

***Gata6* Cas9-CKO Strategy**

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Project Overview

Project Name

Gata6

Project type

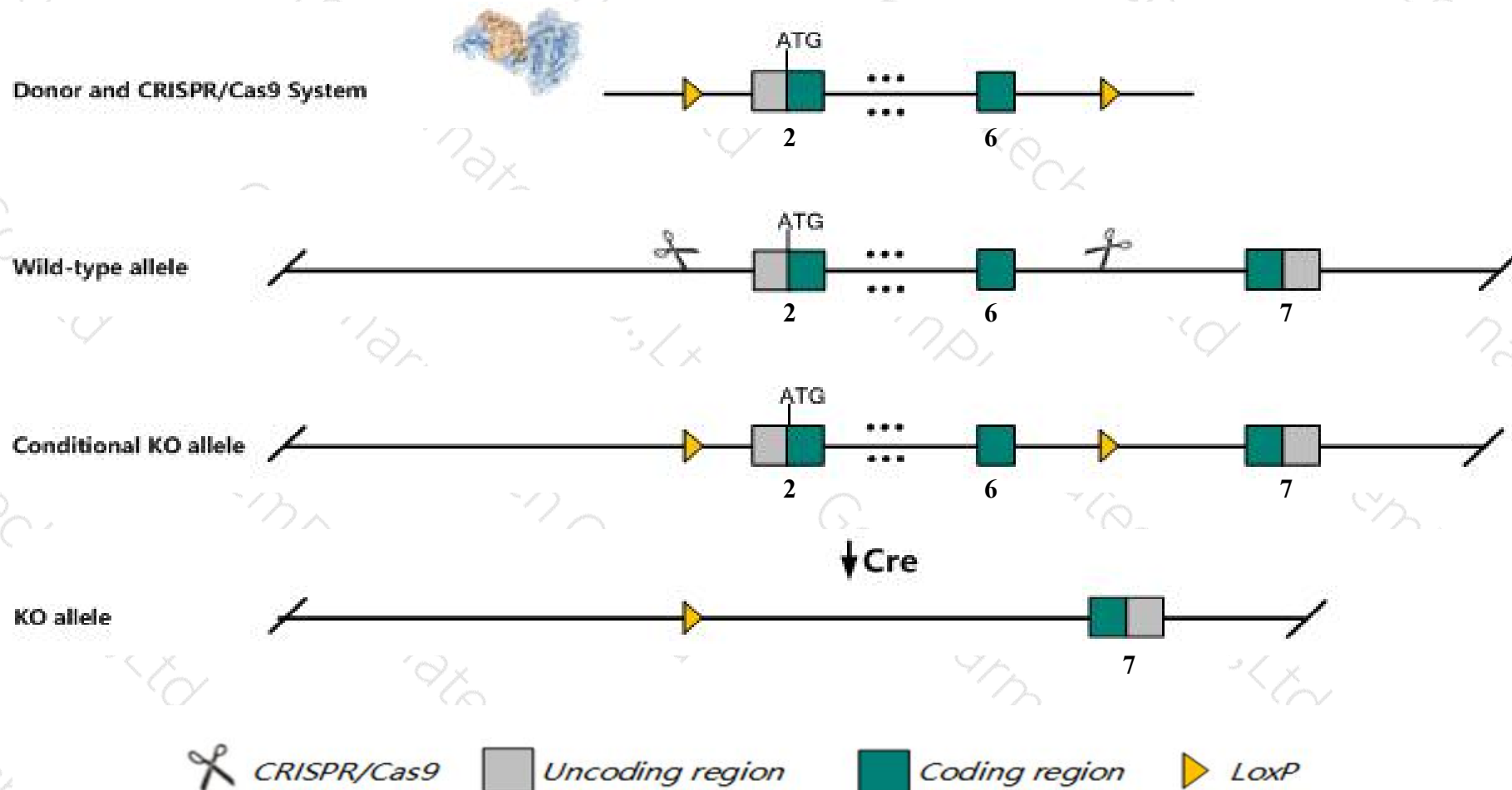
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Gata6* gene. The schematic diagram is as follows:



