

Glis2 Cas9-CKO Strategy

Designer:

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Design Date:

2019-7-18

Project Overview

Project Name

Glis2

Project type

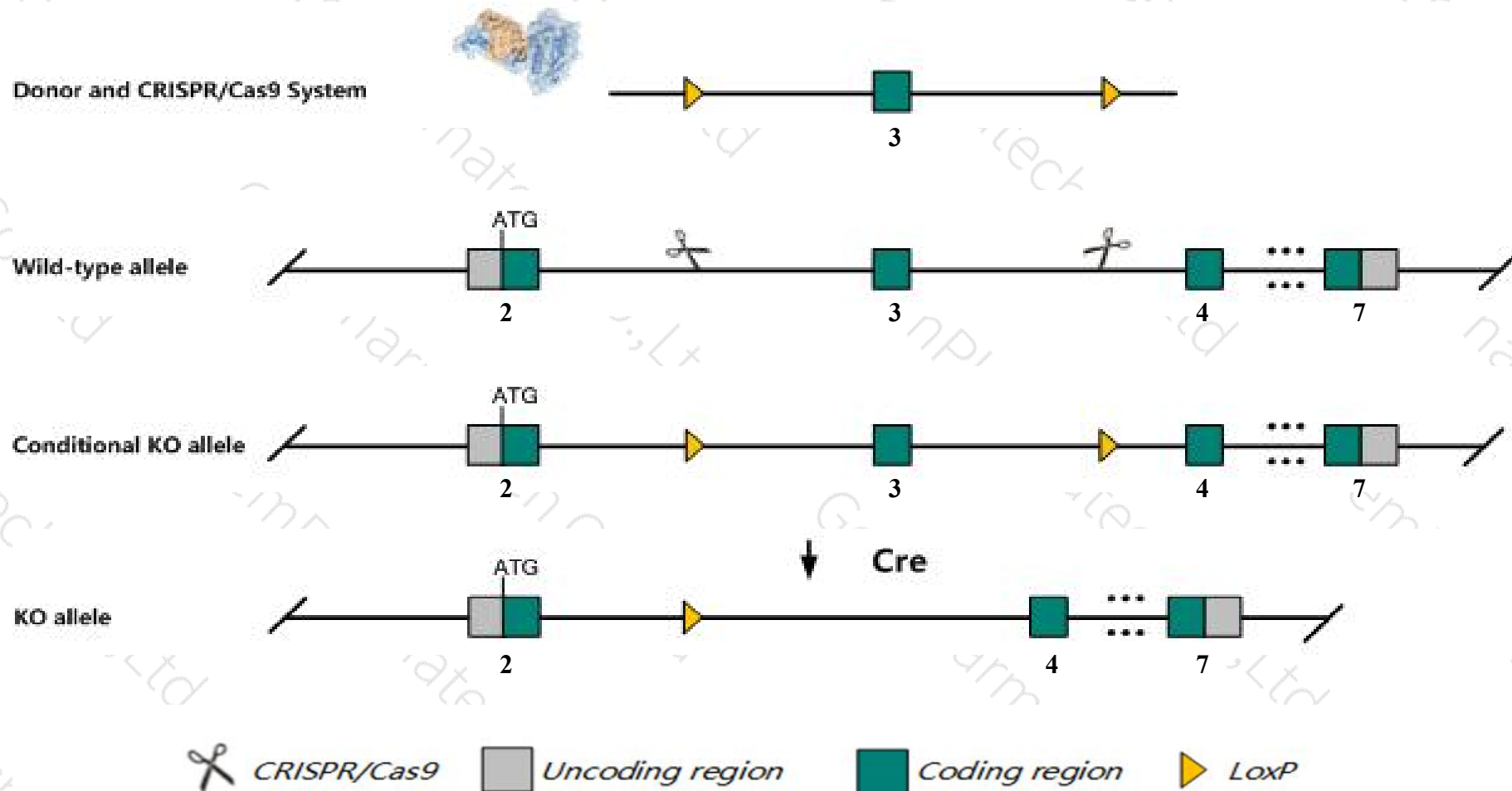
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Glis2* gene. The schematic diagram is as follows:



Technical routes

- The *Glis2* gene has 5 transcripts. According to the structure of *Glis2* gene, exon3 of *Glis2-201* (ENSMUST00000014447.12) transcript is recommended as the knockout region. The region contains 173bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Glis2* 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 fusion allele exhibit decreased kidney weight, kidney atrophy, kidney cysts, and interstitial fibrosis.
- The *Glis2* gene is located on the Chr16. 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)

Glis2 GLIS family zinc finger 2 [Mus musculus (house mouse)]

Gene ID: 83396, updated on 5-Feb-2019

Summary



Official Symbol	Glis2 provided by MGI
Official Full Name	GLIS family zinc finger 2 provided by MGI
Primary source	MGI:MGI:1932535
See related	Ensembl:ENSMUSG00000014303
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	Gli5, Klf16, Nkl
Expression	Broad expression in kidney adult (RPKM 54.7), ovary adult (RPKM 24.8) and 24 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

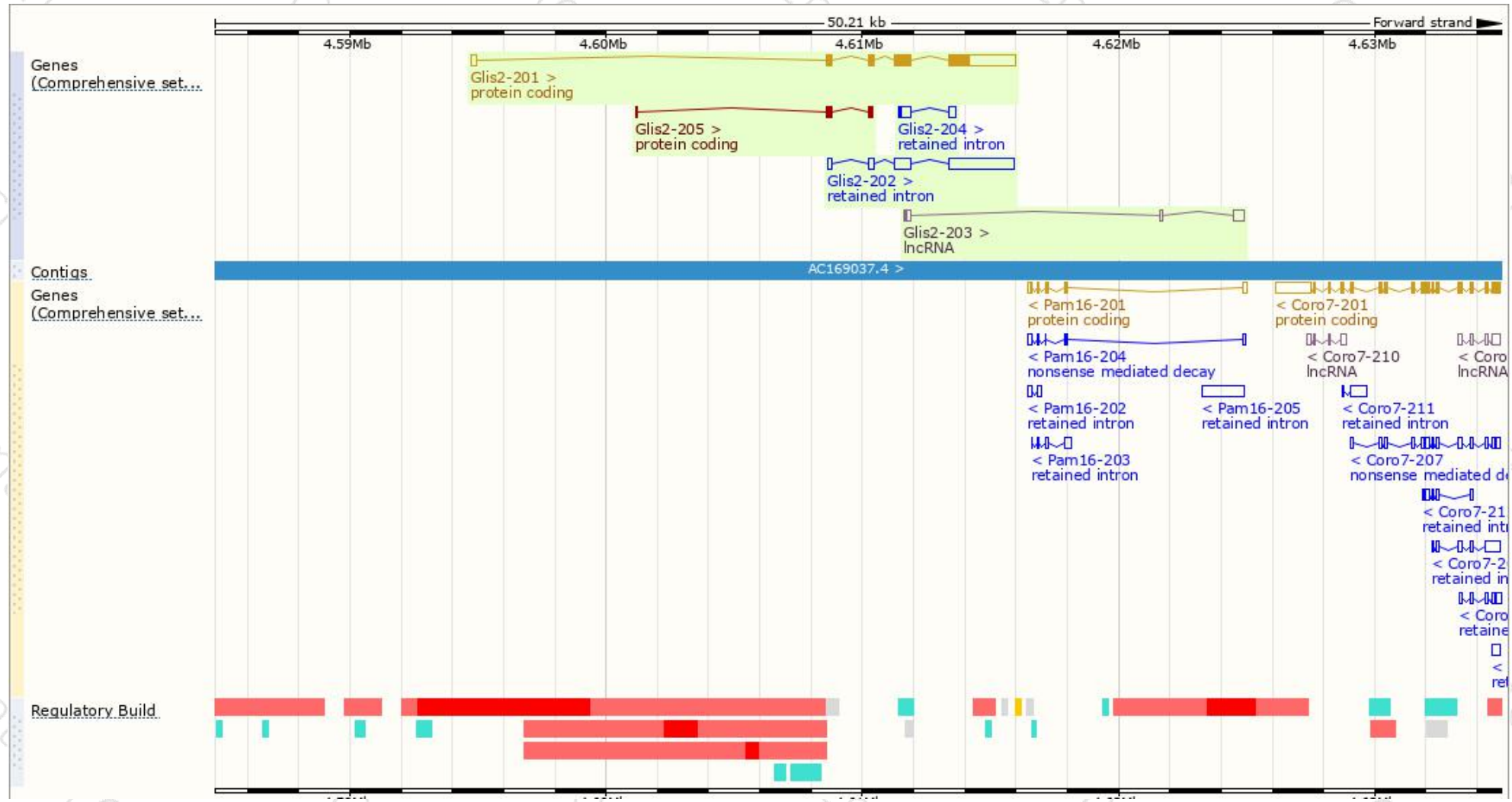
The gene has 5 transcripts,all transcripts are shown below:

Show/hide columns (1 hidden)					Filter			
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags	
Glis2-201	ENSMUST00000014447.12	3619	521aa	Protein coding	CCDS27920	Q8VDL9	TSL:1	GENCODE basic APPRIS P1
Glis2-205	ENSMUST000000141682.1	418	109aa	Protein coding	-	D3YYX4	CDS 3' incomplete	TSL:3
Glis2-202	ENSMUST000000122896.1	3512	No protein	Retained intron	-	-	TSL:2	
Glis2-204	ENSMUST000000135577.1	655	No protein	Retained intron	-	-	TSL:3	
Glis2-203	ENSMUST000000127120.1	711	No protein	lncRNA	-	-	TSL:3	

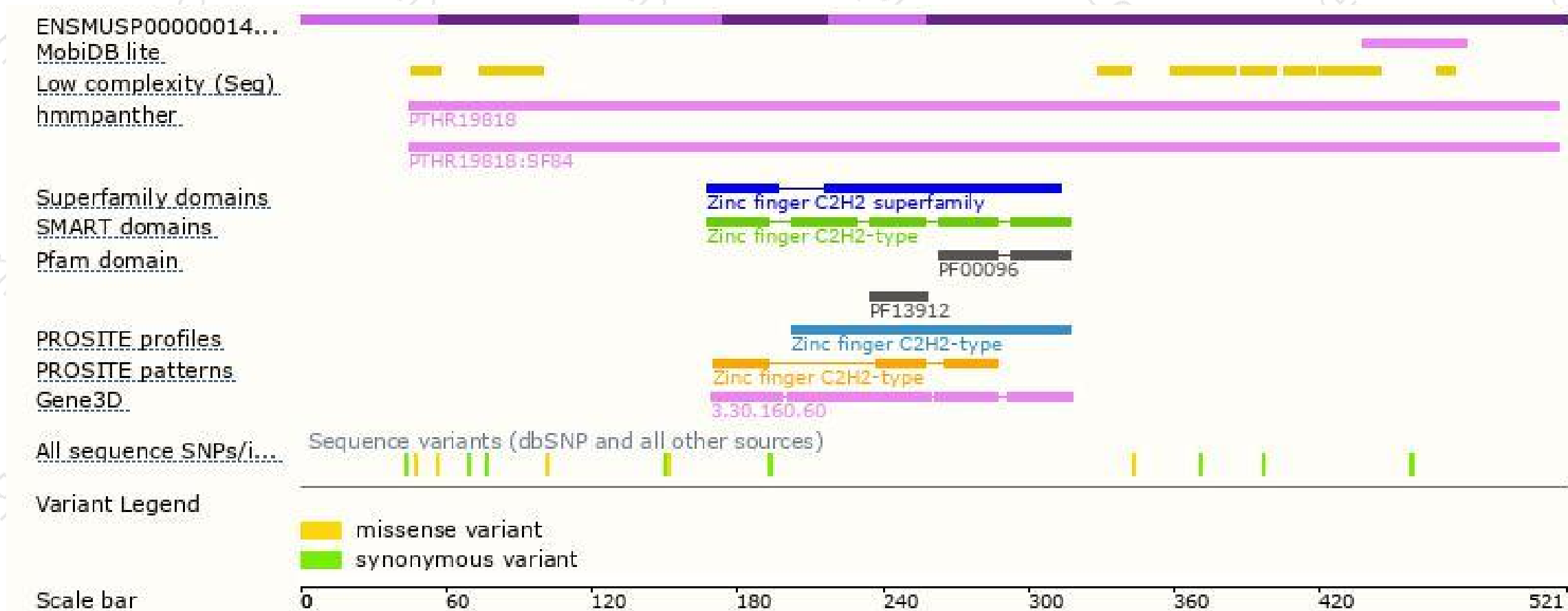
The strategy is based on the design of *Glis2-201* transcript,The transcription is shown below



