

***Khdrbs2* Cas9-CKO Strategy**

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Reviewer:

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Design Date:

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Project Overview

Project Name

Khdrbs2

Project type

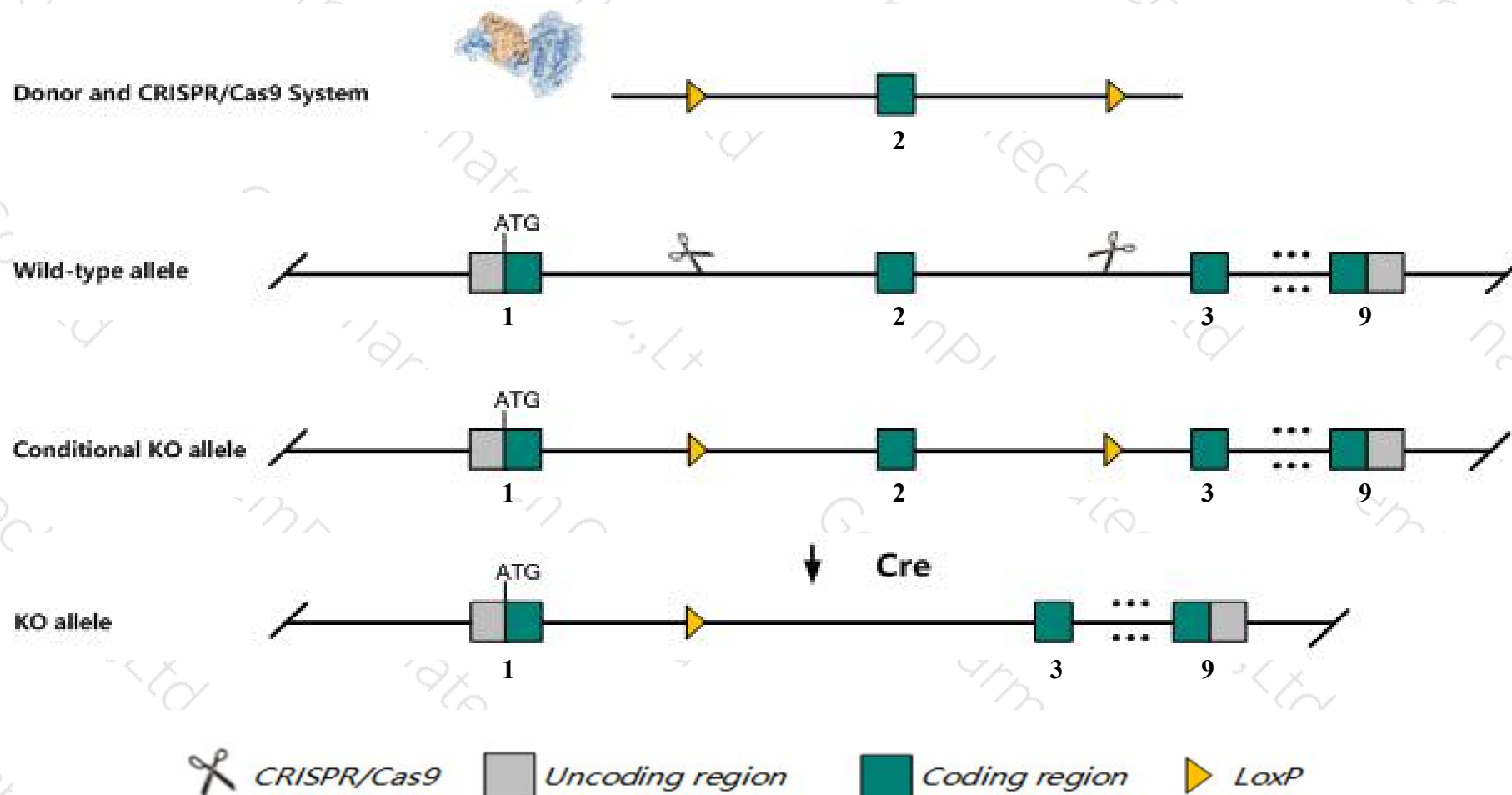
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Khdrbs2* gene. The schematic diagram is as follows:



Technical routes

- The *Khdrbs2* gene has 5 transcripts. According to the structure of *Khdrbs2* gene, exon2 of *Khdrbs2-201* (ENSMUST00000027226.11) transcript is recommended as the knockout region. The region contains 128bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Khdrbs2* 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, Homozygous mutant animals display smaller brain size and reduced weight in the cerebellum.
- The *Khdrbs2* gene is located on the Chr1. 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)

