Bcam Cas9-KO Strategy

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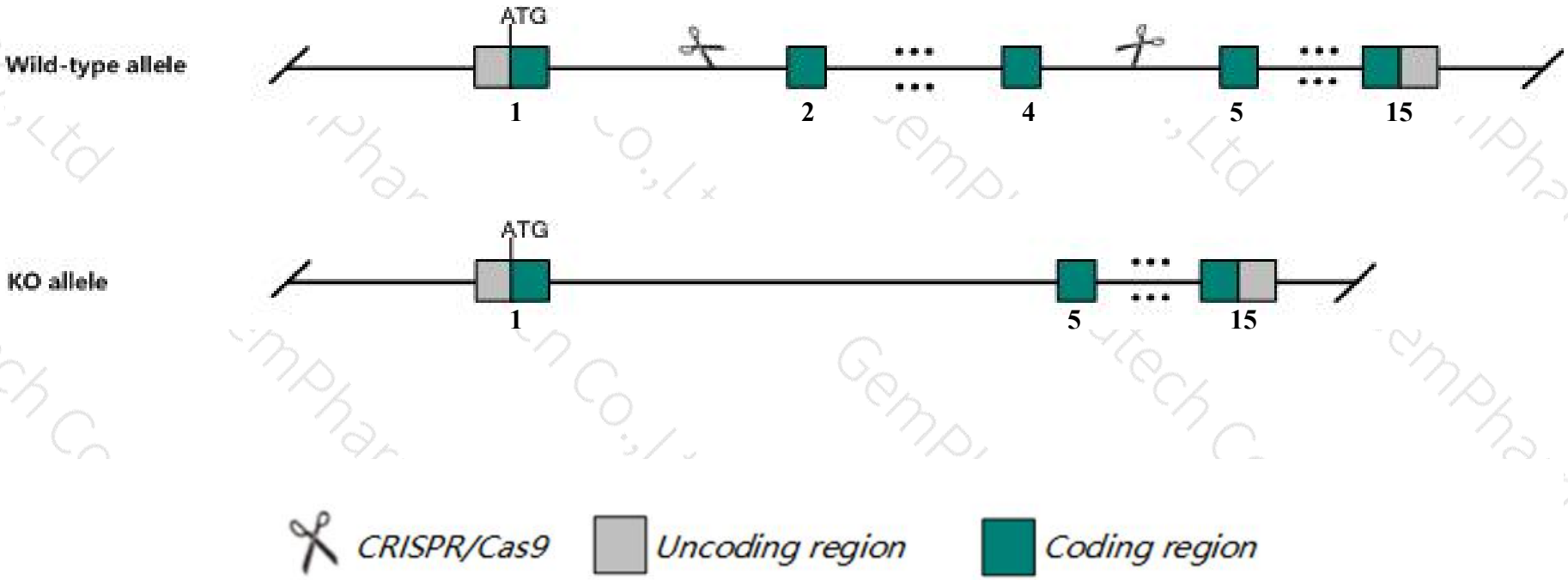
Project Overview

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

Knockout strategy

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



Technical routes

➢ The *Bcam* gene has 5 transcripts. According to the structure of *Bcam* gene, exon2-exon4 of *Bcam-201* (ENSMUST00000003061.13) transcript is recommended as the knockout region.The region contains 419bp coding sequence. Knock out the region will result in disruption of protein function.

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

Notice

- According to the existing MGI data,A gene trap insertion into an intron of this gene results in no obvious phenotype. Mice homozygous for a null allele exhibit glomeruli abnormalities and increased thickness and disorganization of intestinal smooth muscle.

