Wdr62 Cas9-CKO Strategy

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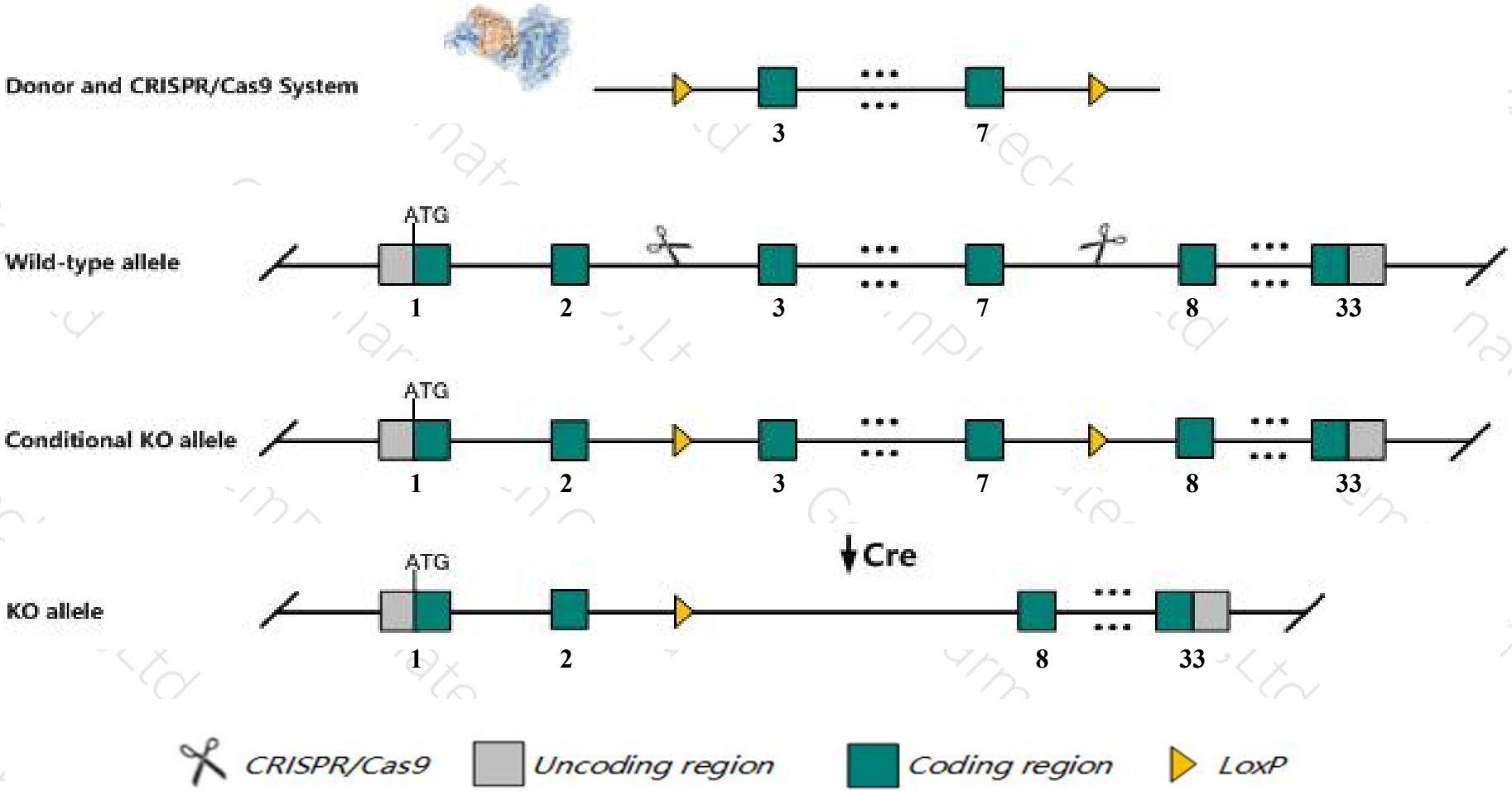
Design Date:

Project Overview

Project Name	***Wdr62***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Wdr62* gene. The schematic diagram is as follows:



Technical routes

- The *Wdr62* gene has 7 transcripts. According to the structure of *Wdr62* gene, exon3-exon7 of *Wdr62-201* (ENSMUST00000108190.7) transcript is recommended as the knockout region.The region contains 613bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Wdr62* 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 for a hypomorphic allele exhibit reduced brain size due to decreased neural progenitor cells. Cells show spindle instability, spindle assembly checkpoint activation, mitotic arrest and cell death.

