

***Rela* Cas9-CKO Strategy**

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Project Overview

Project Name

Rela

Project type

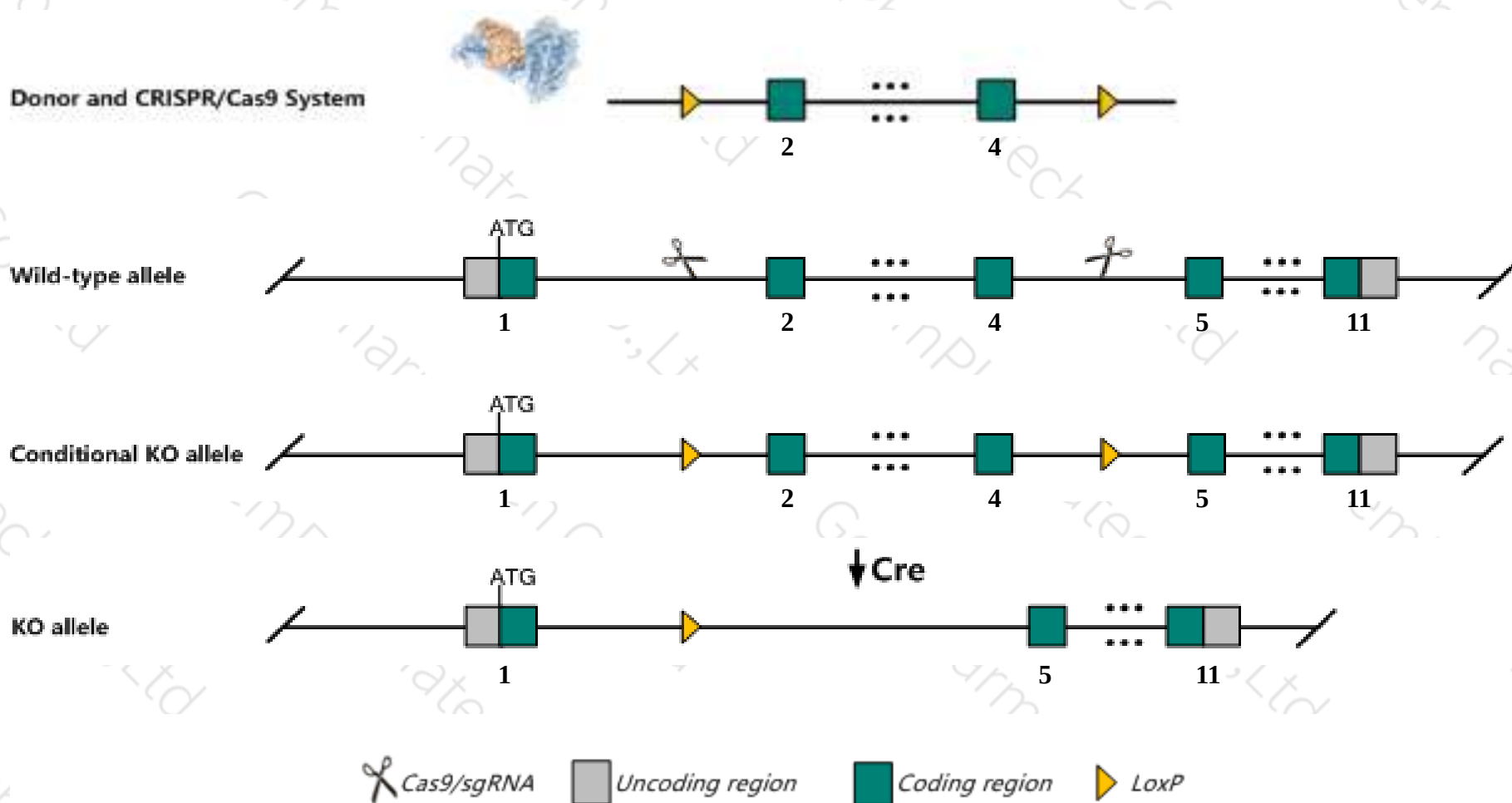
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



