

Csmd1 Cas9-CKO Strategy

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Reviewer:

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Design Date:

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Project Overview

Project Name

Csmd1

Project type

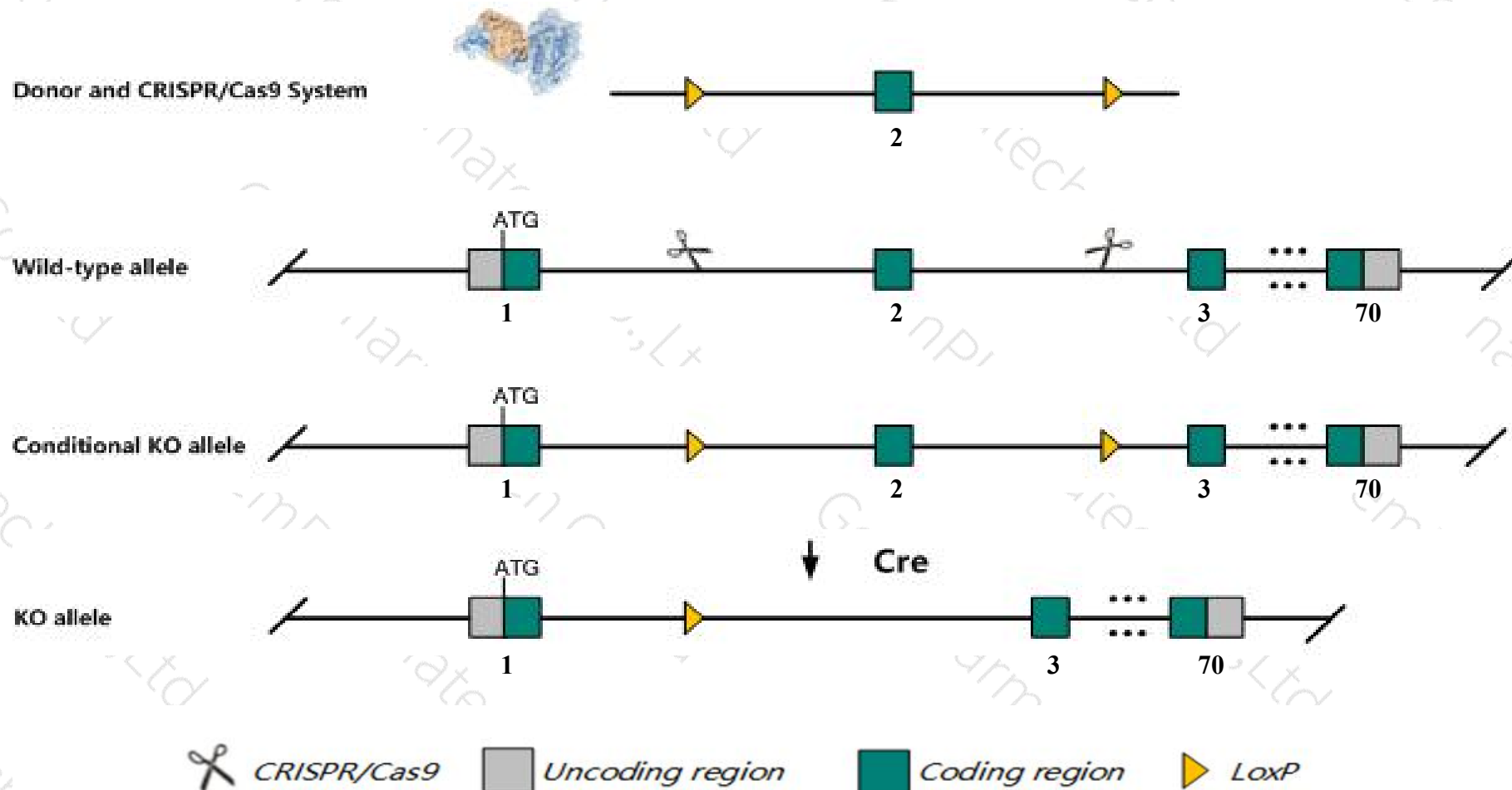
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Csmd1* gene. The schematic diagram is as follows:



