Stim1 Cas9-CKO Strategy

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Project Overview

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Project Name	***Stim1***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

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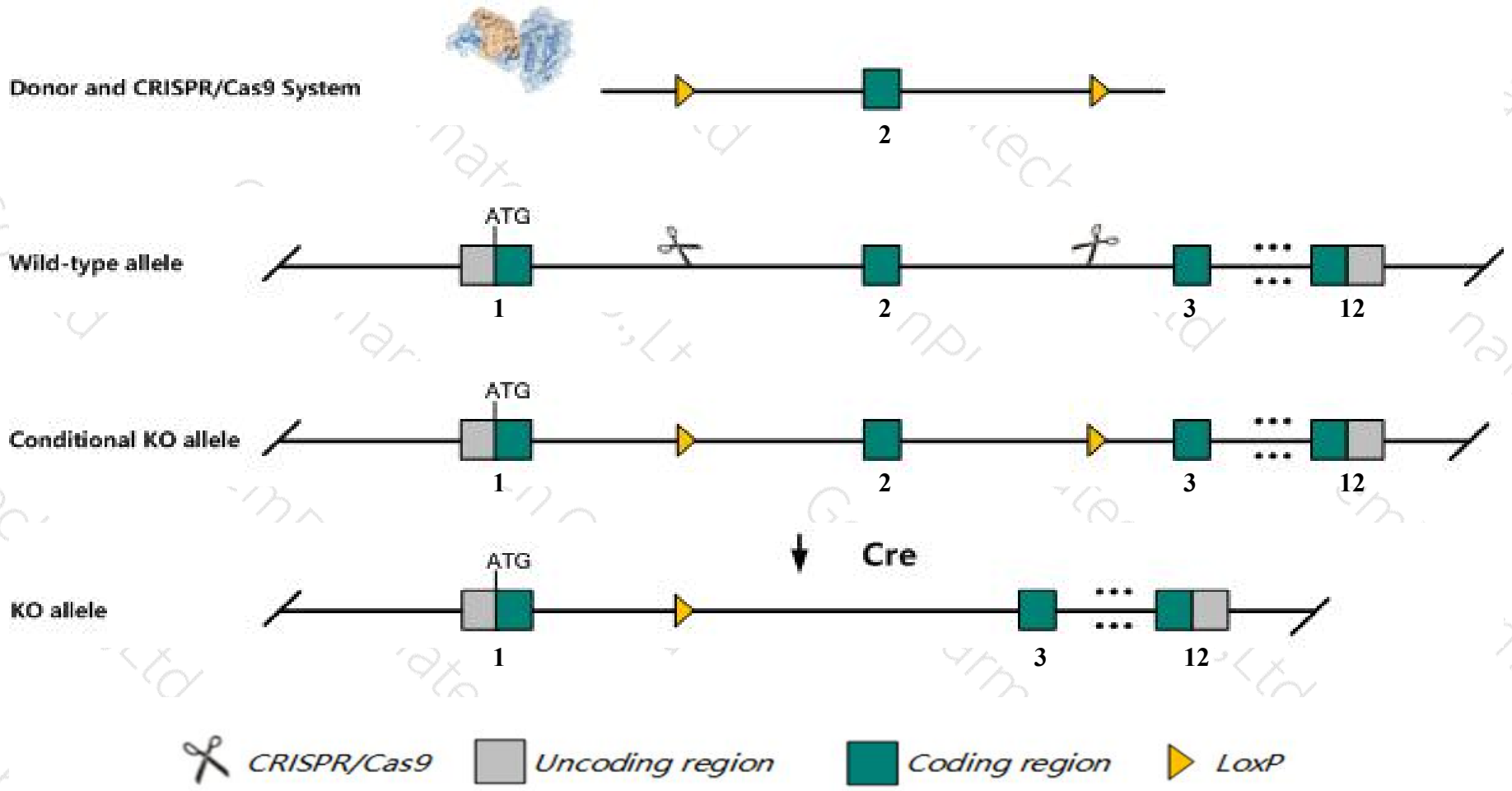
This model will use CRISPR/Cas9 technology to edit the *Stim1* gene. The schematic diagram is as follows:



Technical routes

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- The *Stim1* gene has 9 transcripts. According to the structure of *Stim1* gene, exon2 of *Stim1-201* (ENSMUST00000033289.5) transcript is recommended as the knockout region.The region contains 131bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Stim1* 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.

