Ift88 Cas9-KO Strategy

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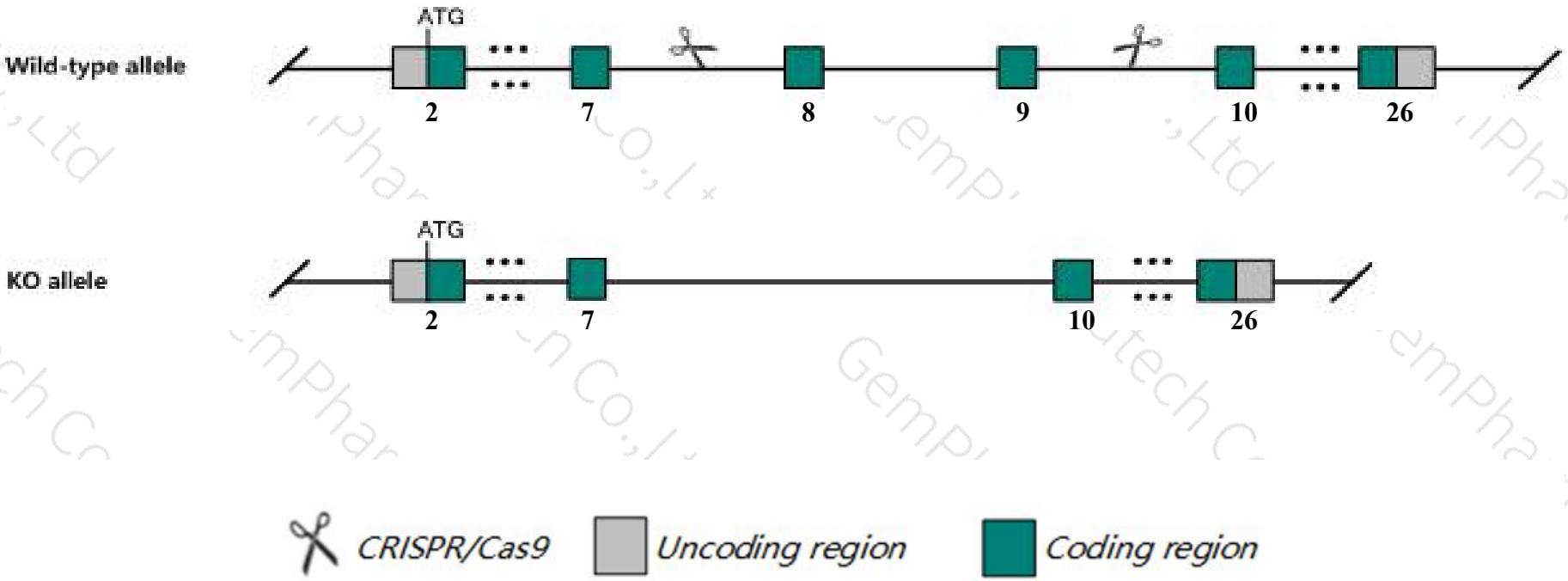
Project Overview

Project Name	***Ift88***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ift88* gene. The schematic diagram is as follows:



Technical routes

➢ The *Ift88* gene has 5 transcripts. According to the structure of *Ift88* gene, exon8-exon9 of *Ift88-201* (ENSMUST00000122063.7) transcript is recommended as the knockout region.The region contains 196bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Ift88* gene. The brief process is as follows: CRISPR/Cas9 system v

Notice

- According to the existing MGI data,Mice homozygous for a null allele display early to mid-gestation lethality, random patterning of the left-right body axis, neural tube defects, pericardial sac expansion, enlarged limb buds, polydactyly, and absent embryonic node cilia.