- The *Gata6* gene has 6 transcripts. According to the structure of *Gata6* gene, exon2-exon6 of *Gata6*-201 (ENSMUST00000047762.9) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Gata6* 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, Homozygous null mutant E5.5 embryos lack parts of the visceral endoderm, show impaired embryonic ectoderm development, and die soon post-implantation, apparently of extraembryonic tissue defects.
- The *Gata6* 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.
- 5'oxp was placed within 600bp of the transcript 201-E2, which would otherwise affect the E1 of transcript 206.
- 5'loxp may affect the 5-terminal regulation of side genes (lncRNA 1010001N08Rik)

Gene information (NCBI)

Gata6 GATA binding protein 6 [Mus musculus (house mouse)]

Gene ID: 14465, updated on 19-Mar-2019

Summary



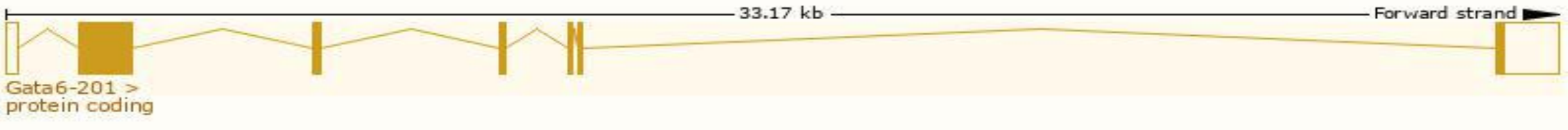
Official Symbol	Gata6 provided by MGI
Official Full Name	GATA binding protein 6 provided by MGI
Primary source	MGI:MGI:107516
See related	Ensembl:ENSMUSG000000005836
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AA410133, GATA-6
Expression	Biased expression in adrenal adult (RPKM 88.8), ovary adult (RPKM 57.8) and 10 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

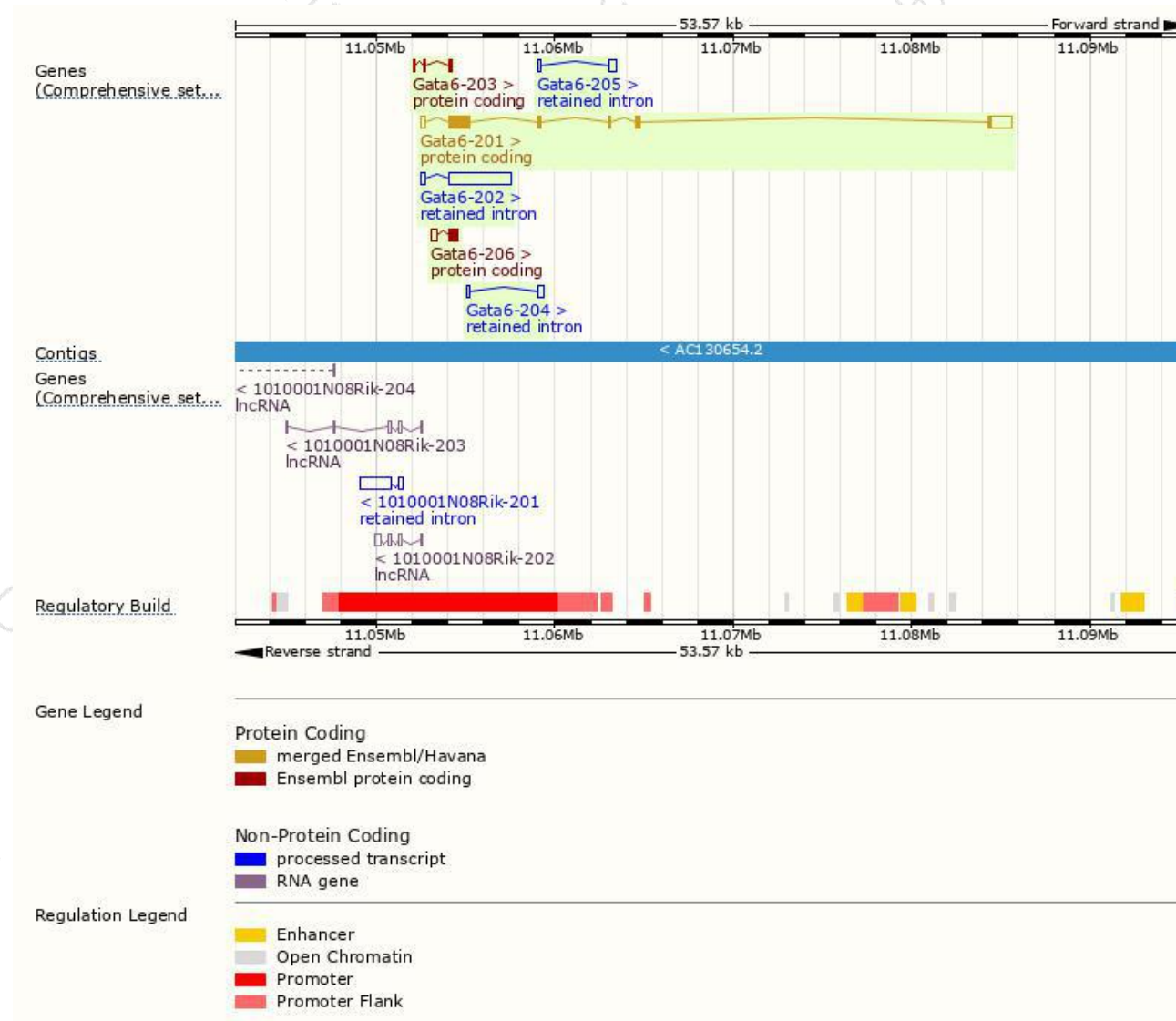
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Gata6-201	ENSMUST00000047762.9	3234	589aa	Protein coding	CCDS29059	Q61169	TSL:1 GENCODE basic APPRIS P1
Gata6-206	ENSMUST00000235081.1	852	161aa	Protein coding	-	-	CDS 3' incomplete
Gata6-203	ENSMUST00000234512.1	428	63aa	Protein coding	-	-	CDS 3' incomplete
Gata6-202	ENSMUST00000231831.1	3784	No protein	Retained intron	-	-	
Gata6-205	ENSMUST00000234971.1	616	No protein	Retained intron	-	-	
Gata6-204	ENSMUST00000234722.1	451	No protein	Retained intron	-	-	

