

Uhrf1 Cas9-CKO Strategy

Designer:

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Design Date:

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Project Overview

Project Name

Uhrf1

Project type

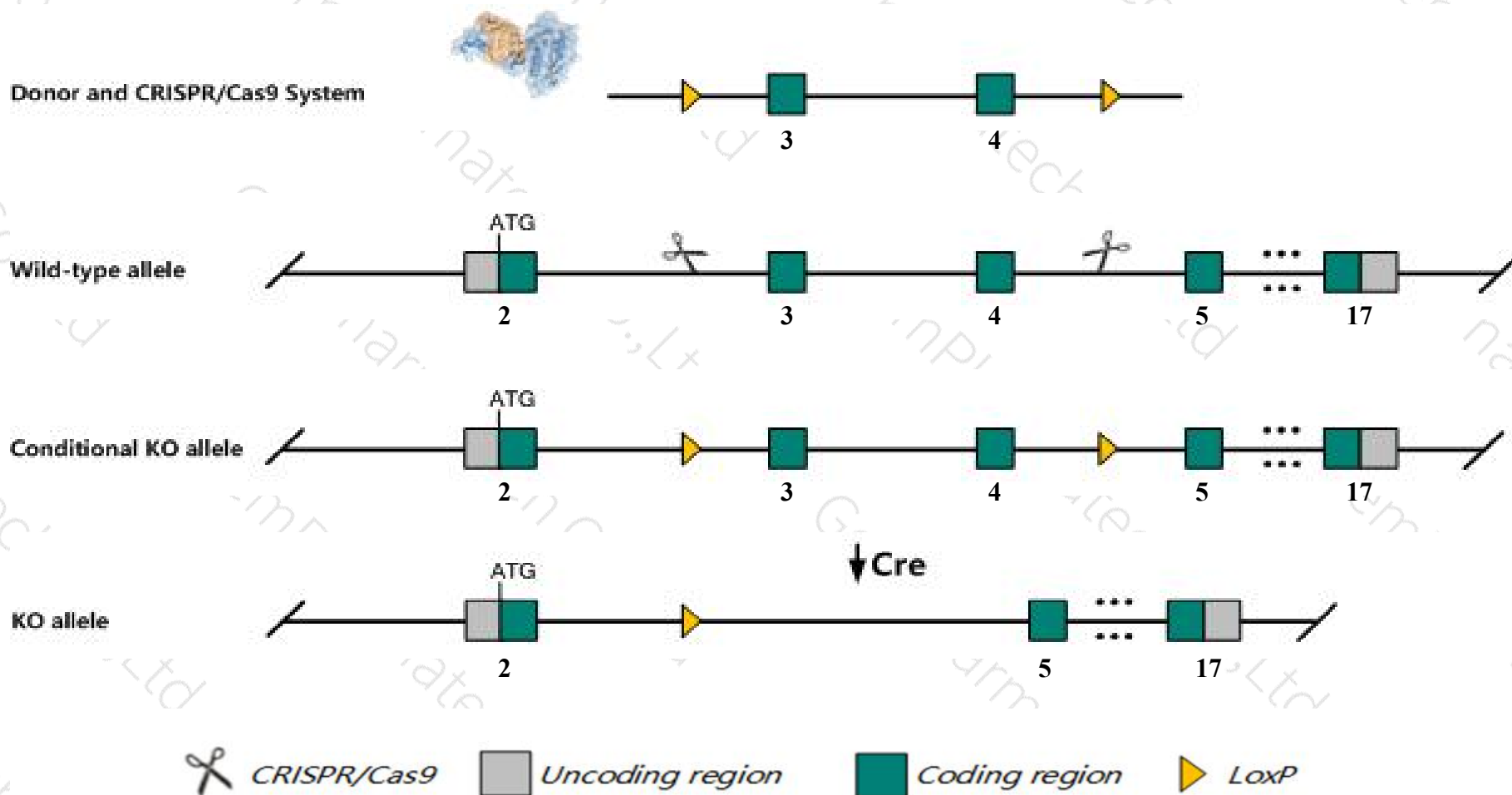
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Uhrf1* gene. The schematic diagram is as follows:



Technical routes

- The *Uhrf1* gene has 7 transcripts. According to the structure of *Uhrf1* gene, exon3-exon4 of *Uhrf1*-201 (ENSMUST00000001258.14) transcript is recommended as the knockout region. The region contains 404bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Uhrf1* 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 disruption of this marker die early in gestation showing growth retardation and various malformations.
- The *Uhrfl* gene is located on the Chr17. 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)

Uhrf1 ubiquitin-like, containing PHD and RING finger domains, 1 [Mus musculus (house mouse)]