- The *Rela* gene has 7 transcripts. According to the structure of *Rela* gene, exon2-exon4 of *Rela*-201 (ENSMUST00000025867.5) transcript is recommended as the knockout region. The region contains 328bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Rela* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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 was 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 null mice are embryonic lethal due to hepatic apoptosis.
- The *Rela* gene is located on the Chr19. 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)

Rela v-rel reticuloendotheliosis viral oncogene homolog A (avian) [Mus musculus (house mouse)]

Gene ID: 19697, updated on 12-Mar-2019

Summary



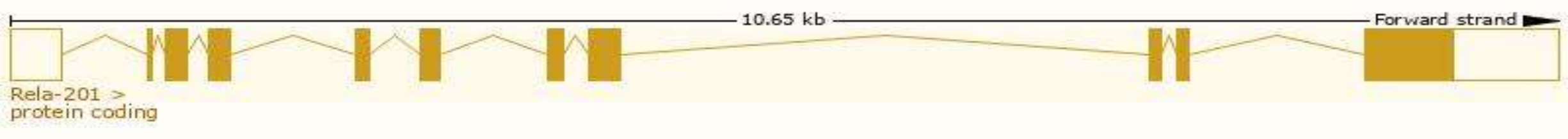
Official Symbol	Rela provided by MGI
Official Full Name	v-rel reticuloendotheliosis viral oncogene homolog A (avian) provided by MGI
Primary source	MGI:MGI:103290
See related	Ensembl:ENSMUSG00000024927
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	p65, p65 NF-kappa B, p65 NFkB
Expression	Ubiquitous expression in adrenal adult (RPKM 78.1), lung adult (RPKM 46.5) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

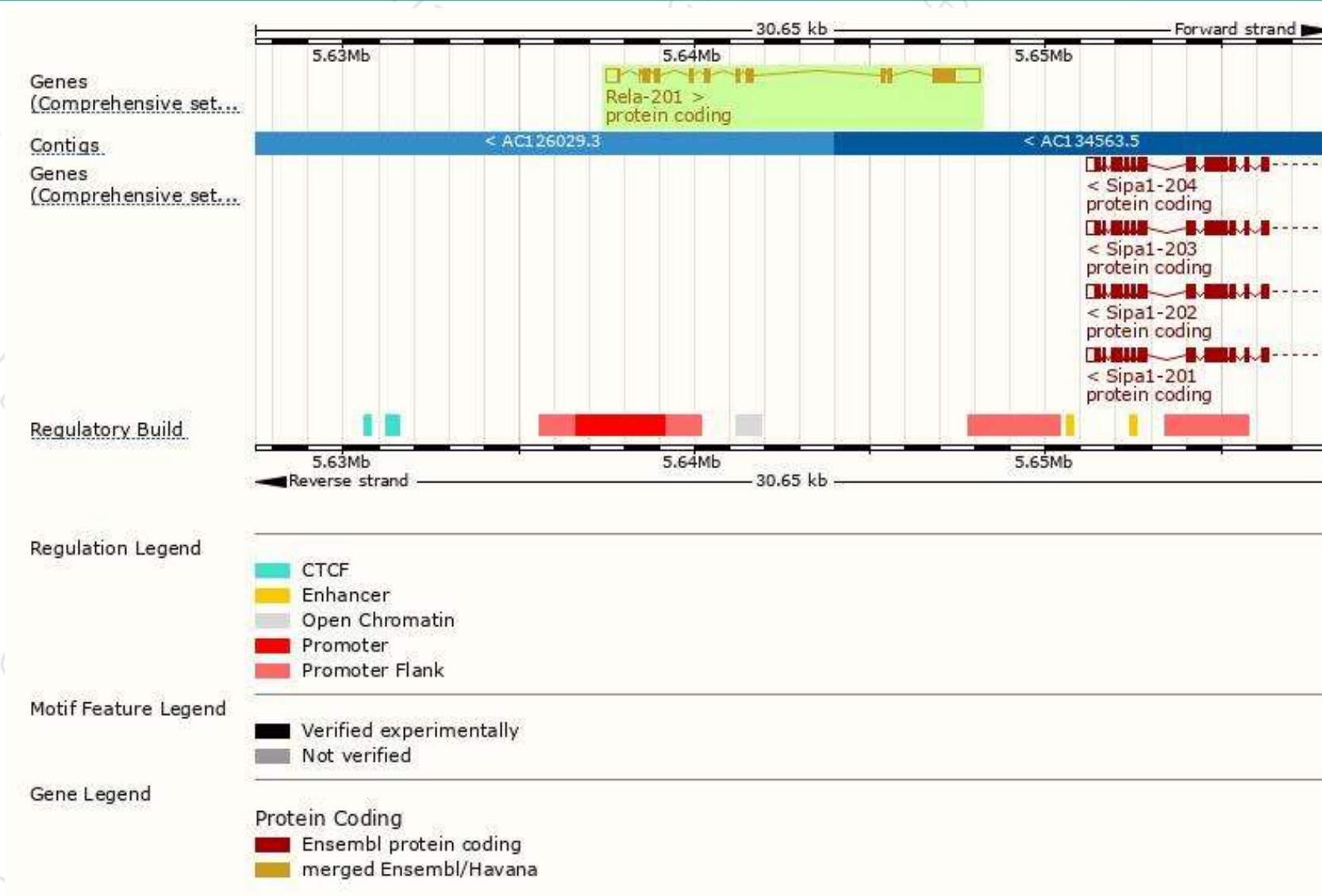
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rela-201	ENSMUST00000025867.5	2716	549aa	Protein coding	CCDS29473	Q04207 Q548Y4	TSL:1 GENCODE basic APPRIS P1
Rela-205	ENSMUST00000237863.1	363	67aa	Protein coding	-	-	CDS 3' incomplete
Rela-206	ENSMUST00000238000.1	2063	348aa	Nonsense mediated decay	-	-	
Rela-204	ENSMUST00000237838.1	1571	121aa	Nonsense mediated decay	-	Q4U113	
Rela-207	ENSMUST00000238126.1	728	No protein	Processed transcript	-	-	
Rela-202	ENSMUST00000236300.1	311	No protein	Processed transcript	-	-	
Rela-203	ENSMUST00000237361.1	786	No protein	Retained intron	-	-	