Notice

- According to the existing MGI data,Mice homozygous for a null allele exhibit perinatal and postnatal lethality, with all mice dying by 2 weeks of age, and severe growth retardation.

- Transcript *Stim1-207* may not be affected.

- The *Stim1* gene is located on the Chr7. 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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Stim1 stromal interaction molecule 1 [*Mus musculus* (house mouse)]

Gene ID: 20866, updated on 12-Sep-2019

Summary

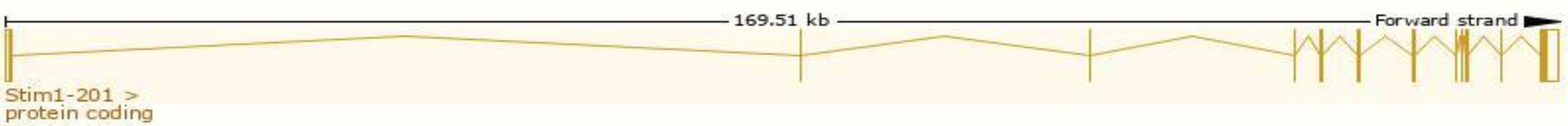
Official Symbol	Stim1 provided by MGI
Official Full Name	stromal interaction molecule 1 provided by MGI
Primary source	MGI:MGI:107476
See related	Ensembl:ENSMUSG00000030987
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	SIM
Expression	Ubiquitous expression in colon adult (RPKM 37.3), testis adult (RPKM 30.1) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

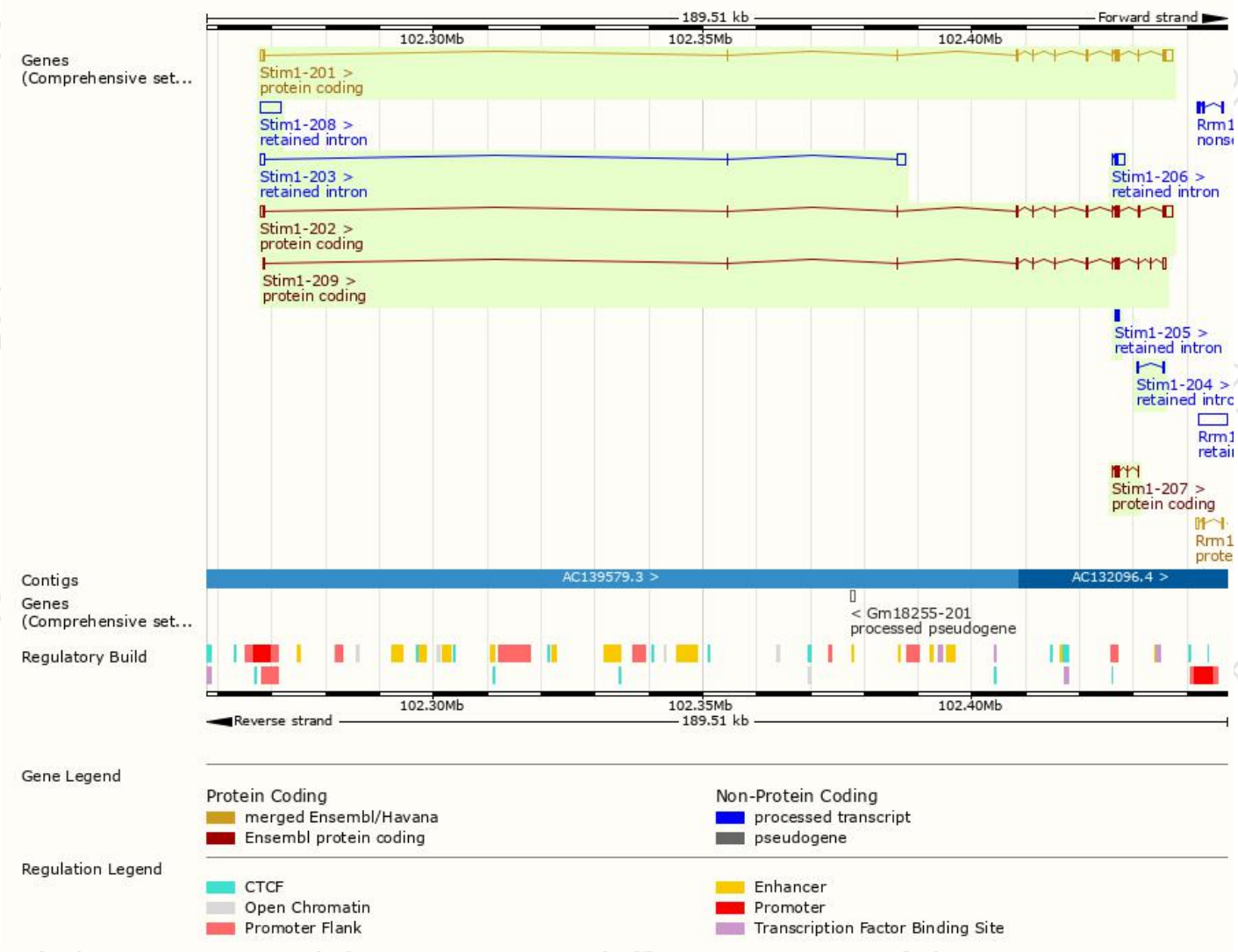
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Stim1-201	ENSMUST00000033289.5	4085	685aa	Protein coding	CCDS21530	P70302	TSL:1 GENCODE basic APPRIS P2
Stim1-202	ENSMUST00000209255.1	4362	793aa	Protein coding	-	A0A1B0GRA5	TSL:5 GENCODE basic
Stim1-209	ENSMUST00000211457.1	2183	540aa	Protein coding	-	A0A1B0GR78	TSL:5 GENCODE basic APPRIS ALT1
Stim1-207	ENSMUST00000211058.1	619	207aa	Protein coding	-	A0A1B0GQZ3	CDS 5' and 3' incomplete TSL:2
Stim1-208	ENSMUST00000211141.1	3837	No protein	Retained intron	-	-	TSL:NA
Stim1-203	ENSMUST00000210266.1	2504	No protein	Retained intron	-	-	TSL:1
Stim1-206	ENSMUST00000210834.1	1436	No protein	Retained intron	-	-	TSL:2
Stim1-204	ENSMUST00000210544.1	494	No protein	Retained intron	-	-	TSL:1
Stim1-205	ENSMUST00000210761.1	483	No protein	Retained intron	-	-	TSL:1

