

Socs6 Cas9-CKO Strategy

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Project Overview

Project Name

Socs6

Project type

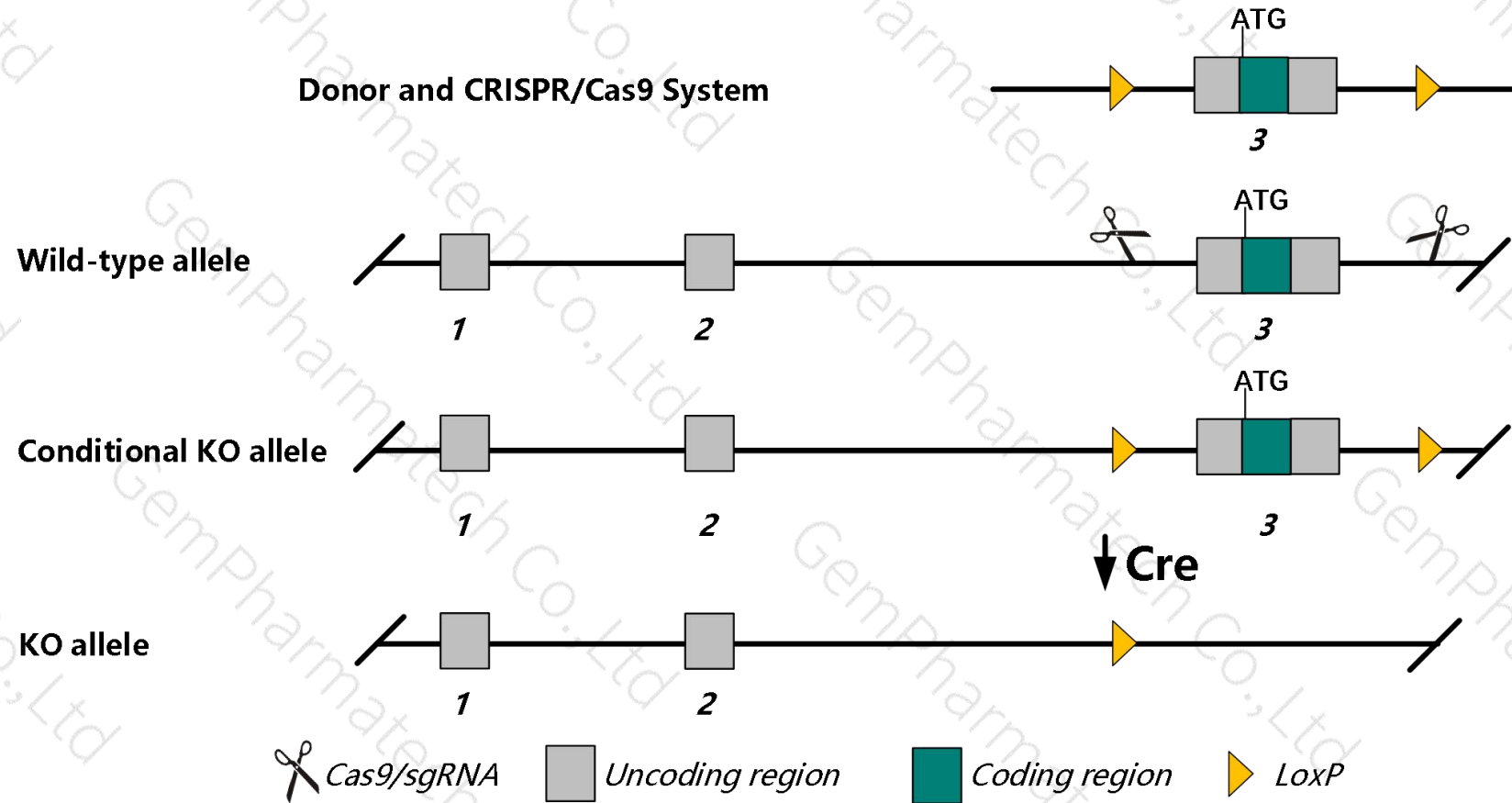
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Socs6* gene. The schematic diagram is as follows:



- The *Socs6* gene has 9 transcripts. According to the structure of *Socs6* gene, exon3 of *Socs6-201* (ENSMUST00000070116.11) 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 *Socs6* 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.

