

Nme5 Cas9-KO Strategy

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Project Overview



Project Name

Nme5

Project type

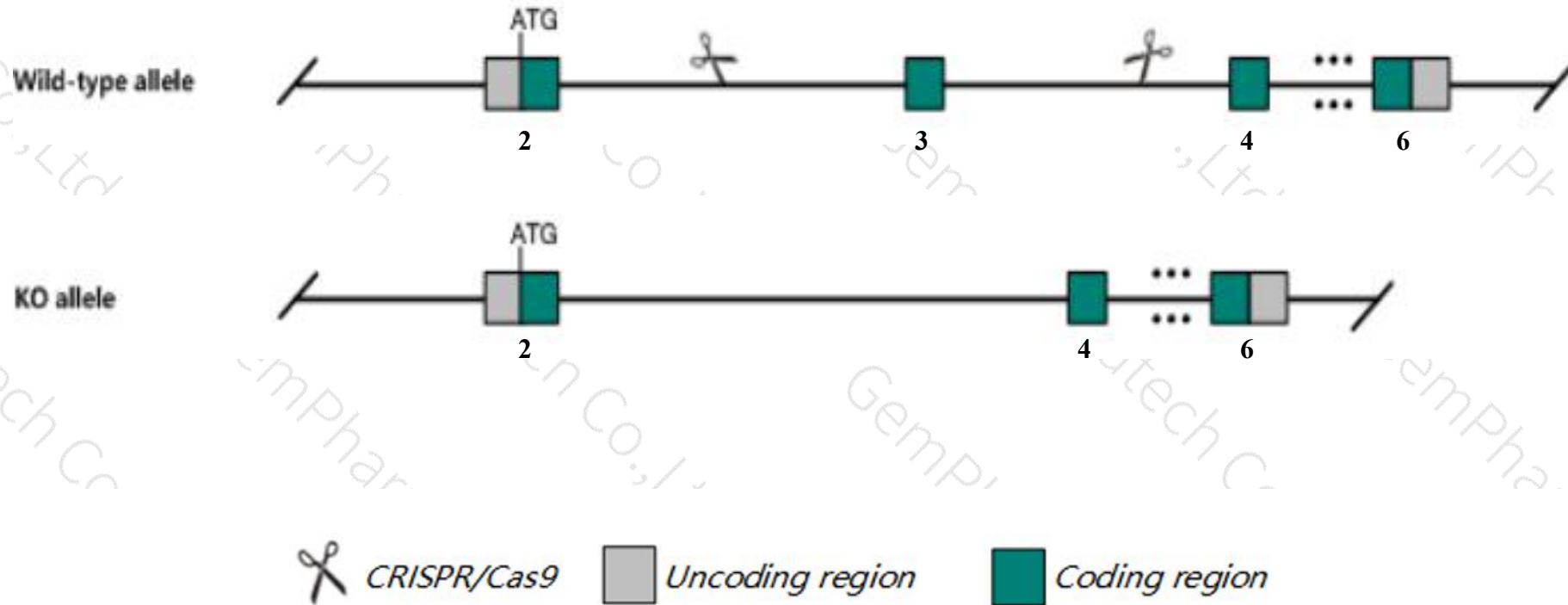
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Nme5* gene. The schematic diagram is as follows:



- The *Nme5* gene has 4 transcripts. According to the structure of *Nme5* gene, exon3 of *Nme5-201* (ENSMUST00000079287.11) transcript is recommended as the knockout region. The region contains 206bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Nme5* gene. The brief process is as follows: CRISPR/Cas9 system 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.

