

Numbl Cas9-CKO Strategy

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Reviewer:

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Design Date:

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Project Overview

Project Name

Numbl

Project type

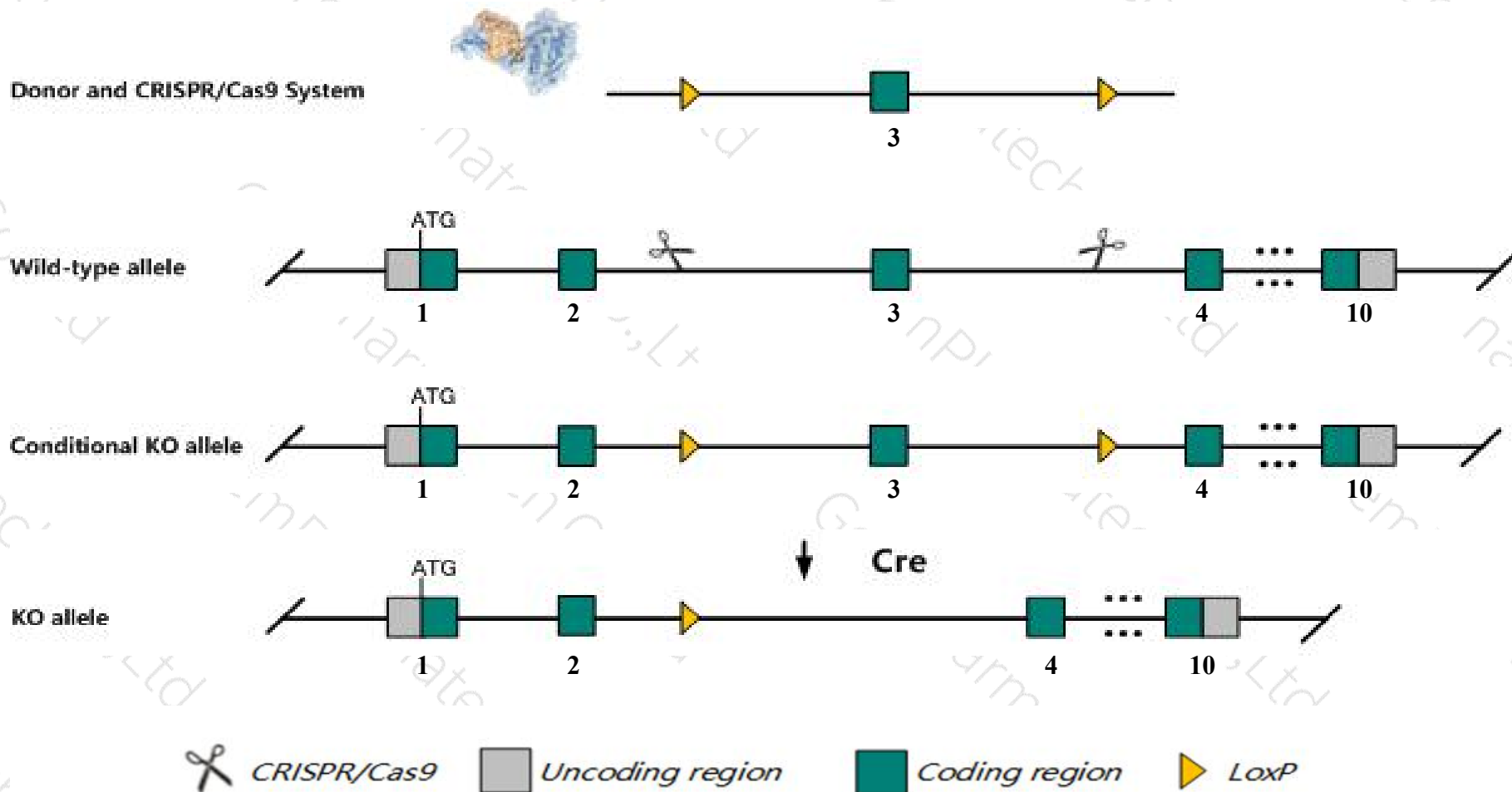
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