- The *Bcam* 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 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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Bcam basal cell adhesion molecule [Mus musculus (house mouse)]

Gene ID: 57278, updated on 5-Mar-2019

Summary

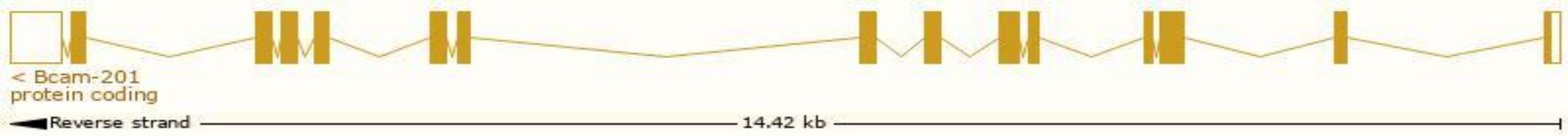
Official Symbol	Bcam provided by MGI
Official Full Name	basal cell adhesion molecule provided by MGI
Primary source	MGI:MGI:1929940
See related	Ensembl:ENSMUSG00000002980
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1200005K12Rik, B-CAM, Gplu, Lu
Expression	Biased expression in lung adult (RPKM 346.1), ovary adult (RPKM 101.5) and 11 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

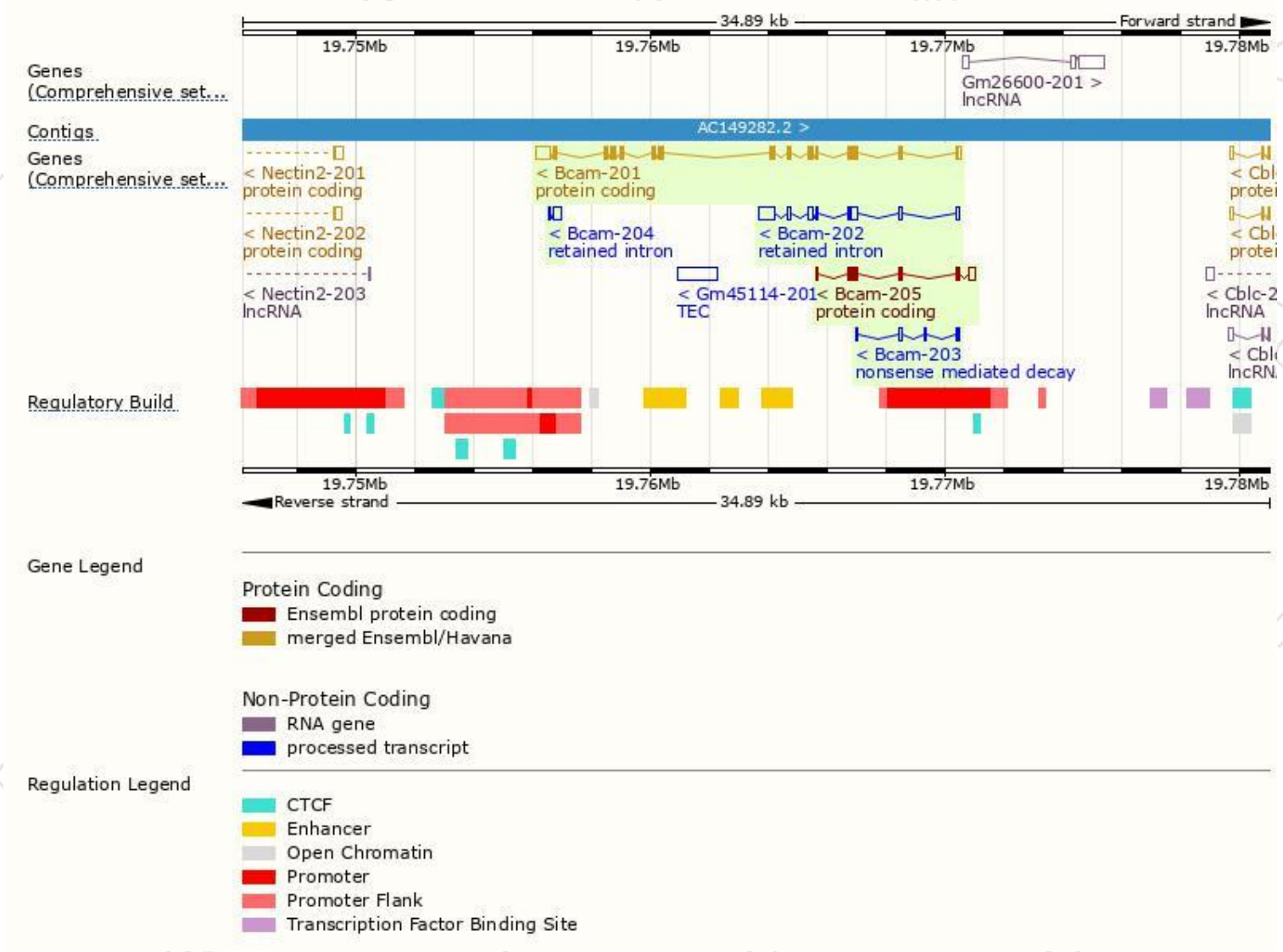
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Bcam-201	ENSMUST00000003061.13	2429	622aa	Protein coding	CCDS39803	Q9R069	TSL:1 GENCODE basic APPRIS P1
Bcam-205	ENSMUST00000155244.2	807	193aa	Protein coding	-	D3YTK7	CDS 3' incomplete TSL:5
Bcam-203	ENSMUST00000133427.1	341	43aa	Nonsense mediated decay	-	D6RE44	TSL:3
Bcam-202	ENSMUST00000133271.1	1449	No protein	Retained intron	-	-	TSL:1
Bcam-204	ENSMUST00000135632.1	307	No protein	Retained intron	-	-	TSL:2