- The *Ift88* gene is located on the Chr14. 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）

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Ift88 intraflagellar transport 88 [Mus musculus (house mouse)]

Gene ID: 21821, updated on 9-Apr-2019

Summary

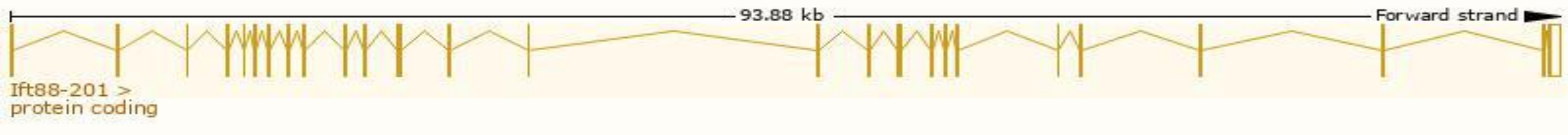
Official Symbol	Ift88 provided by MGI
Official Full Name	intraflagellar transport 88 provided by MGI
Primary source	MGI:MGI:98715
See related	Ensembl:ENSMUSG00000040040
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AW552028, Tg737, Tg737Rpw, TgN737Rpw, Ttc10, flexo, fxo, orpk, polaris
Expression	Broad expression in testis adult (RPKM 6.4), CNS E14 (RPKM 4.7) and 23 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

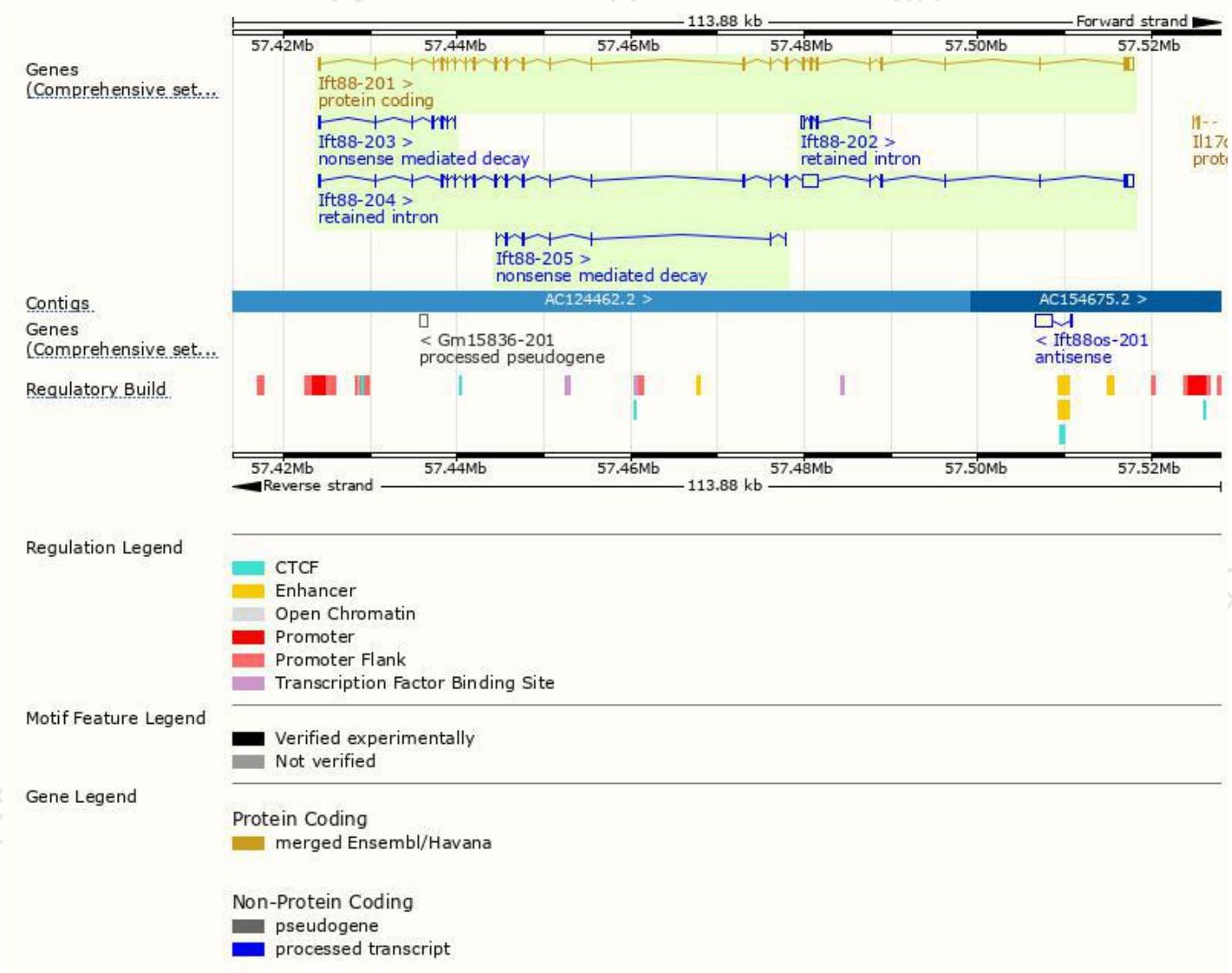
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ift88-201	ENSMUST00000122063.7	3088	825aa	Protein coding	CCDS36937	G3X9Z7	TSL:1 GENCODE basic APPRIS P1
Ift88-205	ENSMUST00000171682.1	686	175aa	Nonsense mediated decay	-	F6QZ23	CDS 5' incomplete TSL:5
Ift88-203	ENSMUST00000150296.7	562	54aa	Nonsense mediated decay	-	D6RJ41	TSL:5
Ift88-204	ENSMUST00000154492.1	4226	No protein	Retained intron	-	-	TSL:2
Ift88-202	ENSMUST00000139943.1	667	No protein	Retained intron	-	-	TSL:3