- The *Csmd1* gene has 7 transcripts. According to the structure of *Csmd1* gene, exon2 of *Csmd1-201* (ENSMUST00000082104.6) transcript is recommended as the knockout region. The region contains 217bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Csmd1* 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 exhibit normal pre-pulse inhibition, social interaction, sucrose preference and d-amphetamine sensitivity.
- The *Csmd1* gene is located on the Chr8. 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)

Csmd1 CUB and Sushi multiple domains 1 [Mus musculus (house mouse)]

Gene ID: 94109, updated on 31-Jan-2019

Summary



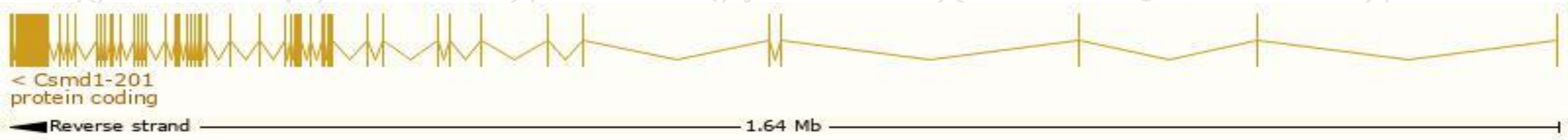
Official Symbol	Csmd1 provided by MGI
Official Full Name	CUB and Sushi multiple domains 1 provided by MGI
Primary source	MGI:MGI:2137383
See related	Ensembl:ENSMUSG00000060924
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	B930082H09, mKIAA1890
Expression	Biased expression in cortex adult (RPKM 2.0), frontal lobe adult (RPKM 1.5) and 10 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

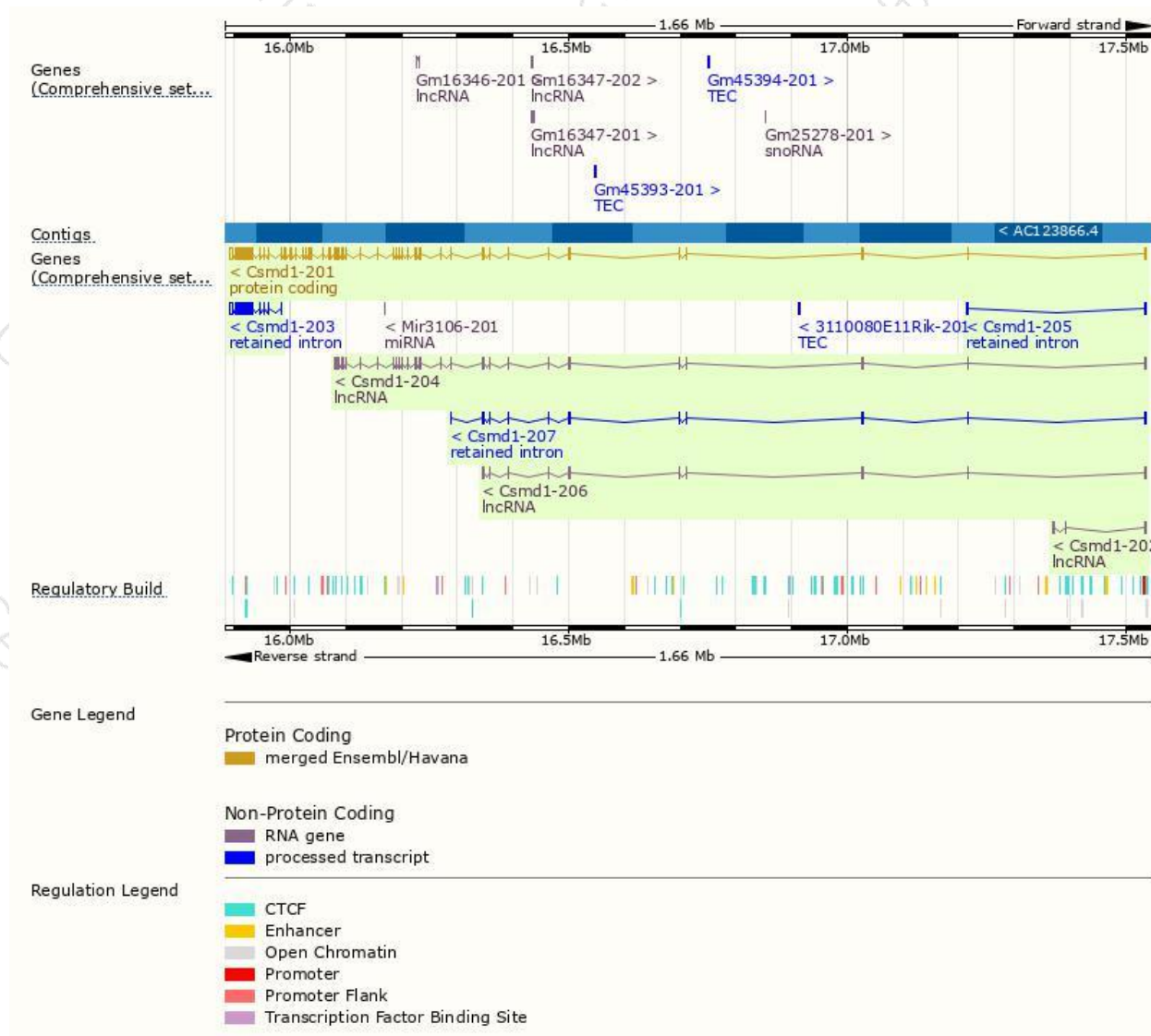
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Csmd1-201	ENSMUST00000082104.6	14182	3564aa	Protein coding	CCDS40244	Q923L3	TSL:1 GENCODE basic APPRIS P1
Csmd1-203	ENSMUST00000125551.1	6476	No protein	Retained intron	-	-	TSL:1
Csmd1-205	ENSMUST00000133933.1	2564	No protein	Retained intron	-	-	TSL:1
Csmd1-207	ENSMUST00000138348.8	2377	No protein	Retained intron	-	-	TSL:1
Csmd1-204	ENSMUST00000131778.7	5776	No protein	lncRNA	-	-	TSL:5
Csmd1-206	ENSMUST00000137947.1	2911	No protein	lncRNA	-	-	TSL:1
Csmd1-202	ENSMUST00000122983.1	1317	No protein	lncRNA	-	-	TSL:1