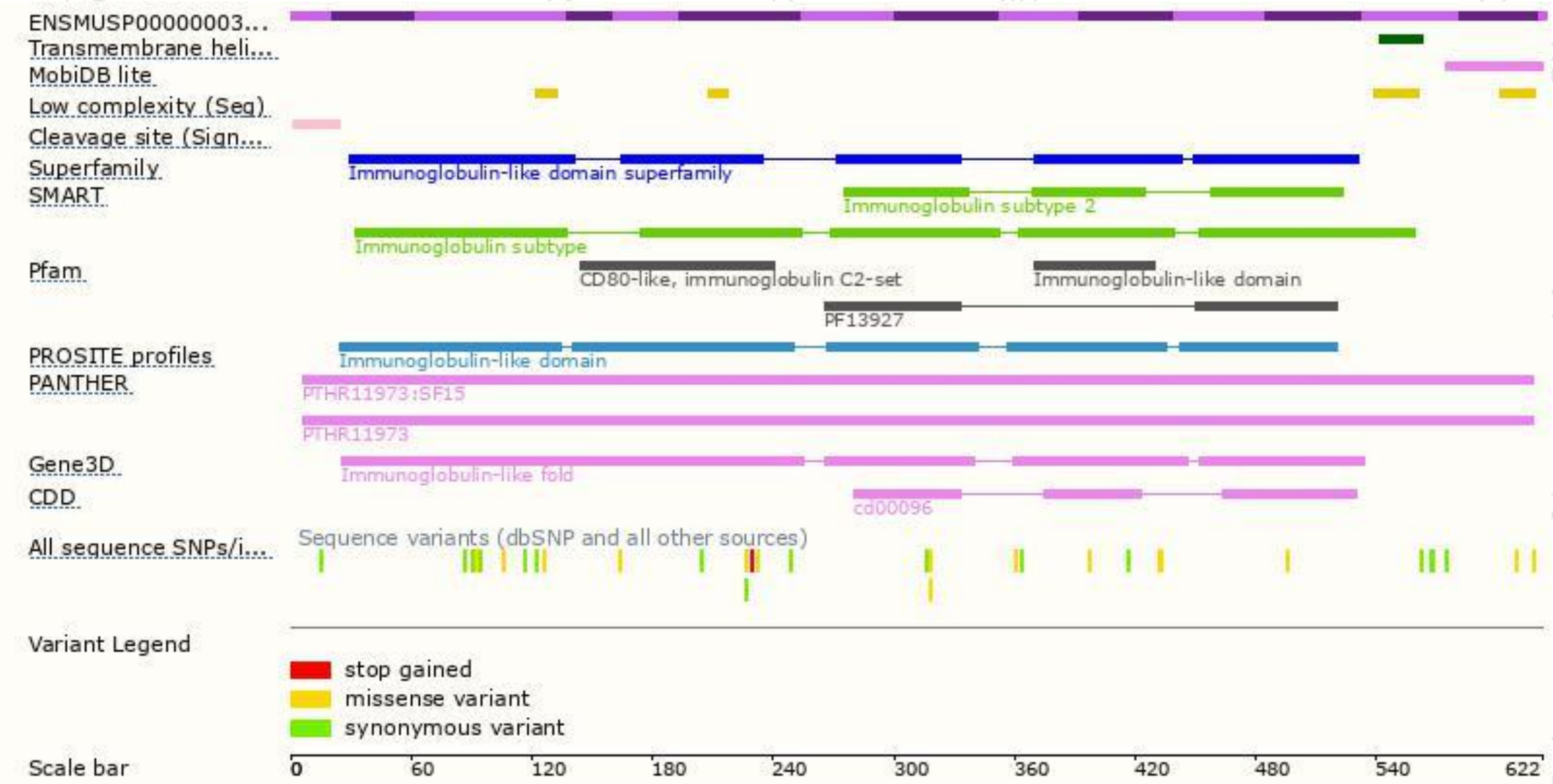
The strategy is based on the design of *Bcam-201* transcript,The transcription is shown below