- According to the existing MGI data, Mice homozygous for a targeted null mutation exhibit reduced body weight, but normal hematopoiesis and glucose homeostasis.
- Transcript *Socs6*-204&207&209 may not be affected.
- The *Socs6* gene is located on the Chr18. 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)

Socs6 suppressor of cytokine signaling 6 [*Mus musculus* (house mouse)]

Gene ID: 54607, updated on 12-Aug-2019

Summary

- Official Symbol** Socs6 provided by [MGI](#)
- Official Full Name** suppressor of cytokine signaling 6 provided by [MGI](#)
- Primary source** [MGI:MGI:1924885](#)
- See related** [Ensembl:ENSMUSG00000056153](#)
- 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** Cis4; SSI4; Cish4; STAI4; Socs4; SOCS-4; SOCS-6; STATI4; HSPC060; AI447482; 1500012M23Rik; 5830401B18Rik
- Expression** Ubiquitous expression in CNS E11.5 (RPKM 6.2), placenta adult (RPKM 4.8) and 28 other tissues [See more](#)
- Orthologs** [human](#) [all](#)

Genomic context

Location: 18; 18 E4

See Socs6 in [Genome Data Viewer](#)

Exon count: 4

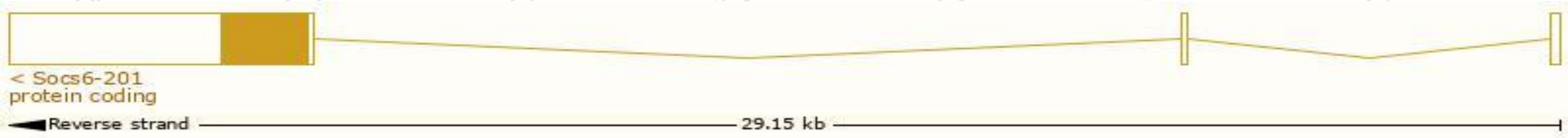
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	18	NC_000084.6 (88865169..88894364, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	18	NC_000084.5 (89037272..89063599, complement)

Transcript information (Ensembl)

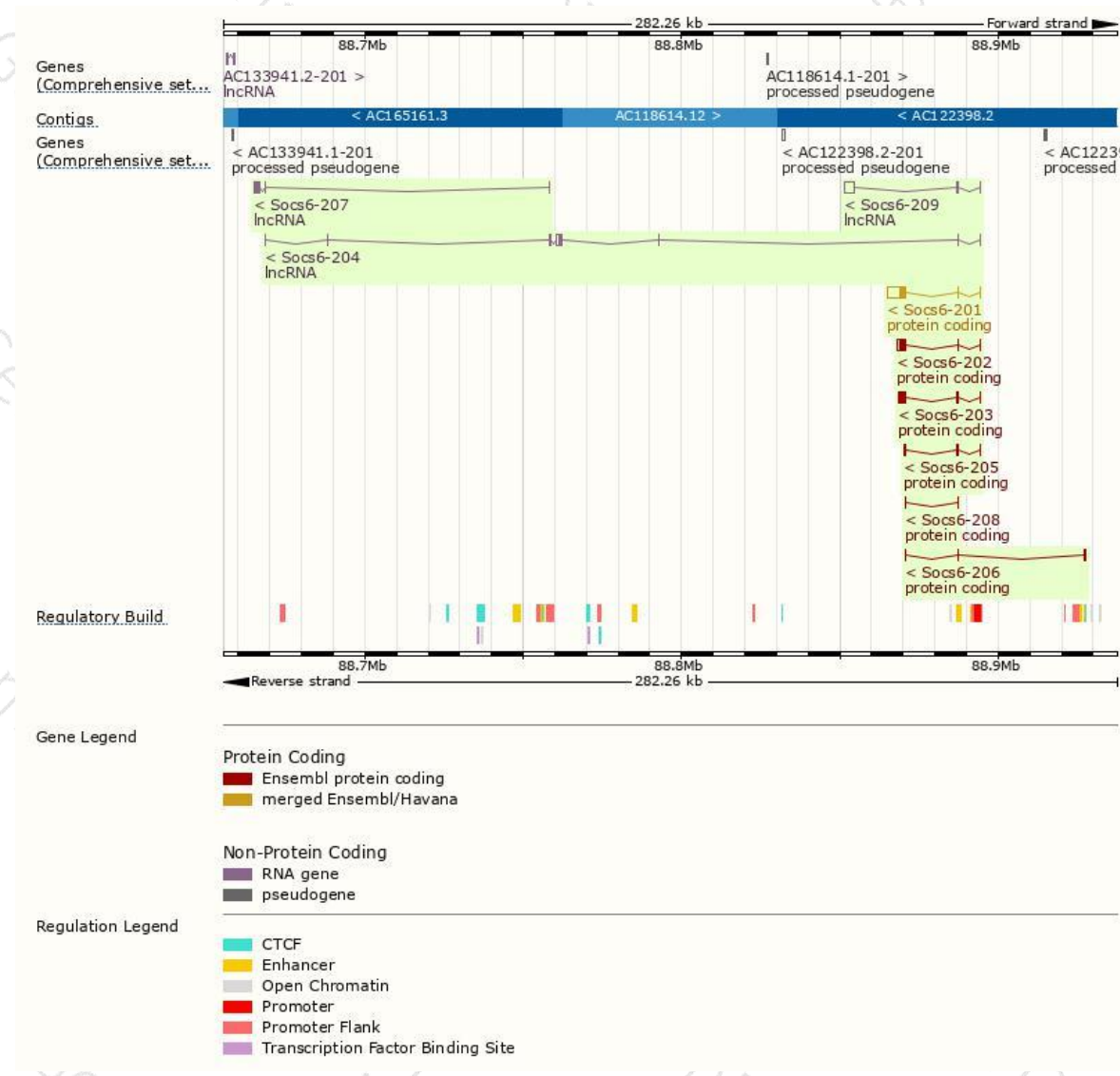
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Socs6-201	ENSMUST00000070116.11	6036	533aa	Protein coding	CCDS29389	Q9JLY0	TSL:1 GENCODE basic APPRIS P1
Socs6-202	ENSMUST00000123826.1	2921	533aa	Protein coding	CCDS29389	Q9JLY0	TSL:1 GENCODE basic APPRIS P1
Socs6-203	ENSMUST00000125362.7	2814	533aa	Protein coding	CCDS29389	Q9JLY0	TSL:1 GENCODE basic APPRIS P1
Socs6-205	ENSMUST00000145120.2	1004	180aa	Protein coding	-	D3Z776	CDS 3' incomplete TSL:2
Socs6-208	ENSMUST00000236108.1	453	65aa	Protein coding	-	-	CDS 3' incomplete
Socs6-206	ENSMUST00000147313.1	370	8aa	Protein coding	-	A0A1C7ZMY9	CDS 3' incomplete TSL:3
Socs6-209	ENSMUST00000237549.1	3417	No protein	lncRNA	-	-	
Socs6-204	ENSMUST00000136173.7	1729	No protein	lncRNA	-	-	TSL:5
Socs6-207	ENSMUST00000155169.1	715	No protein	lncRNA	-	-	TSL:2