Khdrbs2 KH domain containing, RNA binding, signal transduction associated 2 [Mus musculus (house mouse)]

Gene ID: 170771, updated on 31-Jan-2019

Summary



Official Symbol Khdrbs2 provided by [MGI](#)

Official Full Name KH domain containing, RNA binding, signal transduction associated 2 provided by [MGI](#)

Primary source [MGI:MGI:2159649](#)

See related [Ensembl:ENSMUSG00000026058](#)

Gene type protein coding

RefSeq status REVIEWED

Organism [Mus musculus](#)

Lineage Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus

Also known as 6330586C16Rik, Slim1, SIm-1, SIm1, TG-RP135, Tg(LRRK2*R1441G)135Cjli, mSLM-1

Summary The protein encoded by this gene is similar to the src associated in mitosis, 68 kDa protein, which is an RNA-binding protein and a substrate for Src-family tyrosine kinases during mitosis. This protein has a KH RNA-binding motif and proline-rich motifs which may be SH2 and SH3 domain binding sites. A similar rat protein is an RNA-binding protein which is tyrosine phosphorylated by Src during mitosis. These studies also suggest that the rat protein may function as an adaptor protein for Src by binding the SH2 and SH3 domains of various other proteins. [provided by RefSeq, Jul 2008]

Expression Biased expression in CNS E18 (RPKM 5.5), whole brain E14.5 (RPKM 5.1) and 6 other tissues [See more](#)

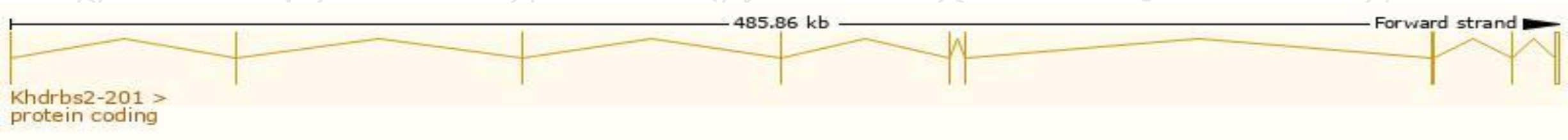
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

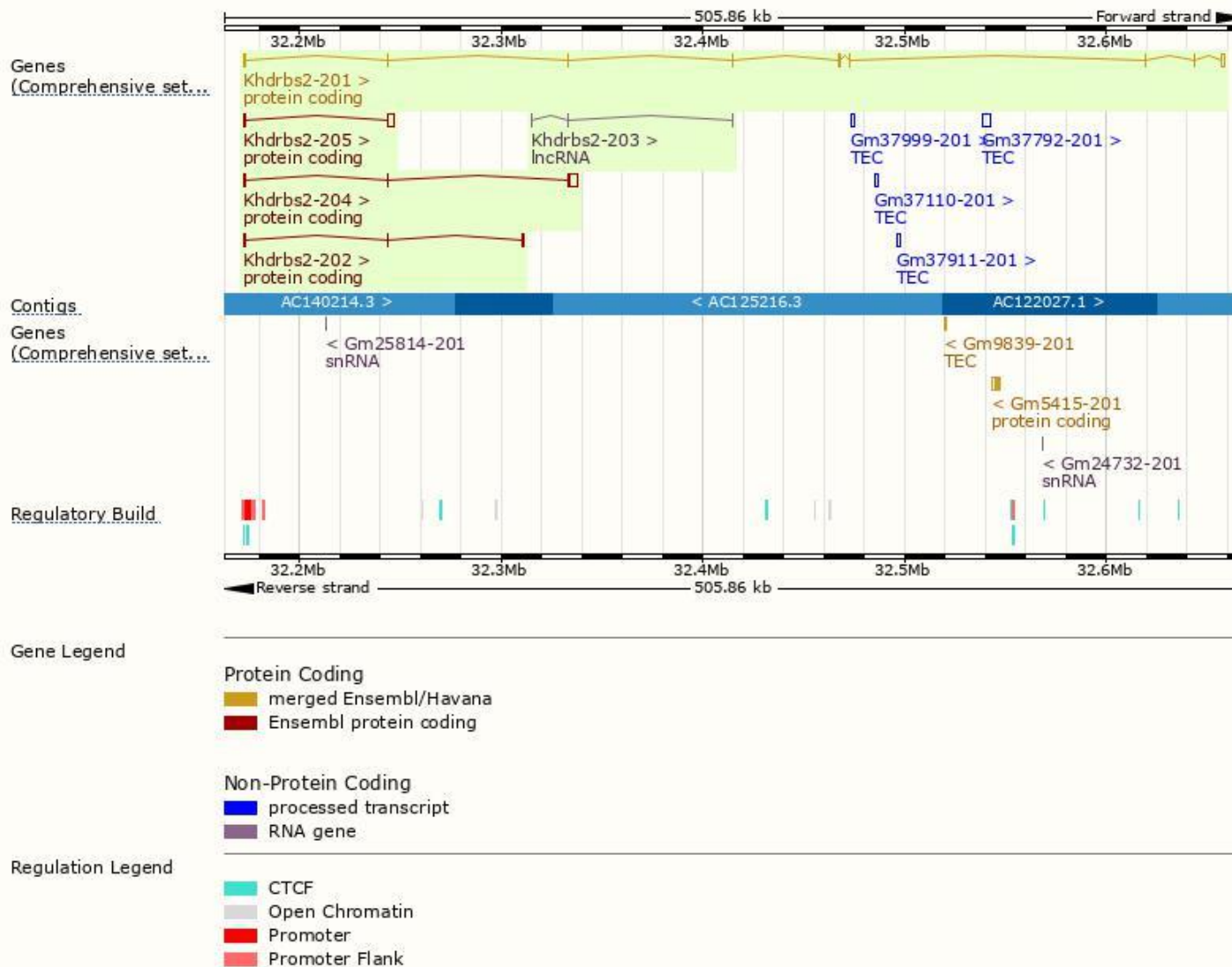
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Khdrbs2-201	ENSMUST00000027226.11	2281	349aa	Protein coding	CCDS14861	Q9WU01	TSL:1 GENCODE basic APPRIS P1
Khdrbs2-204	ENSMUST00000188257.6	5278	193aa	Protein coding	-	Q9WU01	TSL:1 GENCODE basic
Khdrbs2-205	ENSMUST00000189878.1	3259	91aa	Protein coding	-	A0A087WSL3	TSL:1 GENCODE basic
Khdrbs2-202	ENSMUST00000185666.1	543	92aa	Protein coding	-	A0A087WR32	TSL:2 GENCODE basic
Khdrbs2-203	ENSMUST00000186984.1	275	No protein	lncRNA	-	-	TSL:3