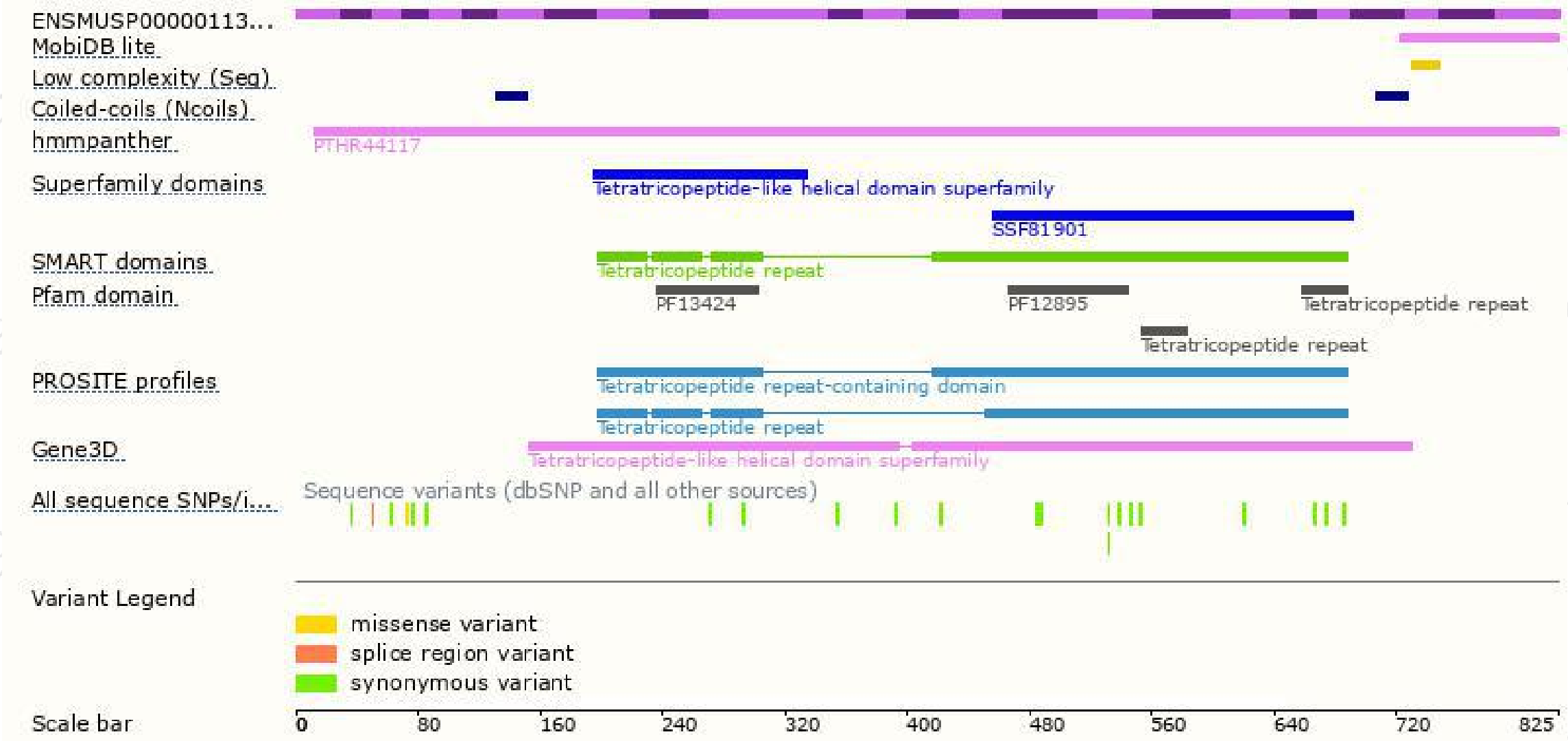
The strategy is based on the design of *Ift88-201* transcript,The transcription is shown below