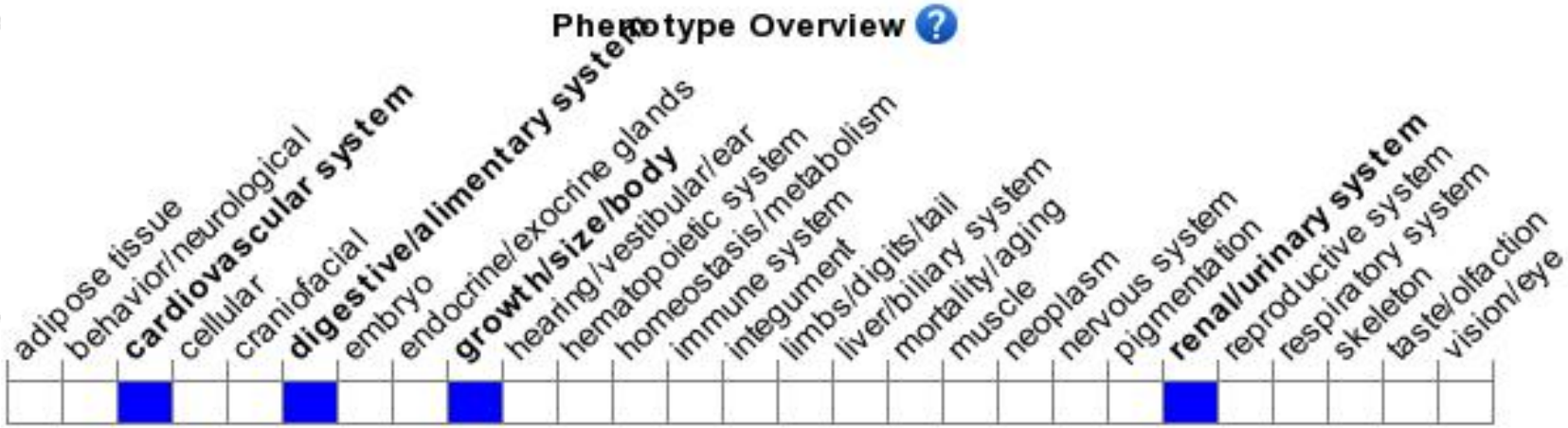
Genomic location distribution



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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