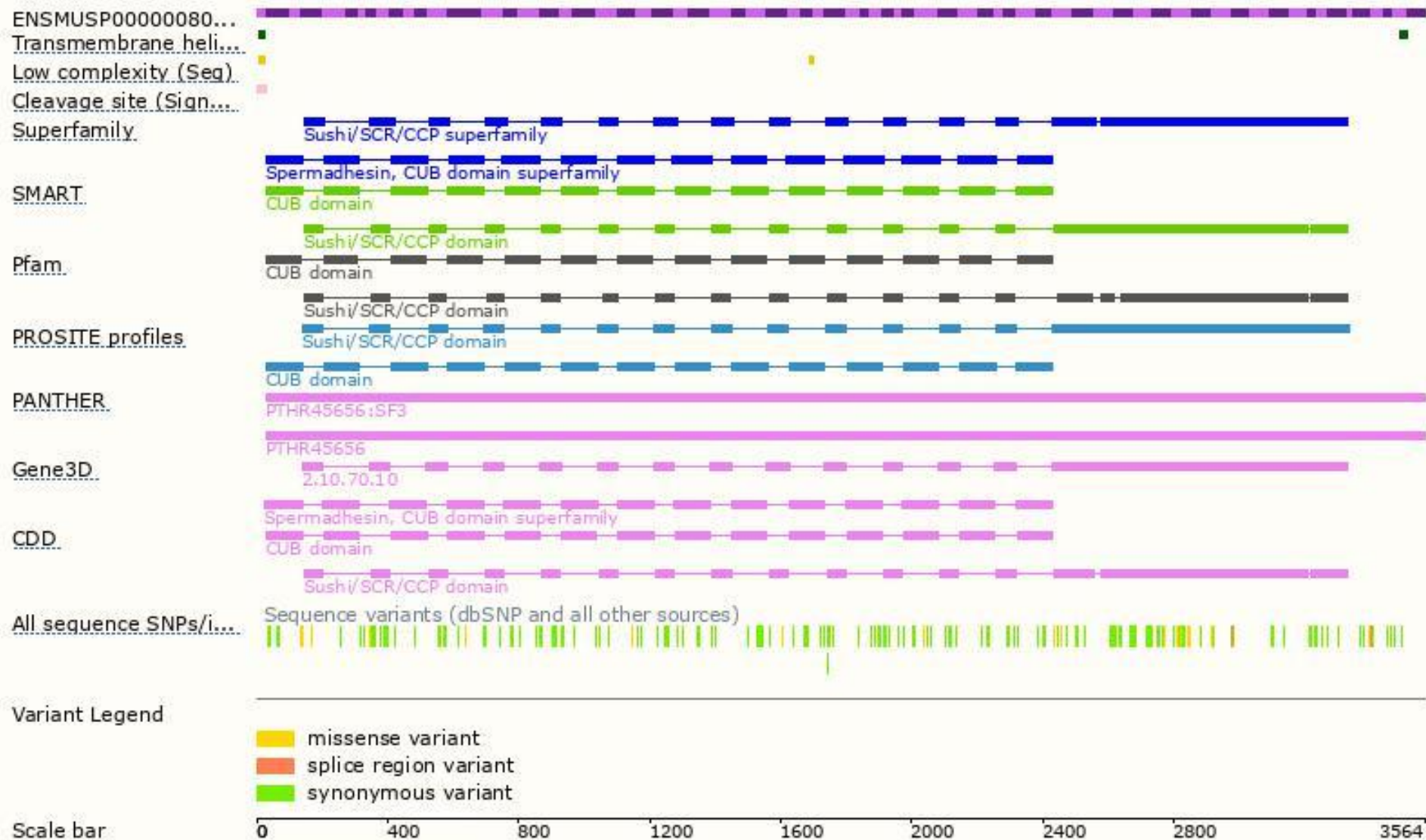
The strategy is based on the design of *Csmd1-201* transcript,The transcription is shown below