- Transcript Wdr62-204 may not be affected.

- The *Wdr62* 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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Wdr62 WD repeat domain 62 [Mus musculus (house mouse)]

Gene ID: 233064, updated on 30-Mar-2019

Summary

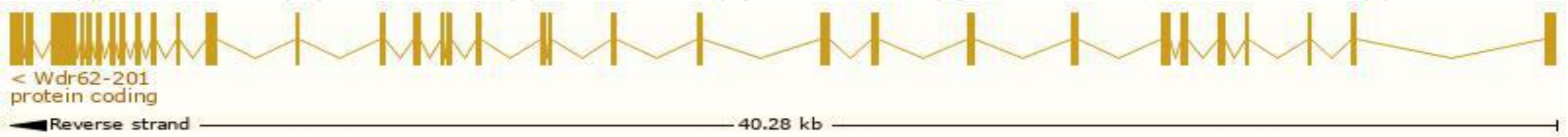
Official Symbol	Wdr62 provided by MGI
Official Full Name	WD repeat domain 62 provided by MGI
Primary source	MGI:MGI:1923696
See related	Ensembl:ENSMUSG00000037020
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2310038K02Rik, b2b1508Clo
Expression	Biased expression in testis adult (RPKM 134.7) and placenta adult (RPKM 7.0) See more
Orthologs	human all

Transcript information（Ensembl）

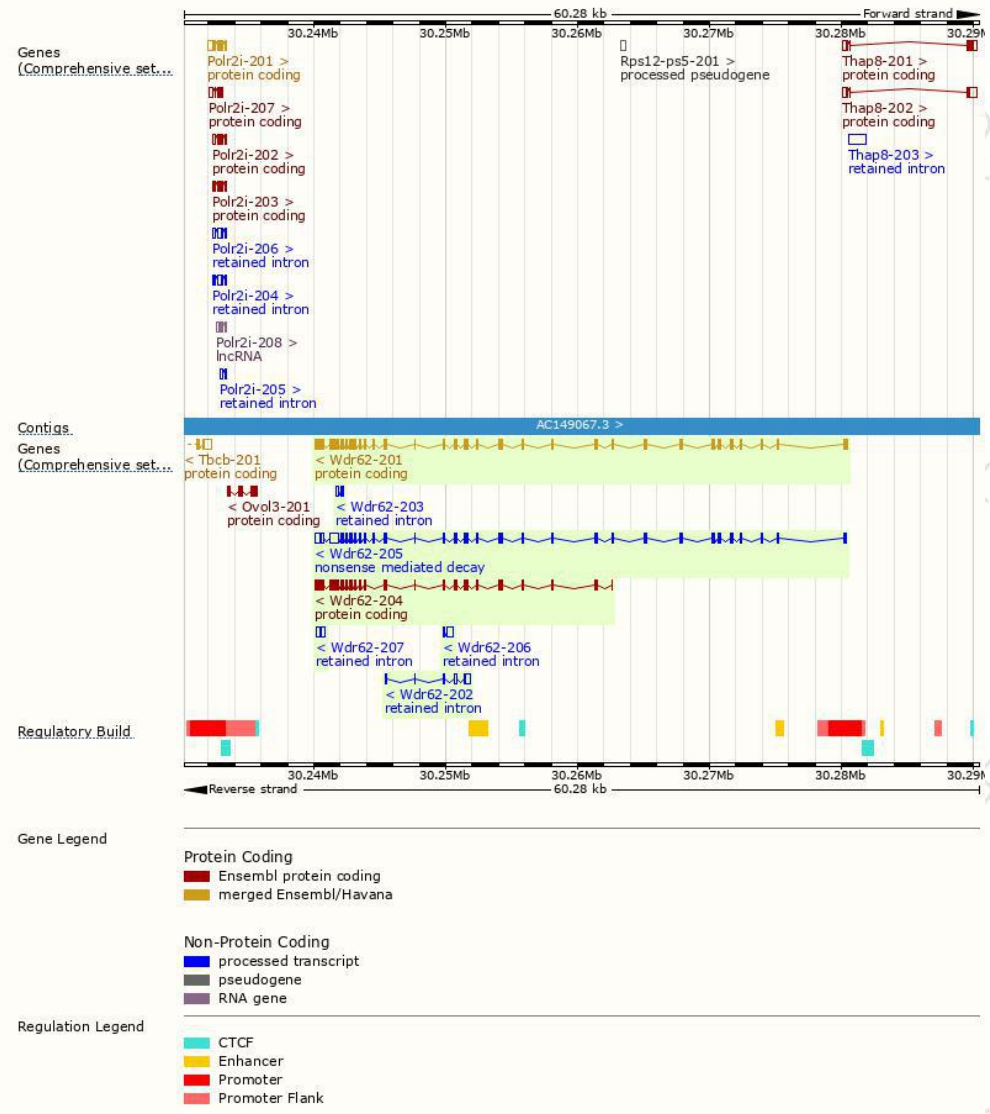
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Wdr62-201	ENSMUST00000108190.7	4742	1524aa	Protein coding	CCDS52178	E9QK36	TSL:1 GENCODE basic APPRIS P1
Wdr62-204	ENSMUST00000134570.7	3245	1053aa	Protein coding	-	F6R9F0	CDS 5' incomplete TSL:1
Wdr62-205	ENSMUST00000145027.7	4768	1076aa	Nonsense mediated decay	-	E9PUI7	TSL:1
Wdr62-202	ENSMUST00000132483.1	791	No protein	Retained intron	-	-	TSL:3
Wdr62-207	ENSMUST00000152543.1	648	No protein	Retained intron	-	-	TSL:2
Wdr62-206	ENSMUST00000152234.1	573	No protein	Retained intron	-	-	TSL:3
Wdr62-203	ENSMUST00000133347.1	374	No protein	Retained intron	-	-	TSL:5