The strategy is based on the design of *Khdrbs2-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain

ENSMUSP00000027...

MobiDB lite

Low complexity (Seq)

Superfamily

SMART

Pfam

PROSITE profiles

PANTHER

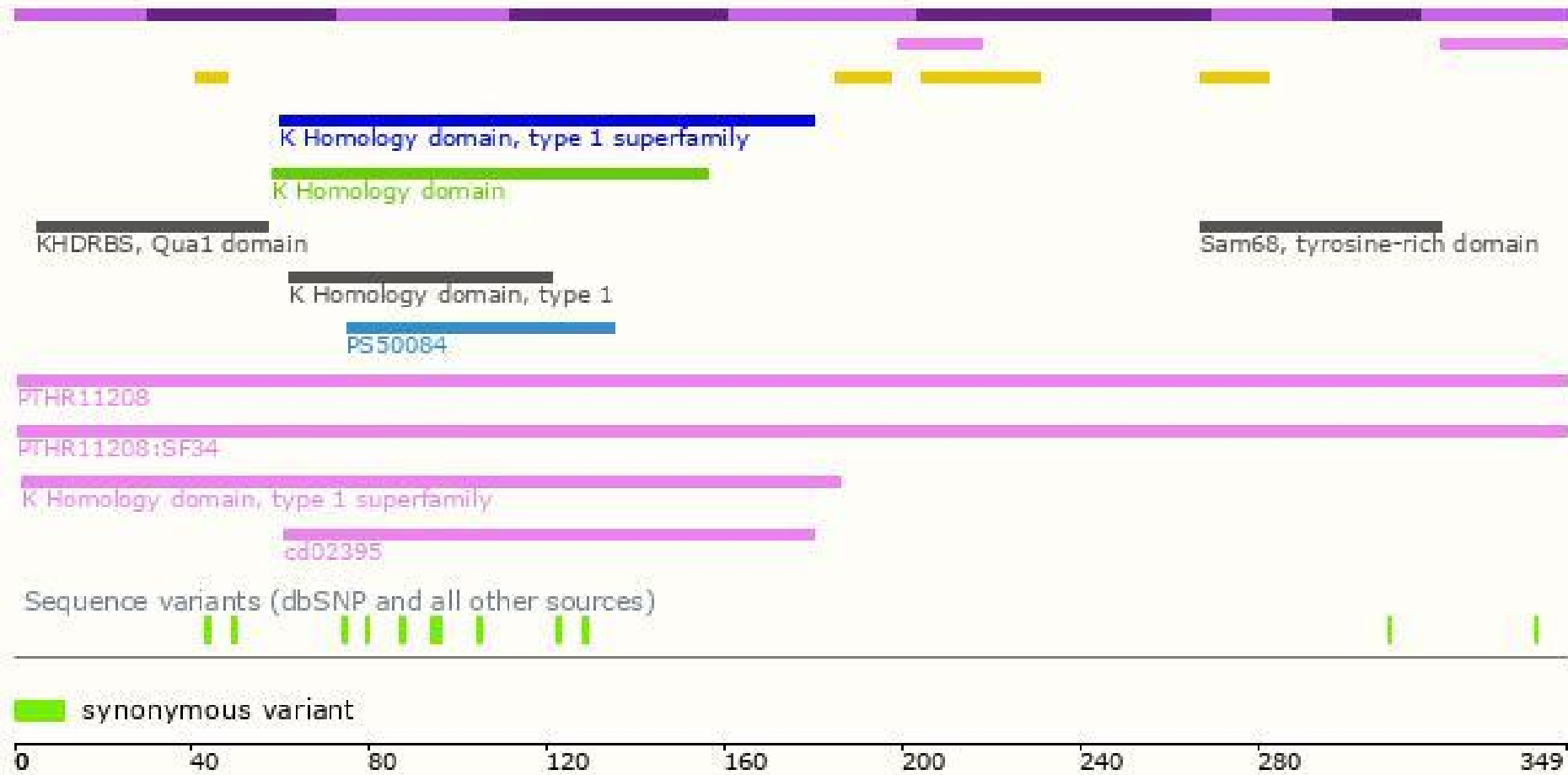
Gene3D

CDD

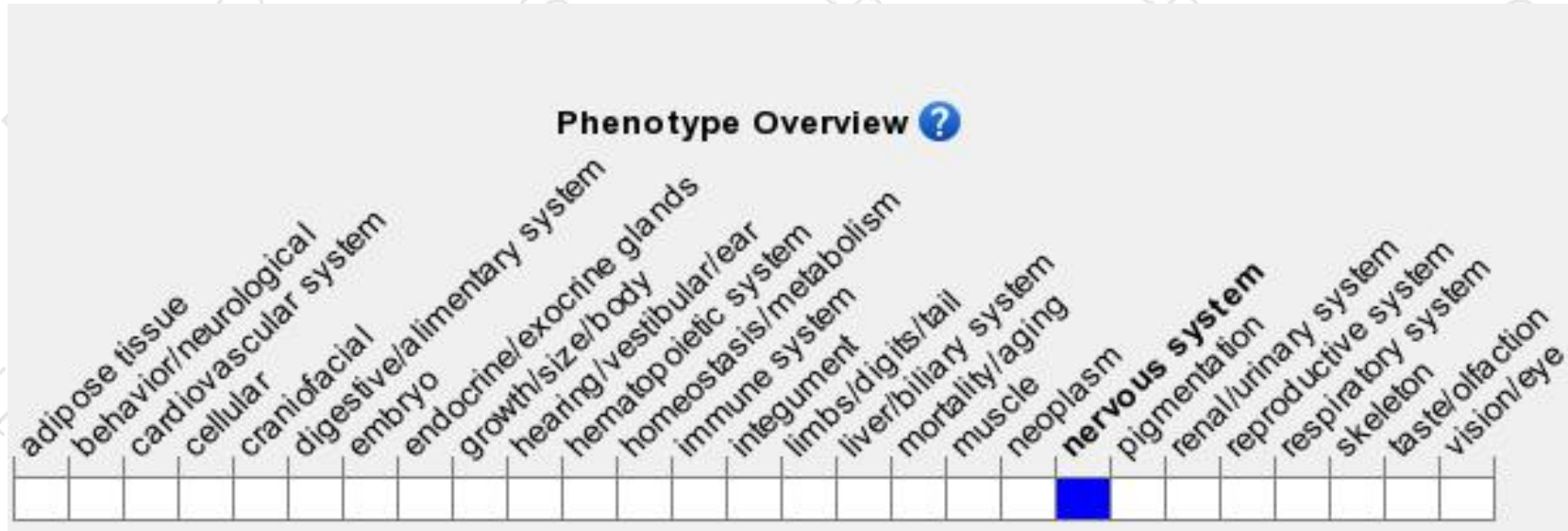
All sequence SNPs/i...

Variant Legend

Scale bar



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 mutant animals display smaller brain size and reduced weight in the cerebellum.

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

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