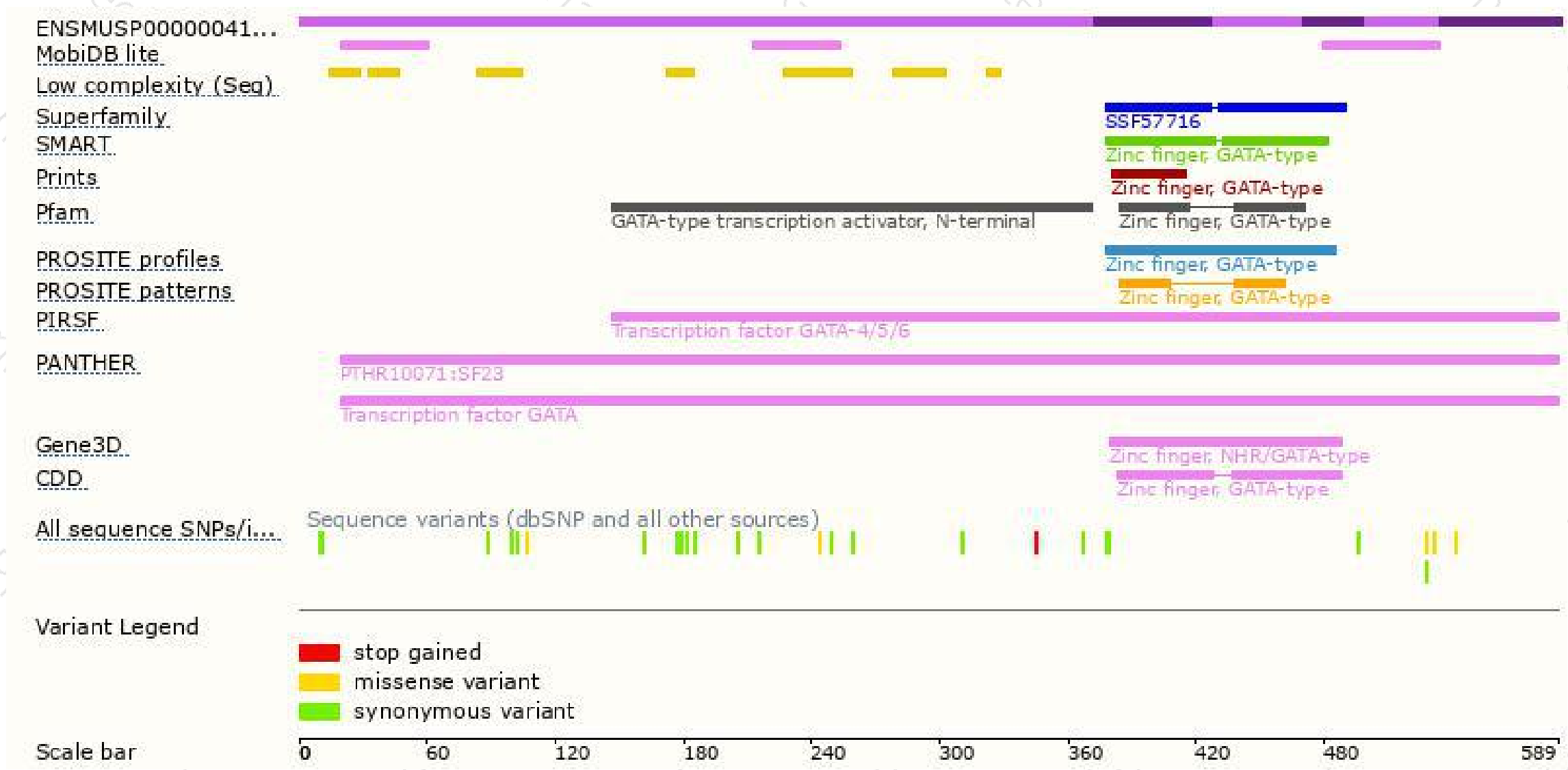
The strategy is based on the design of *Gata6-201* transcript,The transcription is shown below