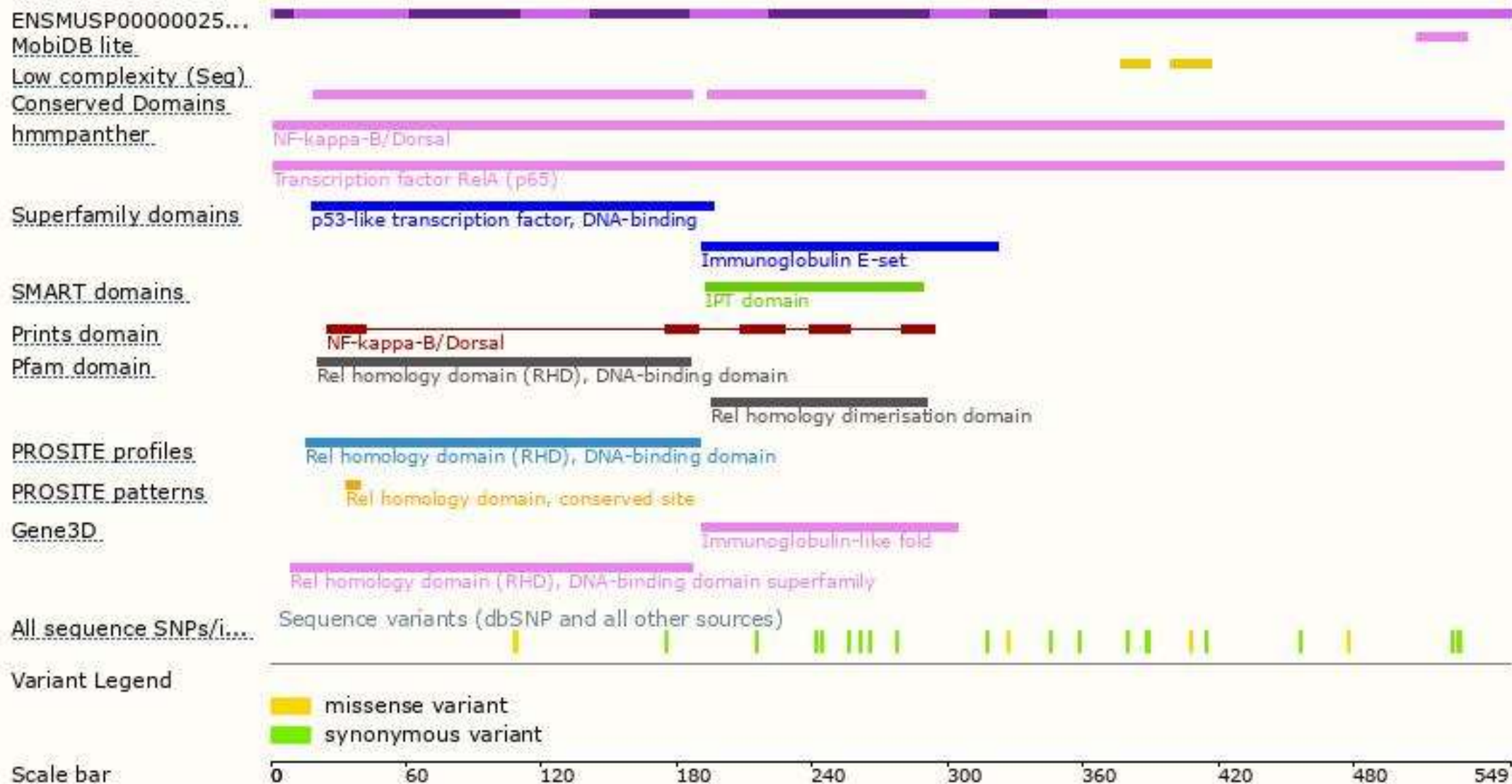
The strategy is based on the design of *Rela-201* transcript,The transcription is shown below