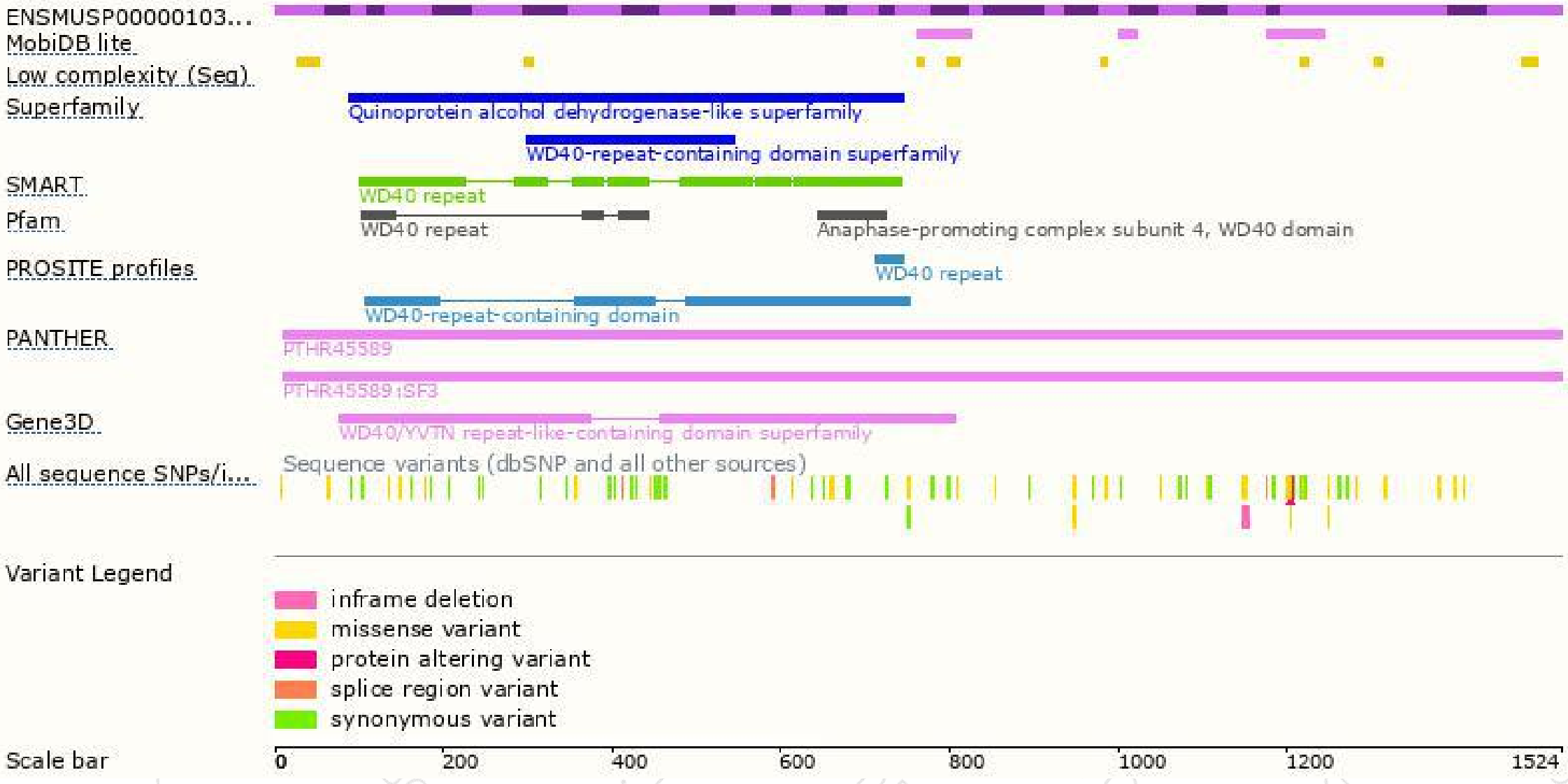
The strategy is based on the design of *Wdr62-201* transcript,The transcription is shown below