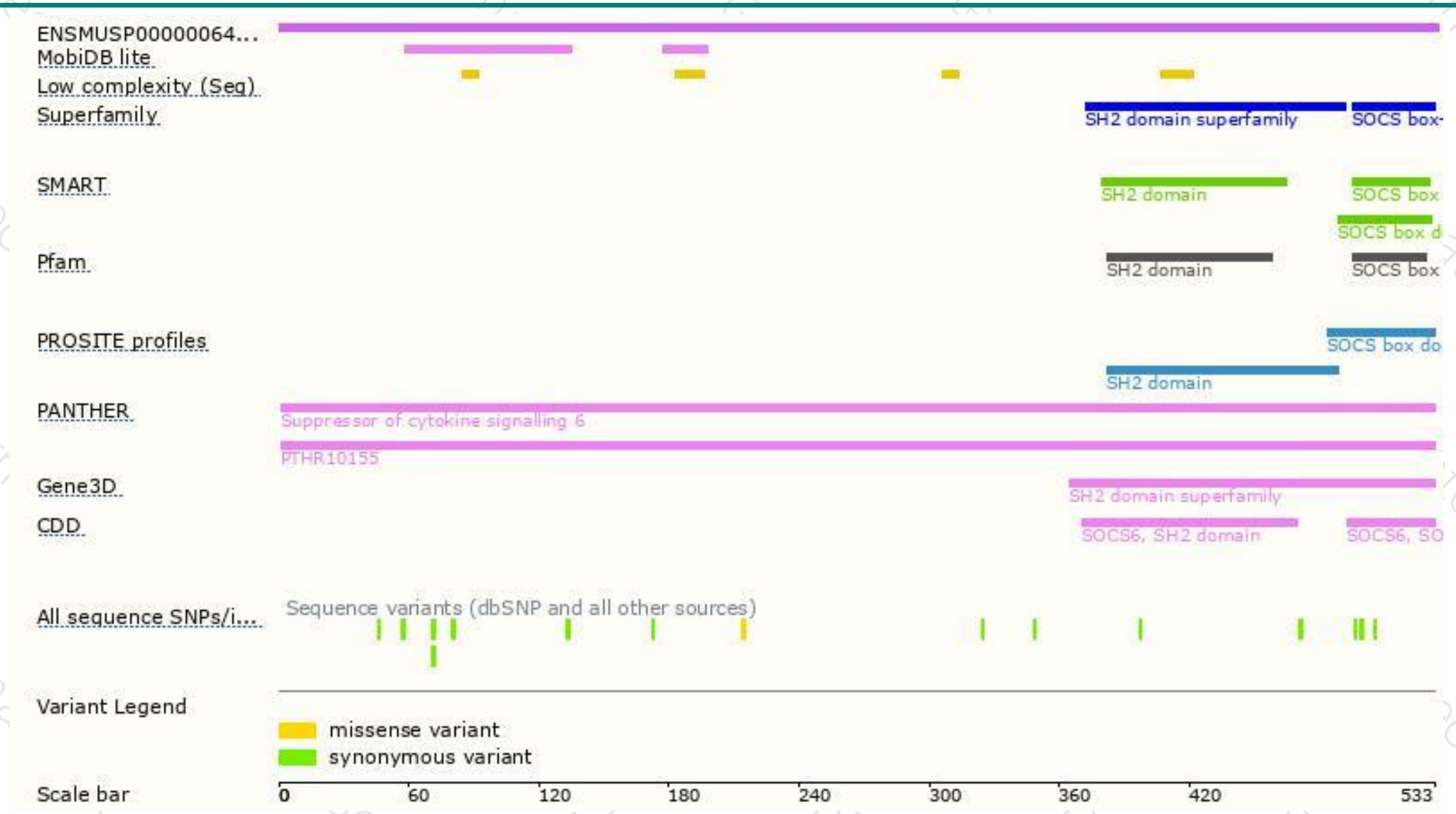
The strategy is based on the design of *Socs6-201* transcript,The transcription is shown below