- The *Numbl* gene has 5 transcripts. According to the structure of *Numbl* gene, exon3 of *Numbl-201* (ENSMUST00000079258.6) transcript is recommended as the knockout region. The region contains 140bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Numbl* 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, Mice homozygous for a knock-out allele are viable and exhibit no overt phenotypes except for a reduction in female fertility.
- The *Numbl* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Numbl numb-like [Mus musculus (house mouse)]

Gene ID: 18223, updated on 2-Apr-2019

Summary



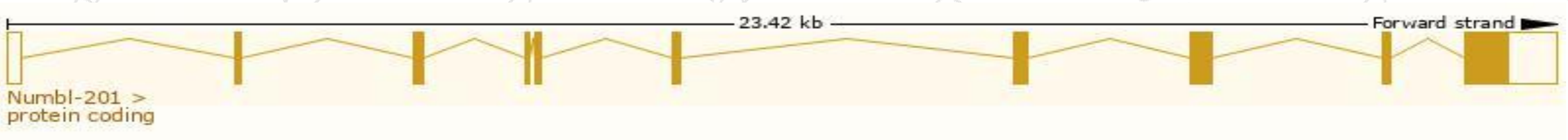
Official Symbol	Numbl provided by MGI
Official Full Name	numb-like provided by MGI
Primary source	MGI:MGI:894702
See related	Ensembl:ENSMUSG00000063160
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	nbl
Expression	Broad expression in ovary adult (RPKM 20.9), limb E14.5 (RPKM 20.4) and 24 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

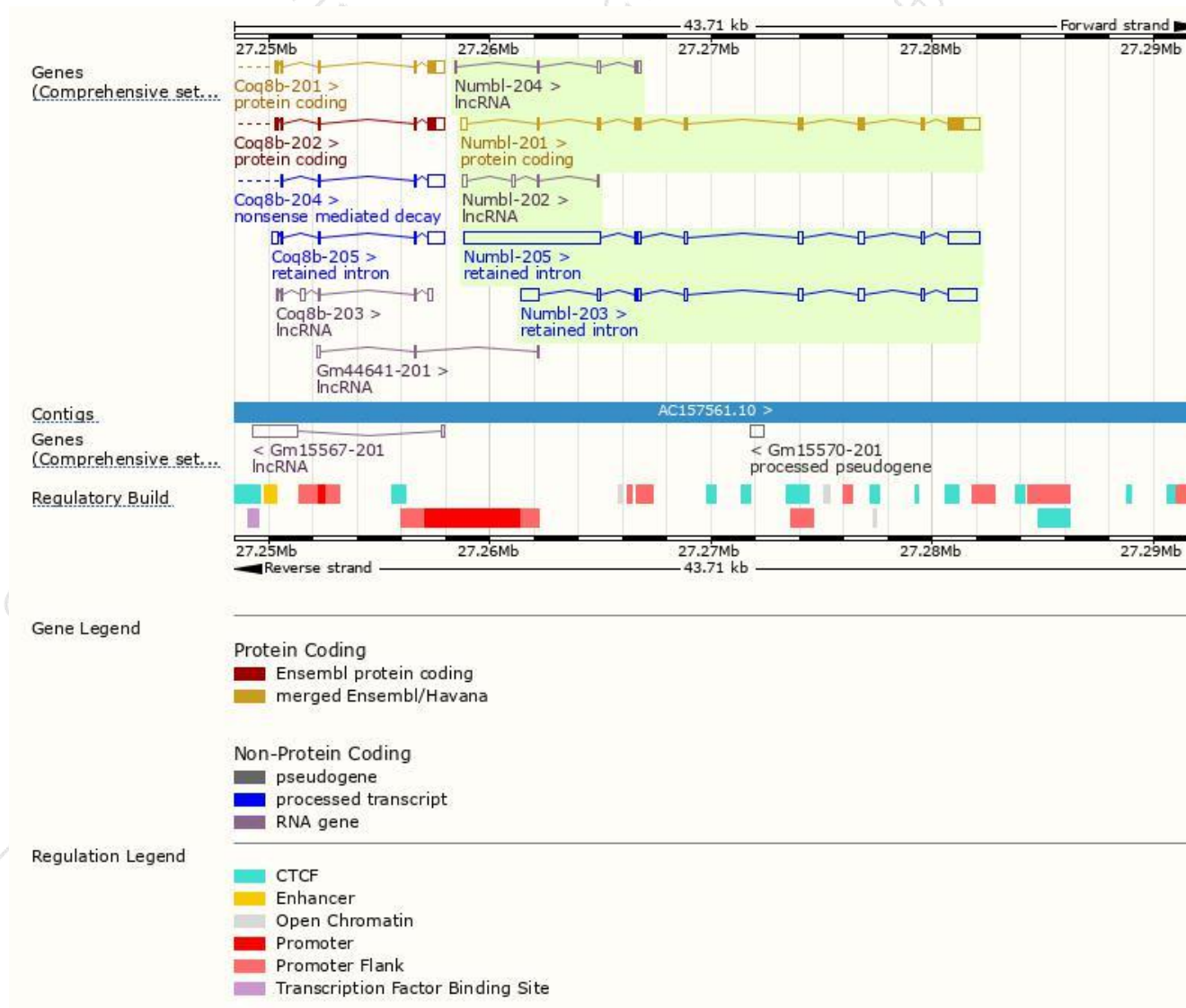
The gene has 5 transcripts,all transcripts are shown below:

Show/hide columns (1 hidden)								Filter	
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags	
Numbl-201	ENSMUST00000079258.6	2760	604aa	Protein coding	CCDS21016	O08919	NM_010950 NP_035080	TSL:1	GENCODE basic APPRIS P1
Numbl-204	ENSMUST00000144010.7	456	No protein	Processed transcript	-	-	-	TSL:3	
Numbl-202	ENSMUST00000132897.1	438	No protein	Processed transcript	-	-	-	TSL:2	
Numbl-205	ENSMUST00000149805.7	8511	No protein	Retained intron	-	-	-	TSL:1	
Numbl-203	ENSMUST00000134215.1	3153	No protein	Retained intron	-	-	-	TSL:5	

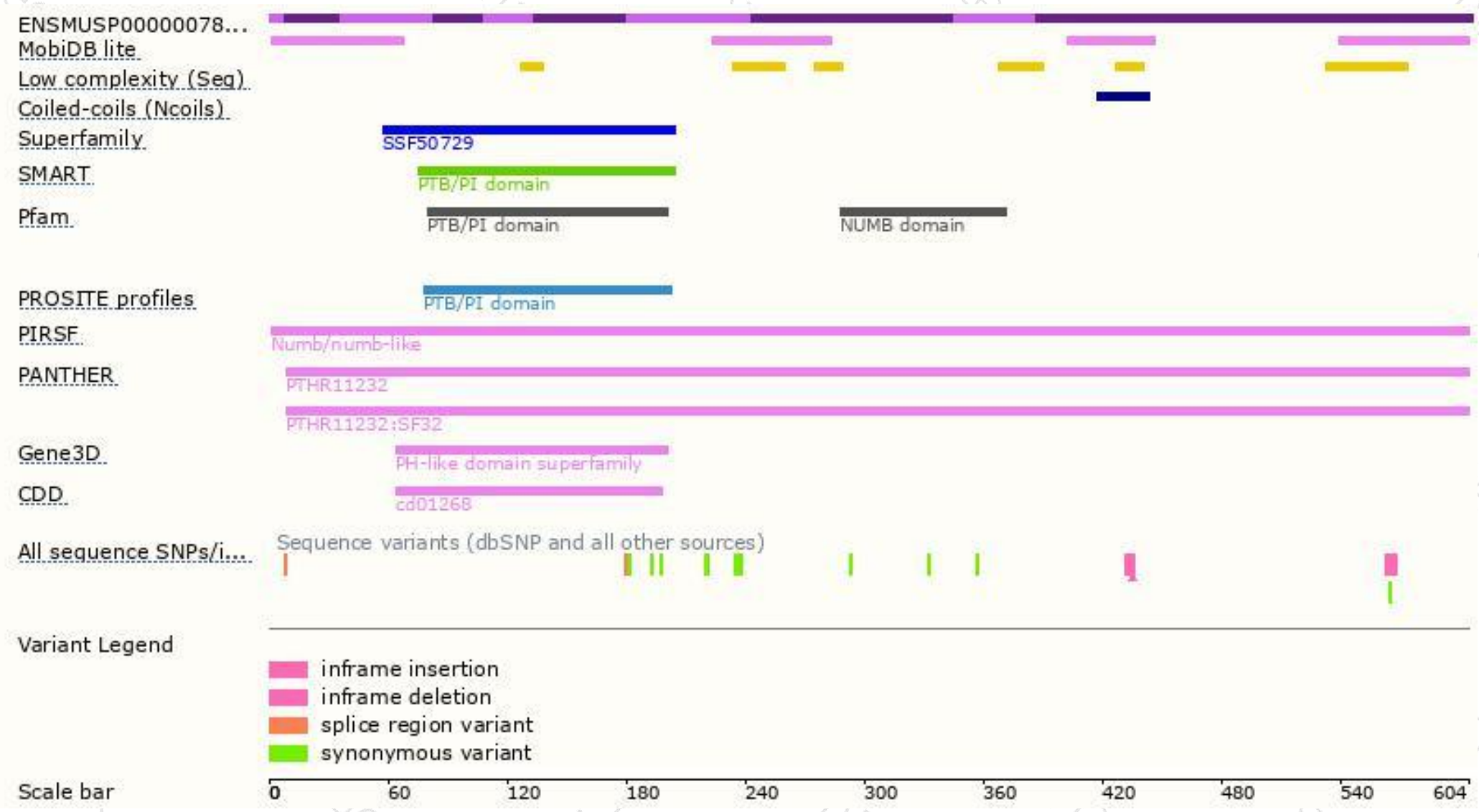
The strategy is based on the design of *Numbl-201* transcript,The transcription is shown below