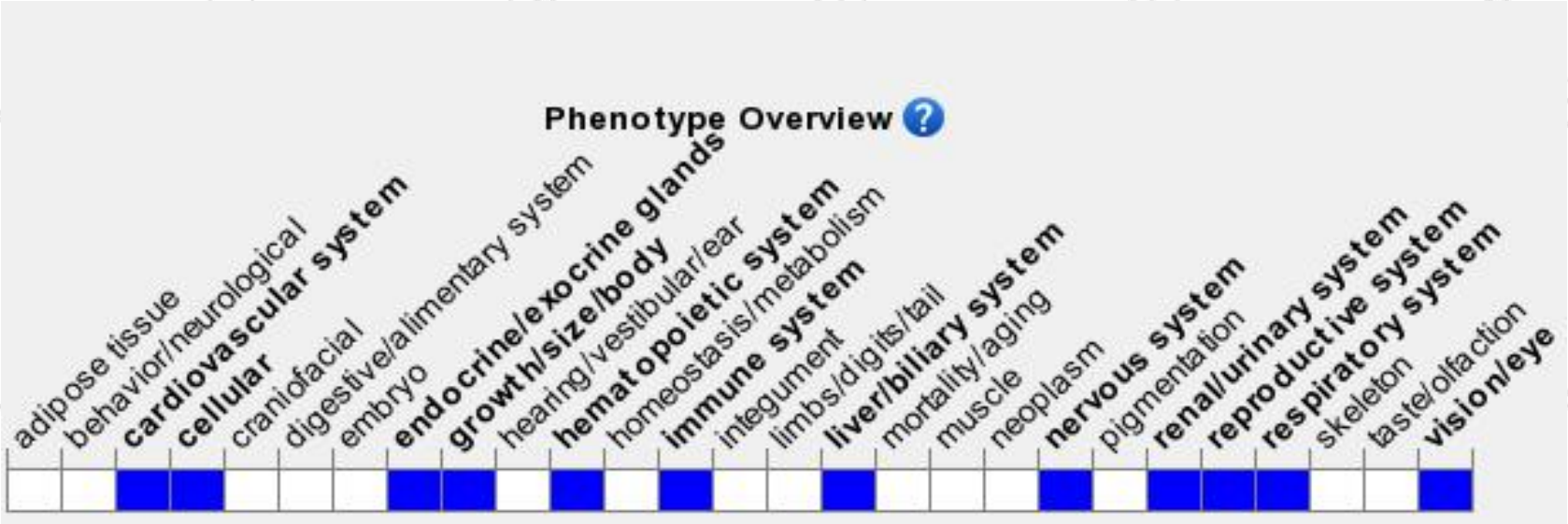
Genomic location distribution



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 for a hypomorphic allele exhibit reduced brain size due to decreased neural progenitor cells. Cells show spindle instability, spindle assembly checkpoint activation, mitotic arrest and cell death.

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

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