Gene ID: 18140, updated on 3-Feb-2019

Summary



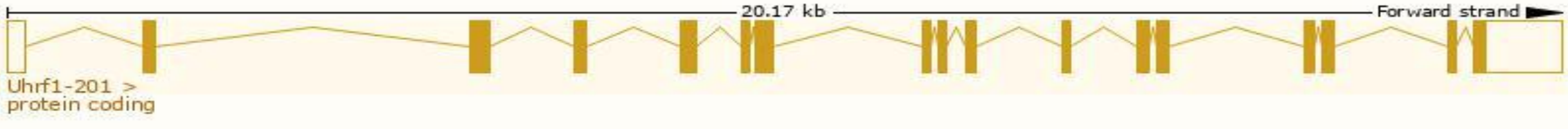
Official Symbol	Uhrf1 provided by MGI
Official Full Name	ubiquitin-like, containing PHD and RING finger domains, 1 provided by MGI
Primary source	MGI:MGI:1338889
See related	Ensembl:ENSMUSG000000001228
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AL022808, ICBP90, Np95, RNF106
Expression	Broad expression in thymus adult (RPKM 54.8), liver E14 (RPKM 50.8) and 17 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

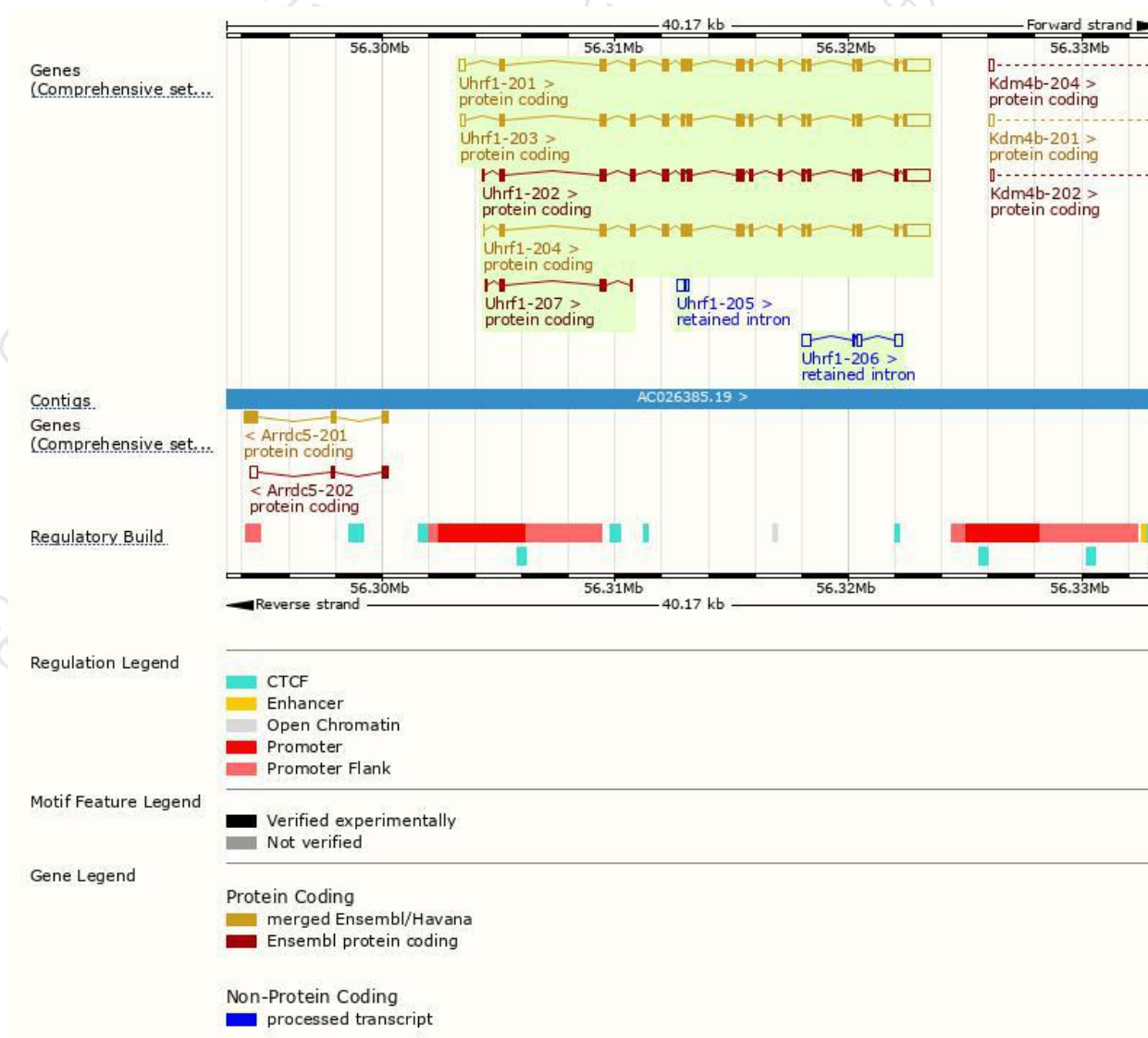
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Uhrf1-201	ENSMUST00000001258.14	3586	782aa	Protein coding	CCDS28903	Q8VDF2	TSL:1 GENCODE basic APPRIS P3
Uhrf1-203	ENSMUST00000113038.7	3483	774aa	Protein coding	CCDS50151	Q8VDF2	TSL:1 GENCODE basic APPRIS ALT 2
Uhrf1-202	ENSMUST00000113035.7	3402	774aa	Protein coding	CCDS50151	Q8VDF2	TSL:1 GENCODE basic APPRIS ALT 2
Uhrf1-204	ENSMUST00000113039.8	3391	782aa	Protein coding	CCDS28903	Q8VDF2	TSL:1 GENCODE basic APPRIS P3
Uhrf1-207	ENSMUST00000142387.1	529	146aa	Protein coding	-	E9Q5Y5	CDS 3' incomplete TSL:3
Uhrf1-206	ENSMUST00000139654.1	949	No protein	Retained intron	-	-	TSL:5
Uhrf1-205	ENSMUST00000137876.1	441	No protein	Retained intron	-	-	TSL:2

