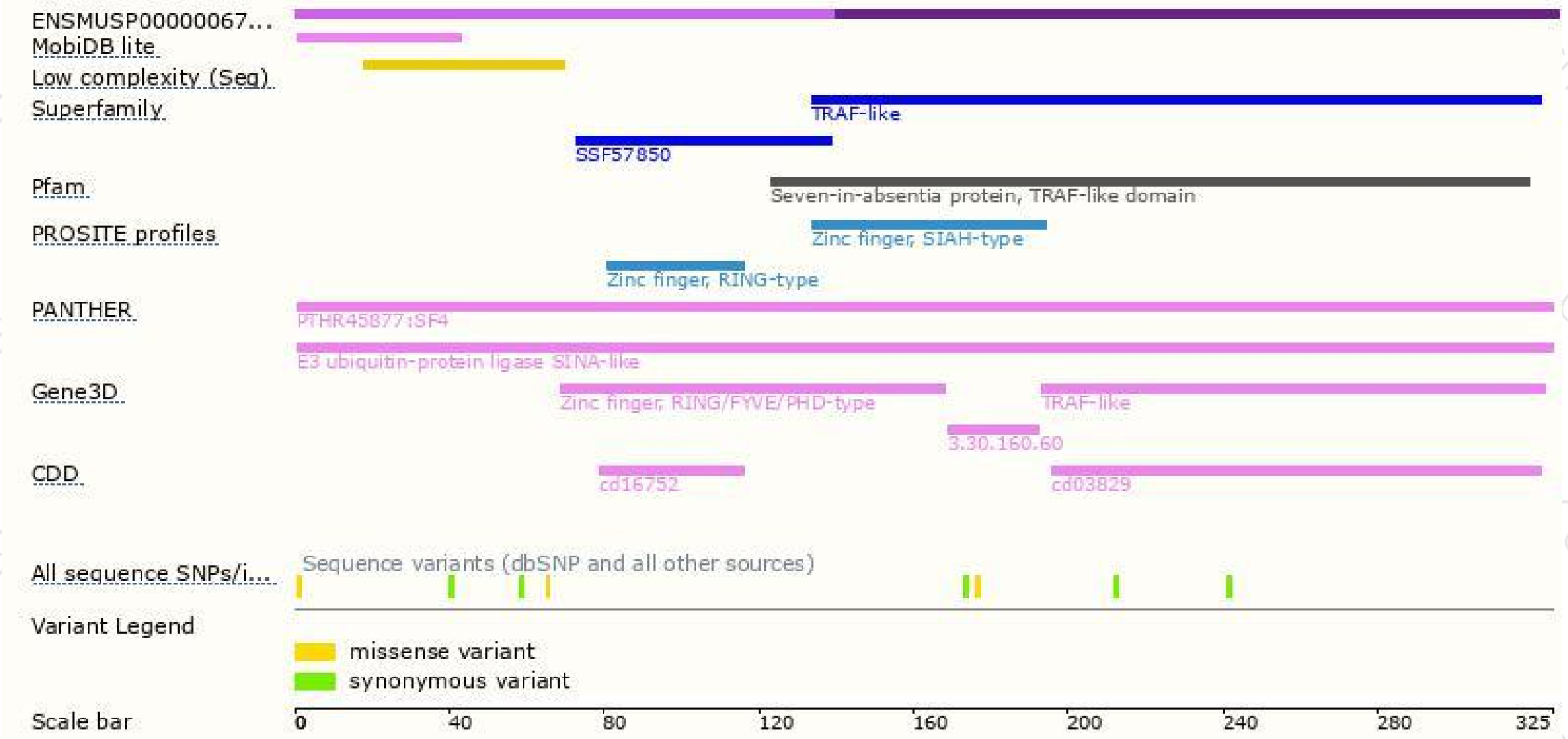
The strategy is based on the design of *Siah2-201* transcript,The transcription is shown below



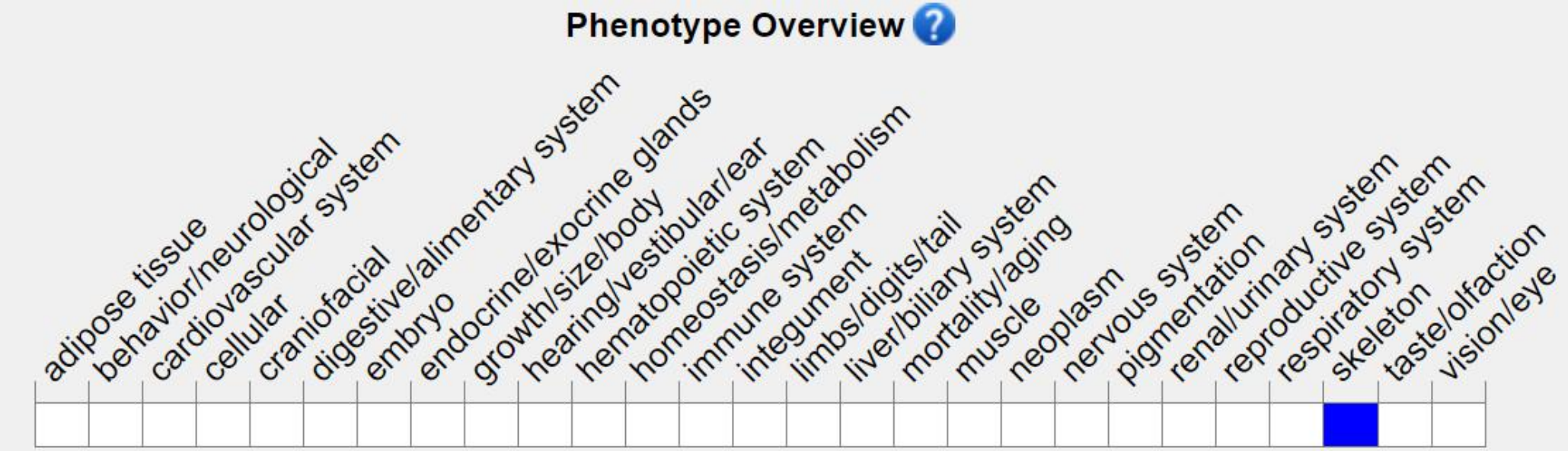
Genomic location distribution



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/).

According to the existing MGI data,Mice homozygous for disruptions in this gene display an essentially normal phenotype.

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

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