- According to the existing MGI data, homozygous mice exhibit hydrocephaly and male spermatogenesis defects.
- The *Nme5* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Nme5 NME/NM23 family member 5 [Mus musculus (house mouse)]

Gene ID: 75533, updated on 13-Mar-2020

Summary



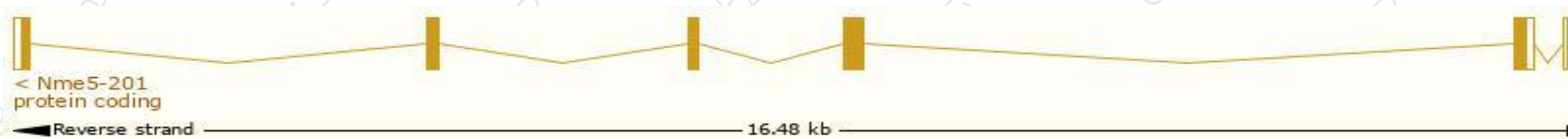
Official Symbol	Nme5 provided by MGI
Official Full Name	NME/NM23 family member 5 provided by MGI
Primary source	MGI:MGI:1922783
See related	Ensembl:ENSMUSG00000035984
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1700019D05Rik, Nm23-M5
Expression	Biased expression in testis adult (RPKM 41.1), lung adult (RPKM 2.7) and 3 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

The gene has 4 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Nme5-201	ENSMUST00000079287.11	843	211aa	Protein coding	CCDS29130	Q3V2L8 Q99MH5	TSL:1 GENCODE basic APPRIS P1
Nme5-202	ENSMUST00000134875.7	729	114aa	Nonsense mediated decay	-	Q99MH5	TSL:1
Nme5-204	ENSMUST00000155114.1	460	43aa	Nonsense mediated decay	-	D6RHT7	TSL:2
Nme5-203	ENSMUST00000154342.1	849	No protein	Processed transcript	-	-	TSL:3

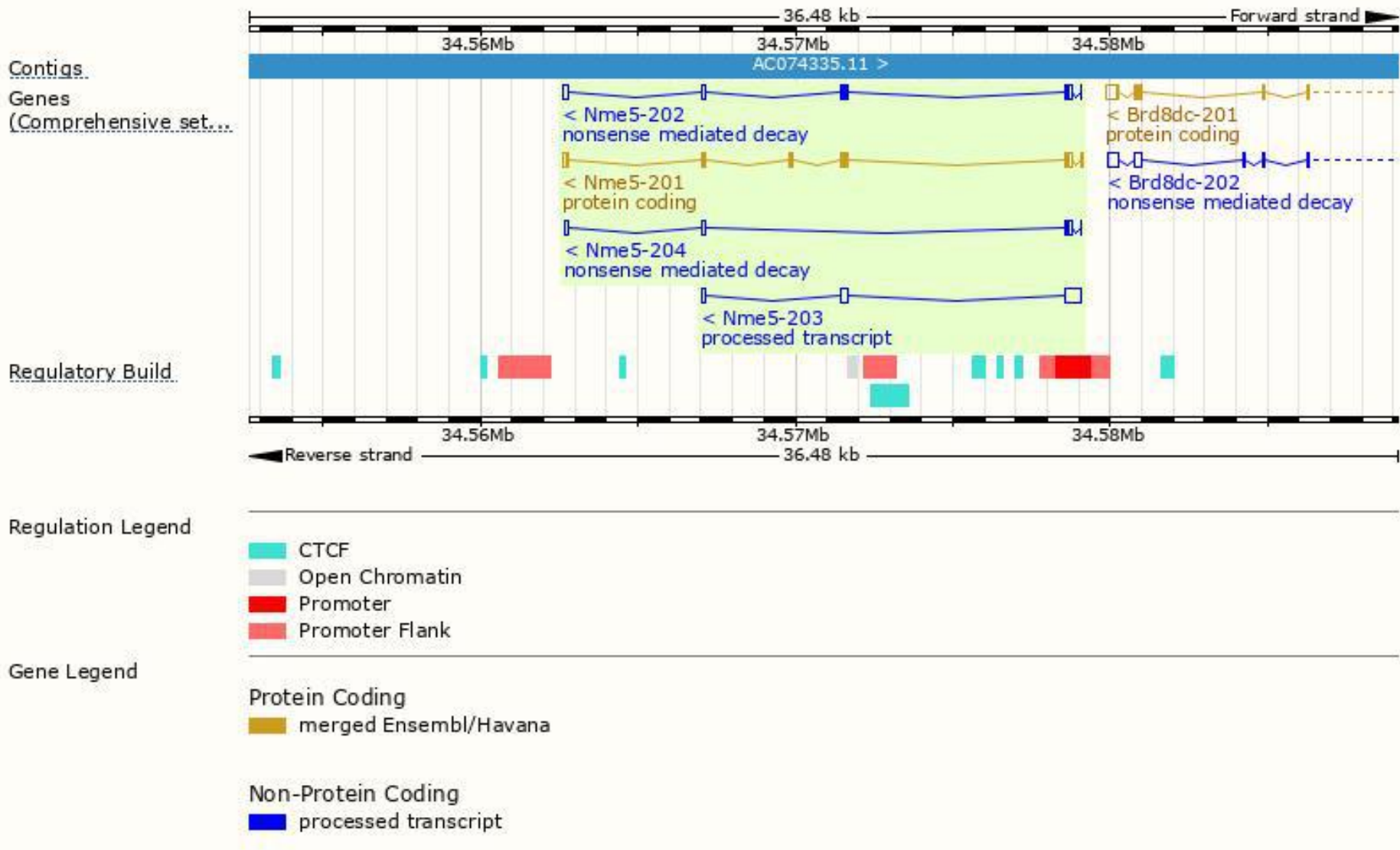
The strategy is based on the design of *Nme5-201* transcript, the transcription is shown below:



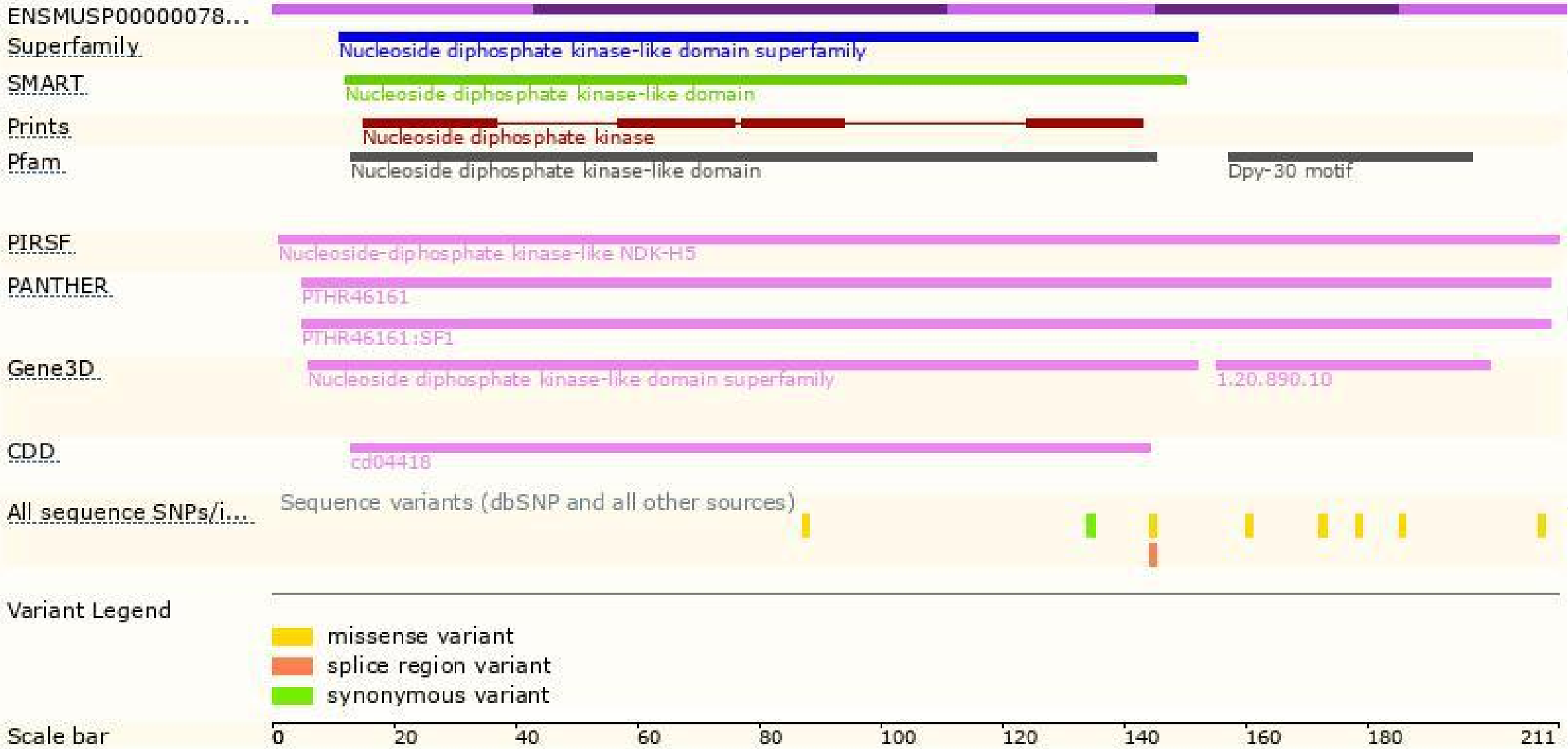
Genomic location distribution



集萃药康
GemPharmatech

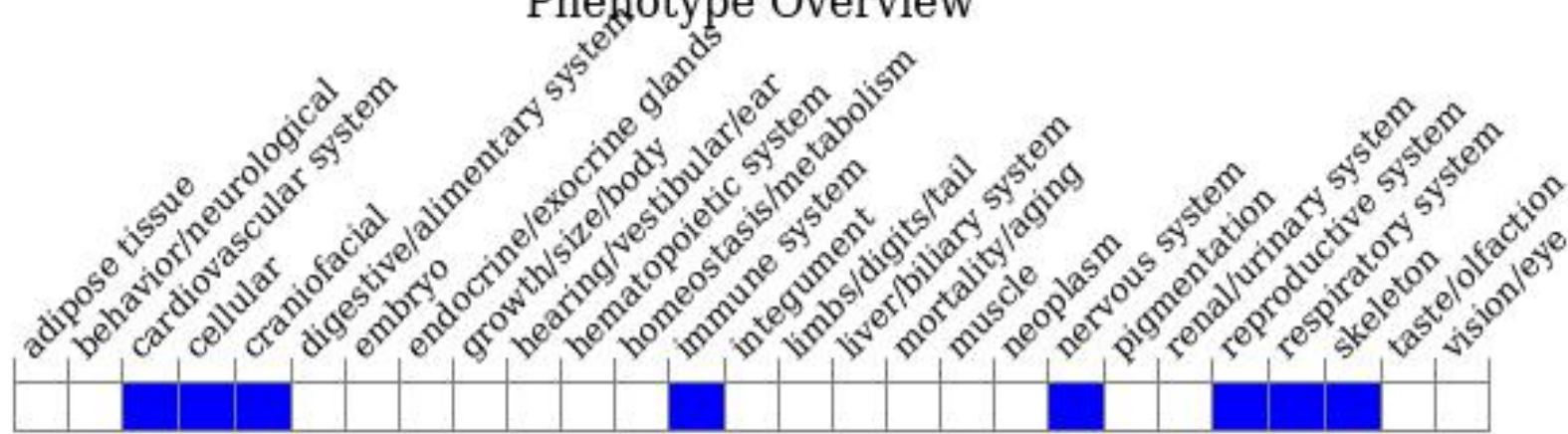


Protein domain



Mouse phenotype description(MGI)

Phenotype Overview



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 mice exhibit hydrocephaly and male spermatogenesis defects.

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

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