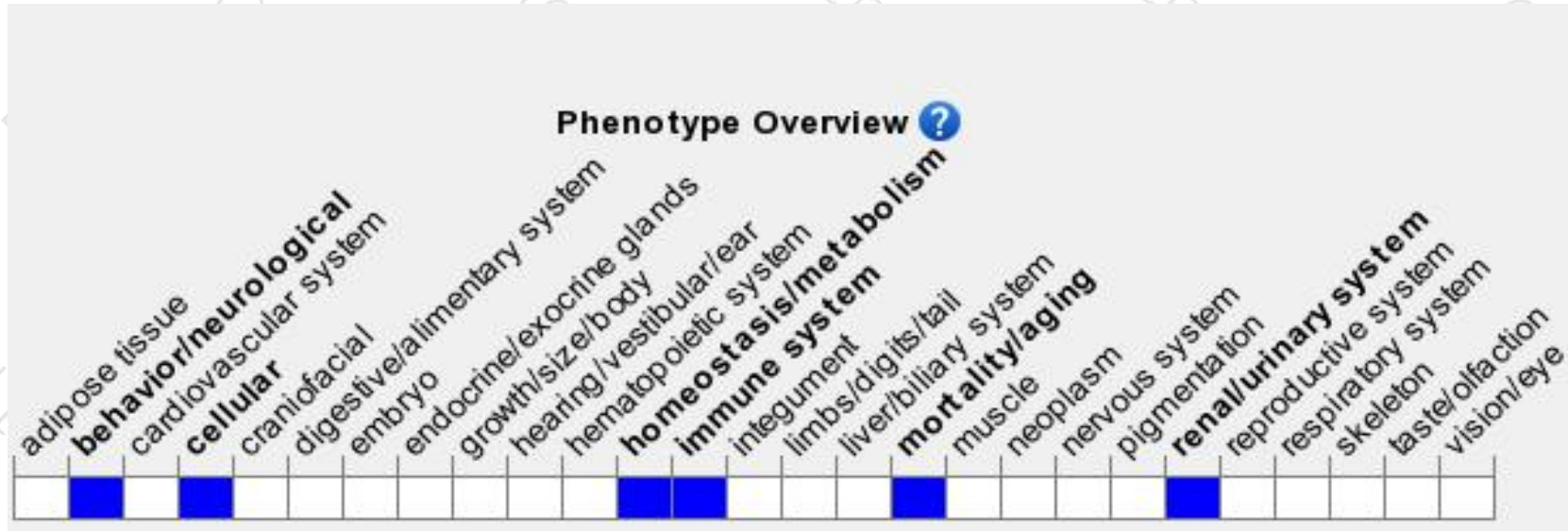
Genomic location distribution



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 fusion allele exhibit decreased kidney weight, kidney atrophy, kidney cysts, and interstitial fibrosis.

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

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