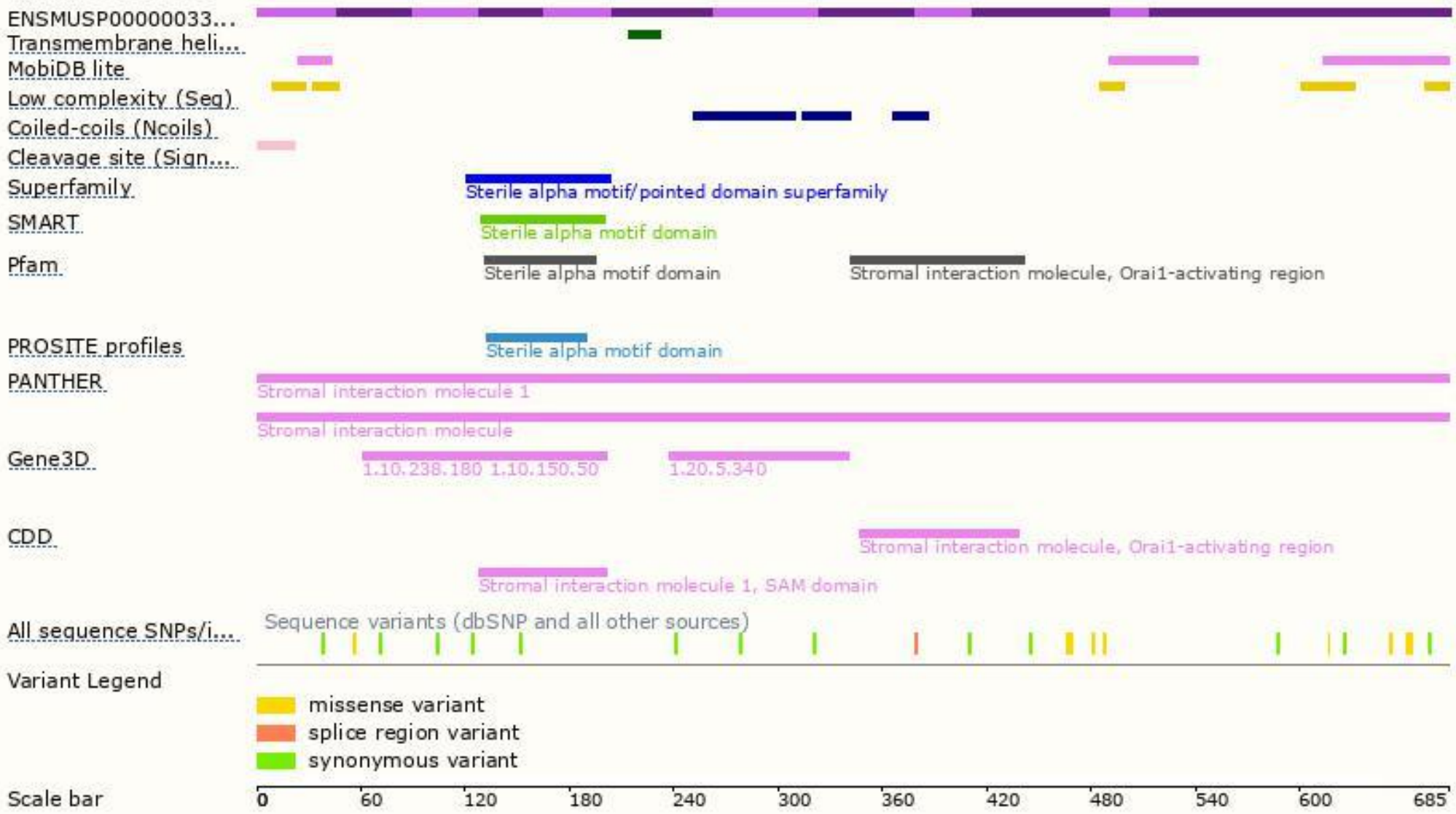
The strategy is based on the design of *Stim1-201* transcript,The transcription is shown below