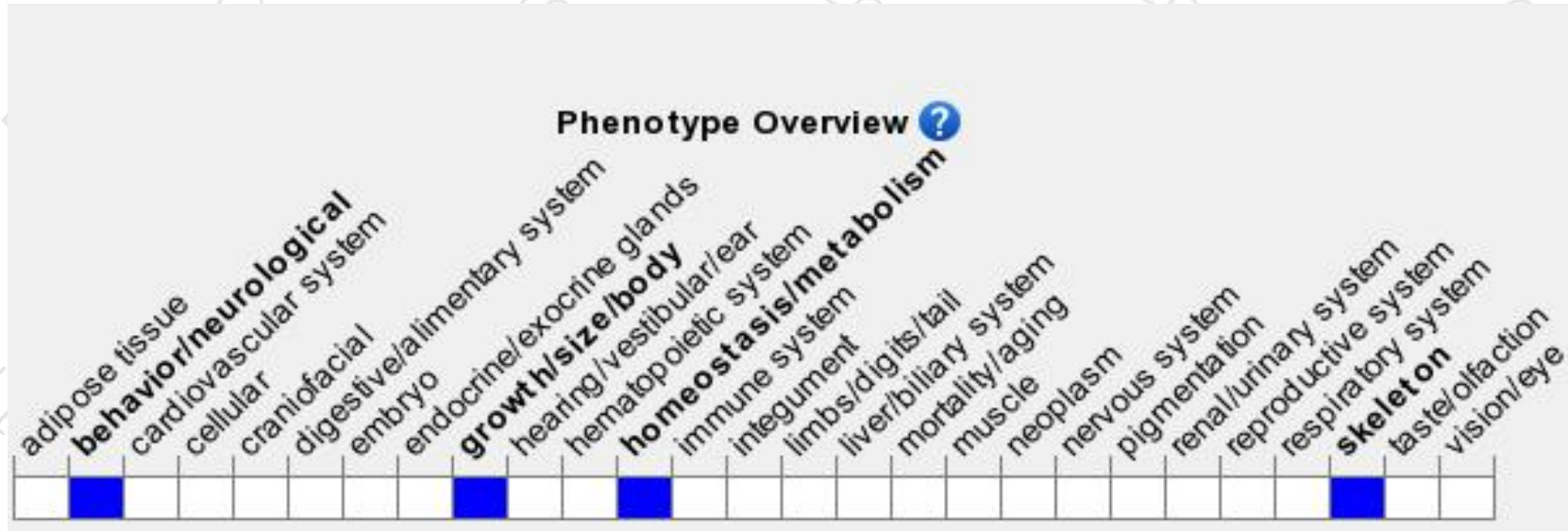
Genomic location distribution



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 exhibit normal pre-pulse inhibition, social interaction, sucrose preference and d-amphetamine sensitivity.

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

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