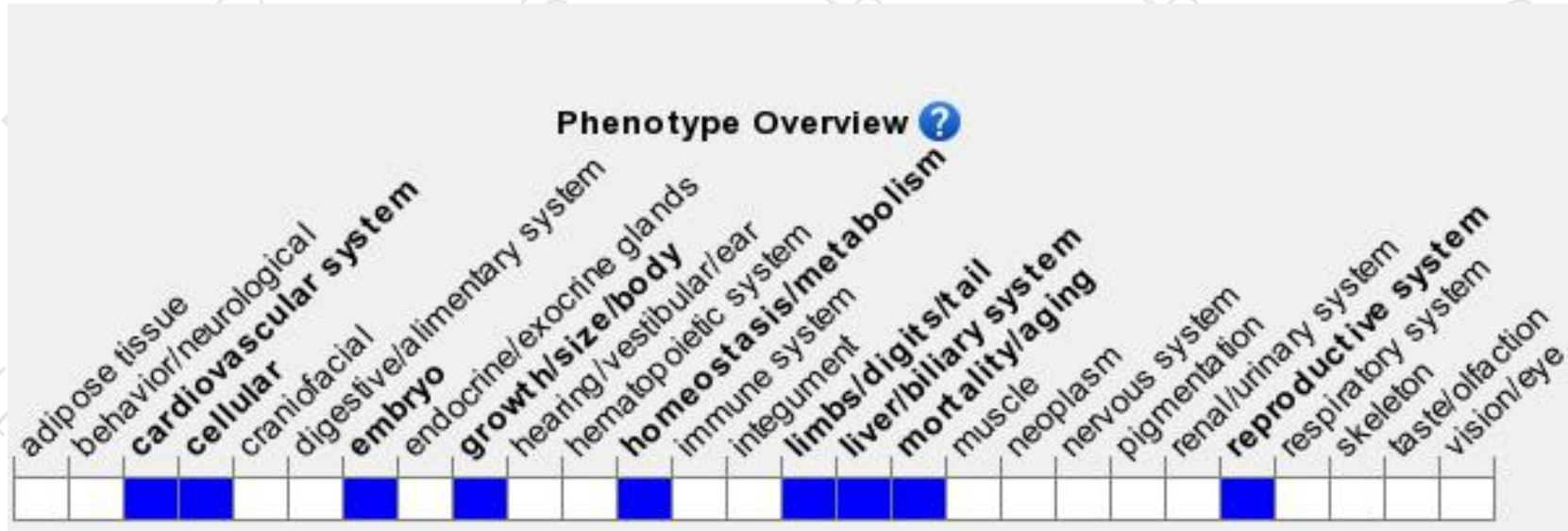
Genomic location distribution



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, Homozygous null mutant E5.5 embryos lack parts of the visceral endoderm, show impaired embryonic ectoderm development, and die soon post-implantation, apparently of extraembryonic tissue defects.

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

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