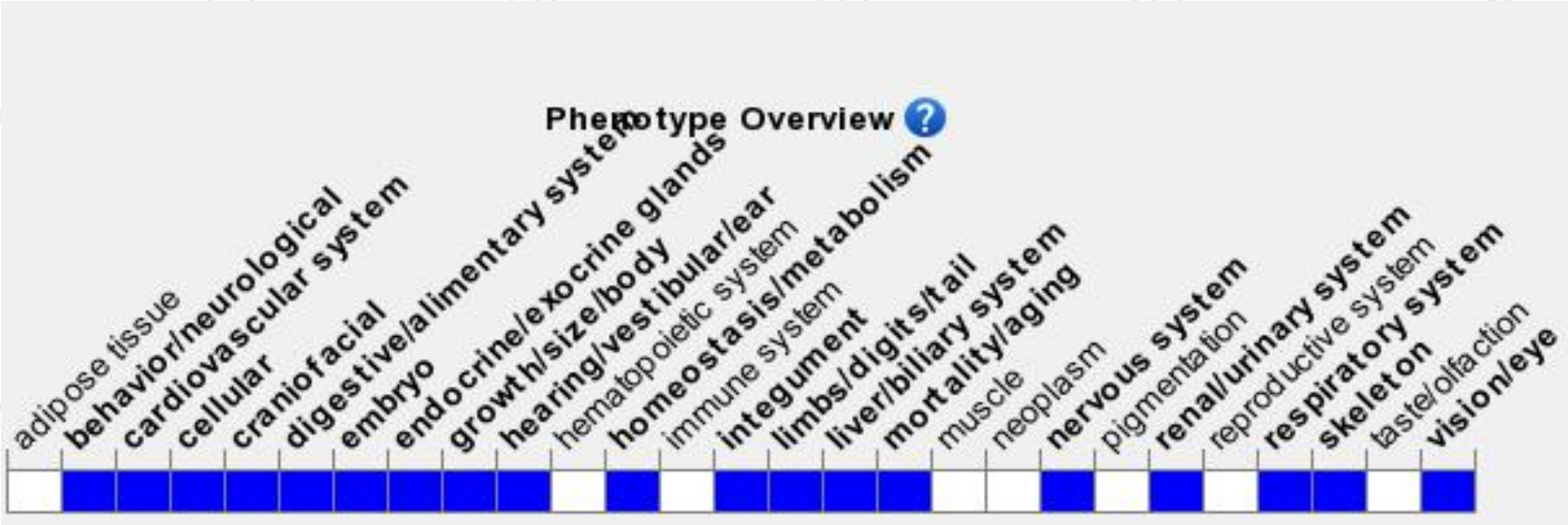
Genomic location distribution



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/).

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

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