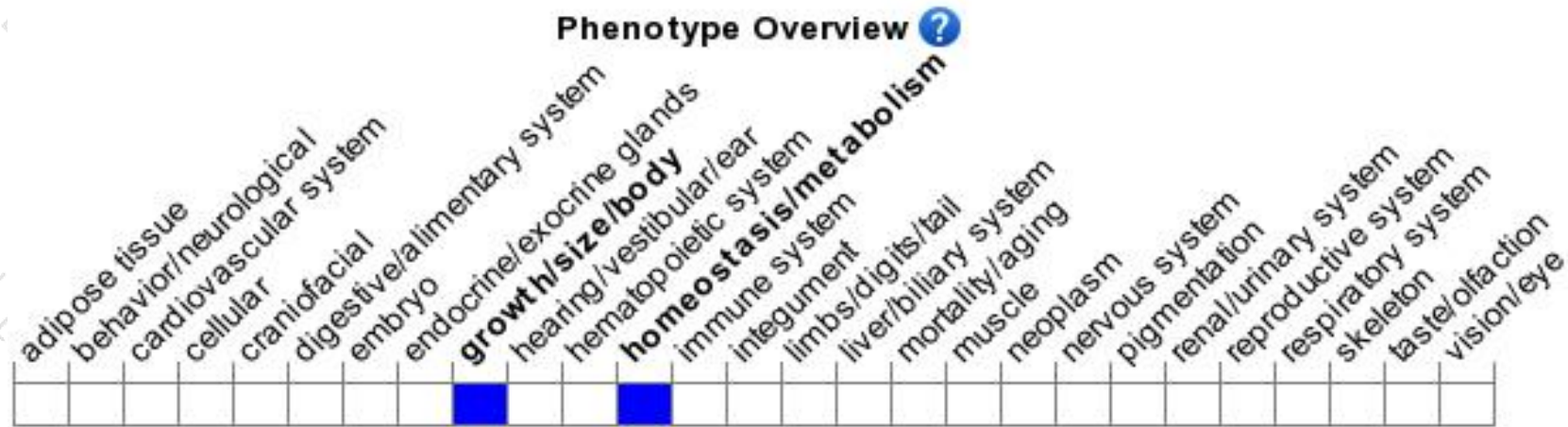
Genomic location distribution



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 a targeted null mutation exhibit reduced body weight, but normal hematopoiesis and glucose homeostasis.

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

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