

Dnajc24 Cas9-CKO Strategy

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Project Overview

Project Name

Dnajc24

Project type

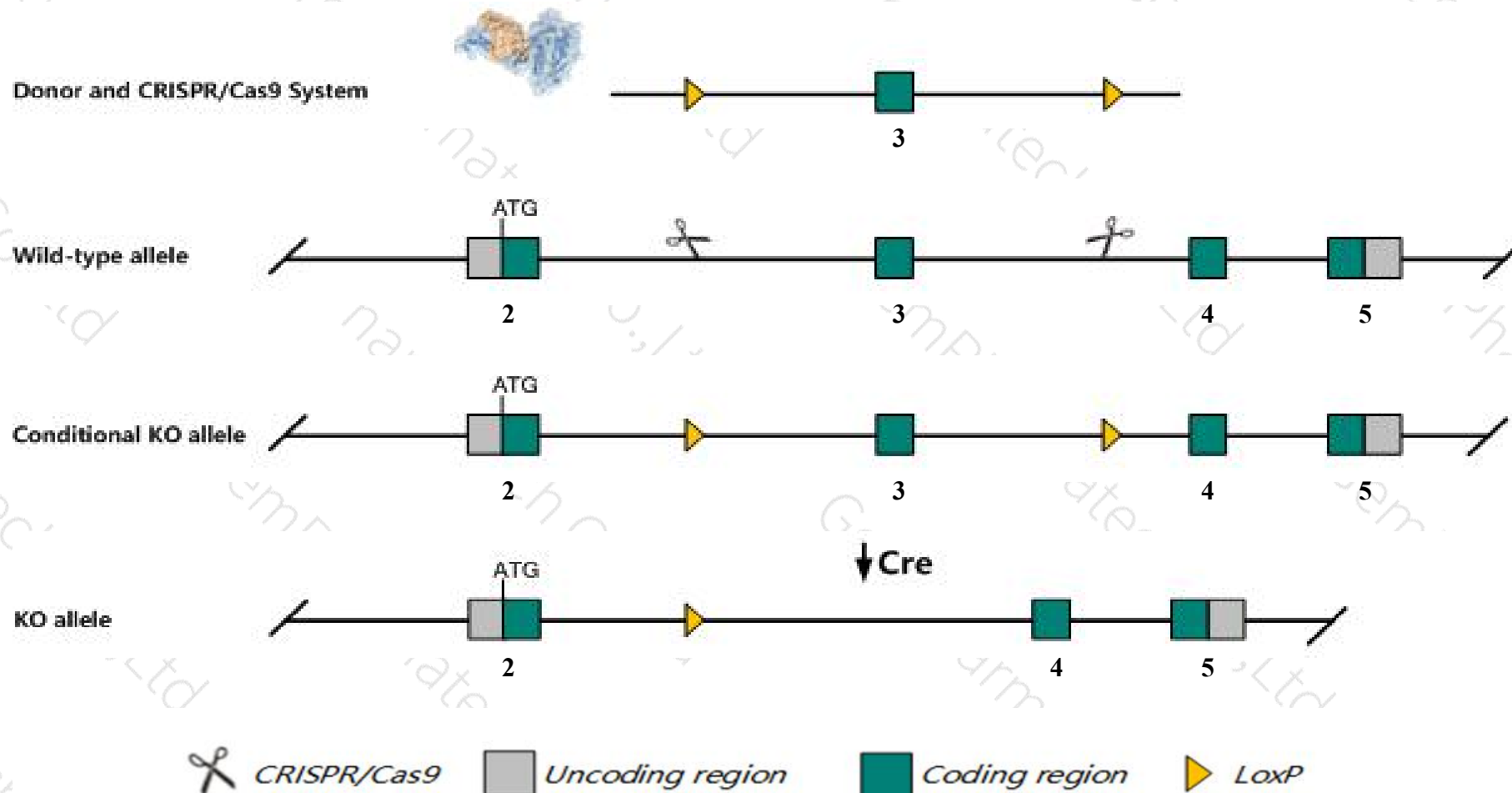
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dnajc24* gene. The schematic diagram is as follows:



- The *Dnajc24* gene has 5 transcripts. According to the structure of *Dnajc24* gene, exon3 of *Dnajc24-201* (ENSMUST00000102555.10) transcript is recommended as the knockout region. The region contains 139bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Dnajc24* 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 an enu-induced mutation are retarded in growth and development, and generally die before birth; those that survive long enough to initiate digit formation show a distinctive polydactyly phenotype on their hind limbs.
- Transcript *Dnajc24-205* may not be affected.
- The *Dnajc24* gene is located on the Chr2. 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)

Dnajc24 DnaJ heat shock protein family (Hsp40) member C24 [Mus musculus (house mouse)]

Gene ID: 99349, updated on 13-Mar-2020

Summary



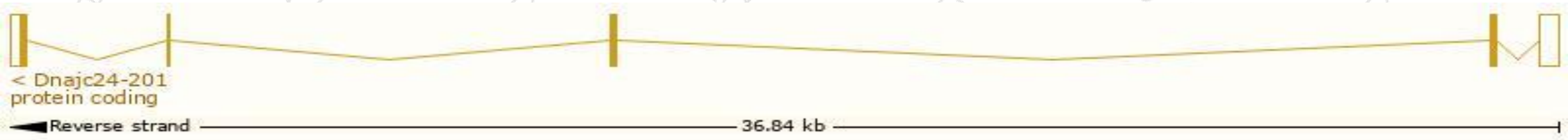
Official Symbol	Dnajc24 provided by MGI
Official Full Name	DnaJ heat shock protein family (Hsp40) member C24 provided by MGI
Primary source	MGI:MGI:1919522
See related	Ensembl:ENSMUSG00000027166
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1700030A21Rik, 2610027M02Rik, AV066965, AW240712, Dph4, MmDjC7, Zcs13
Expression	Ubiquitous expression in CNS E11.5 (RPKM 13.3), CNS E14 (RPKM 6.2) and 27 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

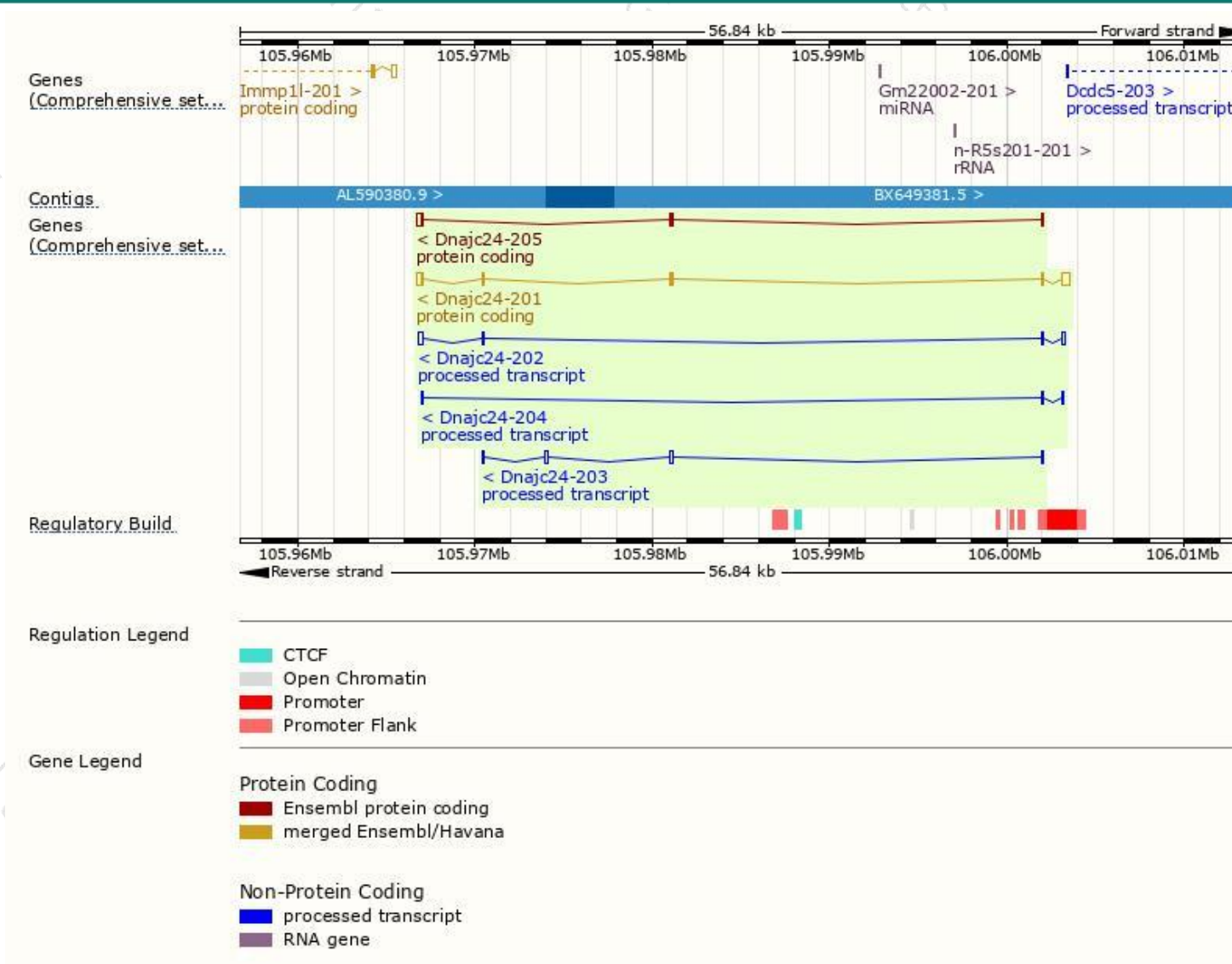
The gene has 5 transcripts,all transcripts are shown below:

Name ▲	Transcript ID ▲	bp ▲	Protein ▲	Biotype ▲	CCDS ▲	UniProt ▲	Flags ▲
Dnajc24-201	ENSMUST00000102555.10	1197	148aa	Protein coding	CCDS16501	Q91ZF0	TSL:1 Gencode basic APPRIS P1
Dnajc24-202	ENSMUST00000124163.7	697	No protein	Processed transcript	-	-	TSL:1
Dnajc24-203	ENSMUST00000133569.1	527	No protein	Processed transcript	-	-	TSL:5
Dnajc24-204	ENSMUST00000151581.1	339	No protein	Processed transcript	-	-	TSL:2
Dnajc24-205	ENSMUST00000155811.1	605	116aa	Protein coding	-	F7CGC9	CDS 5' incomplete TSL:2

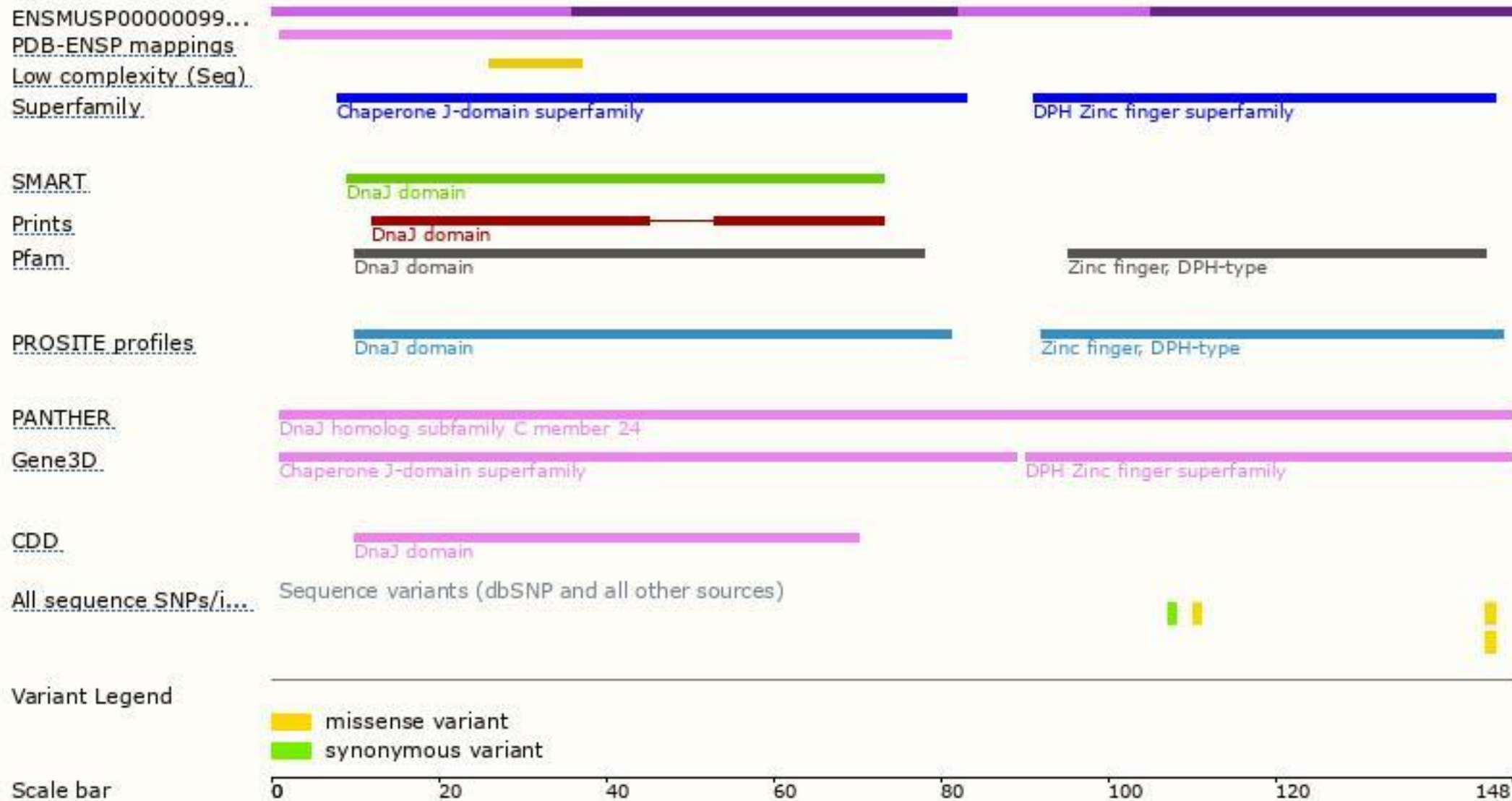
The strategy is based on the design of *Dnajc24-201* transcript,the transcription is shown below:



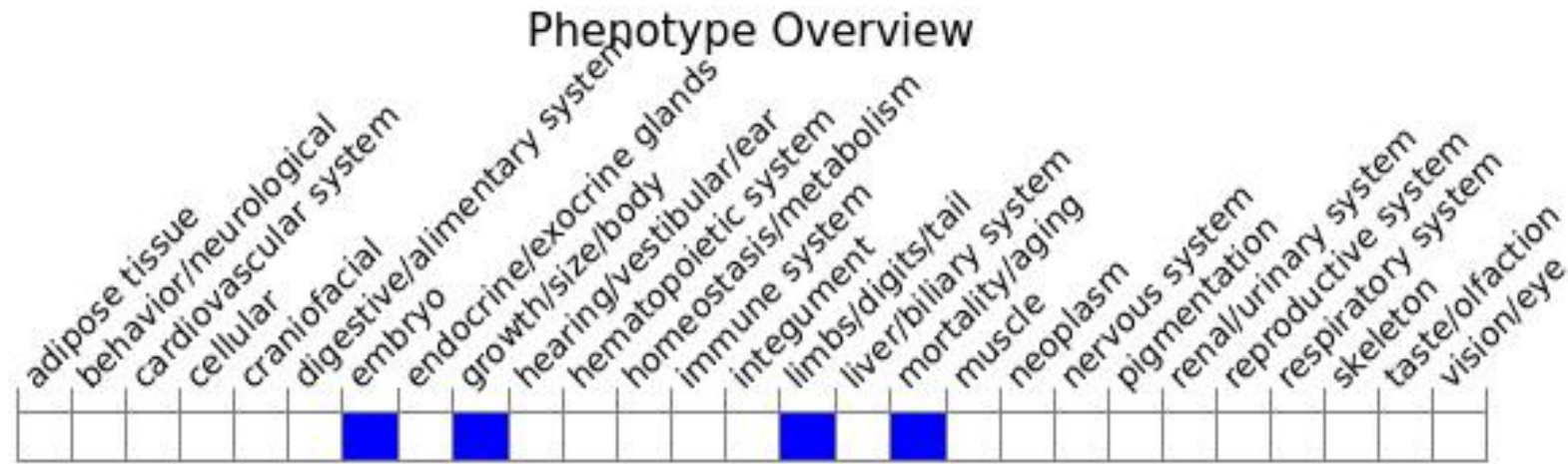
Genomic location distribution



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 an ENU-induced mutation are retarded in growth and development, and generally die before birth; those that survive long enough to initiate digit formation show a distinctive polydactyly phenotype on their hind limbs.

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

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