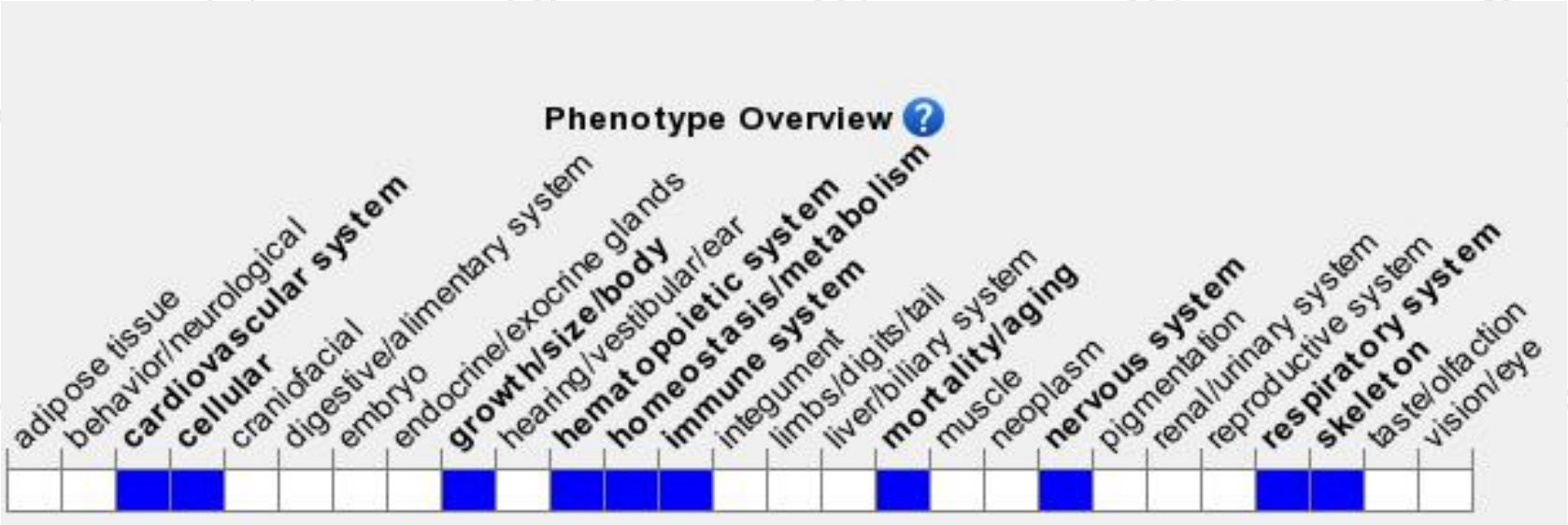
Genomic location distribution



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 null allele exhibit perinatal and postnatal lethality, with all mice dying by 2 weeks of age, and severe growth retardation.

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