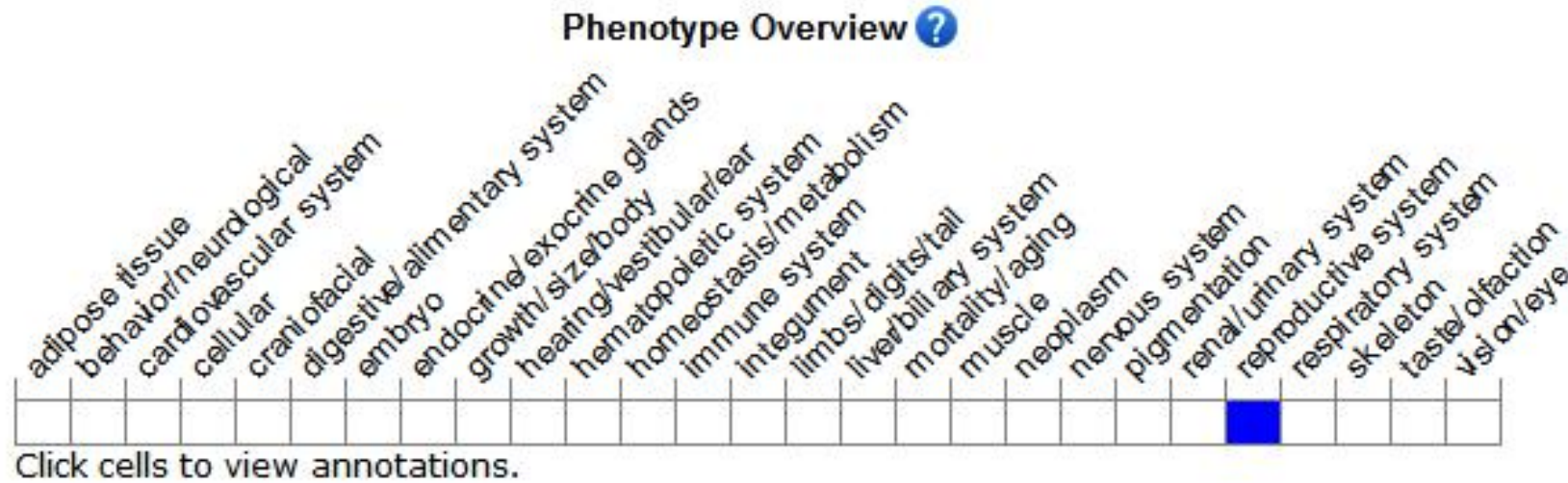
Genomic location distribution



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, Mice homozygous for a knock-out allele are viable and exhibit no overt phenotypes except for a reduction in female fertility.

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

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