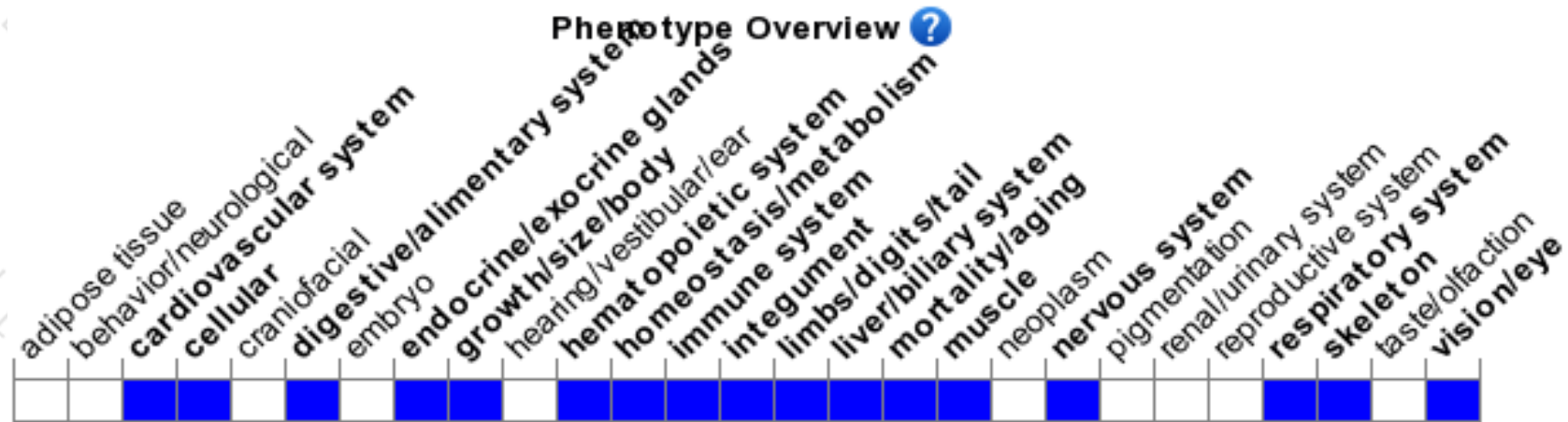
Genomic location distribution



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, Homozygous null mice are embryonic lethal due to hepatic apoptosis.

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

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