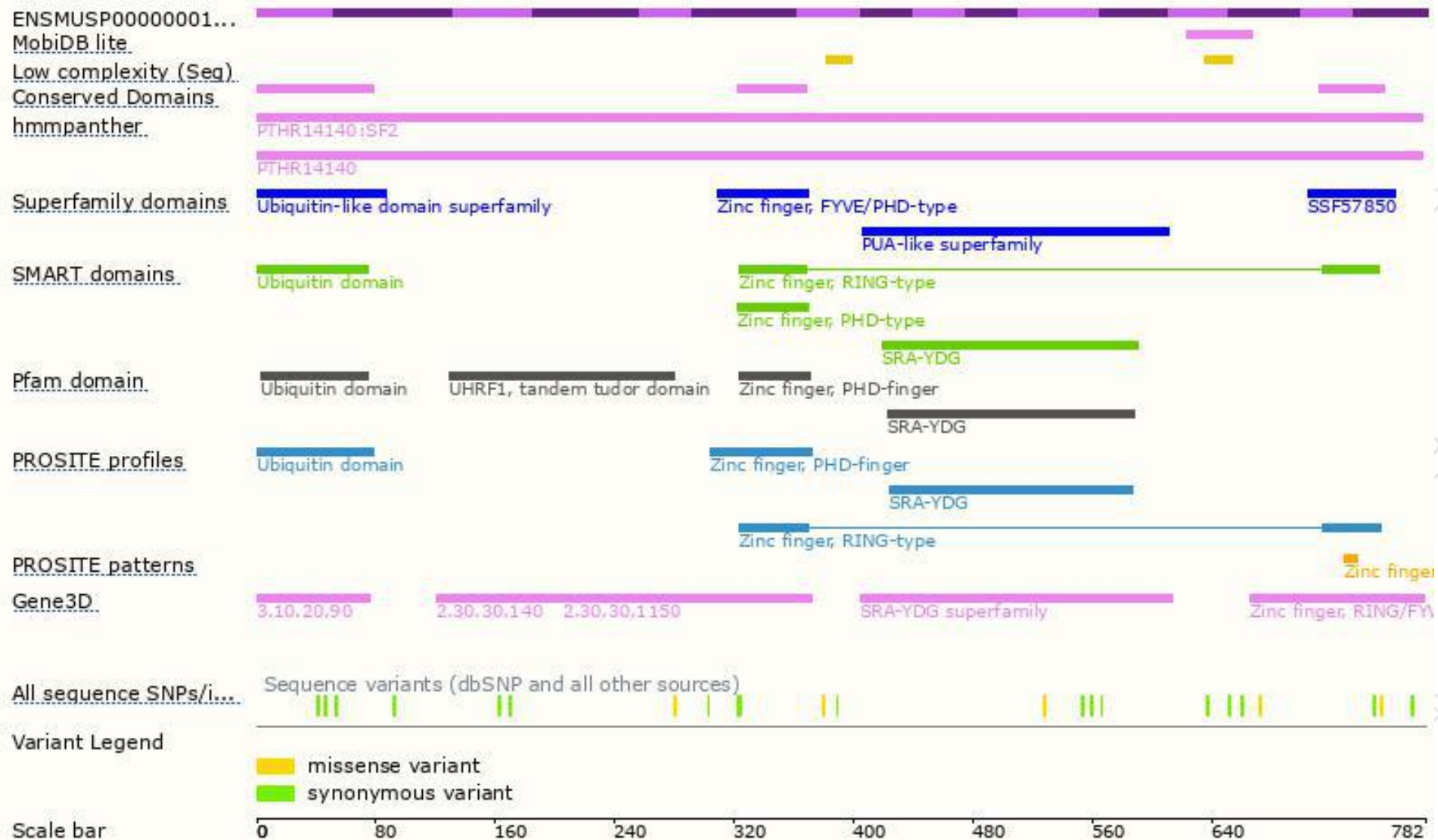
The strategy is based on the design of *Uhrf1-201* transcript,The transcription is shown below



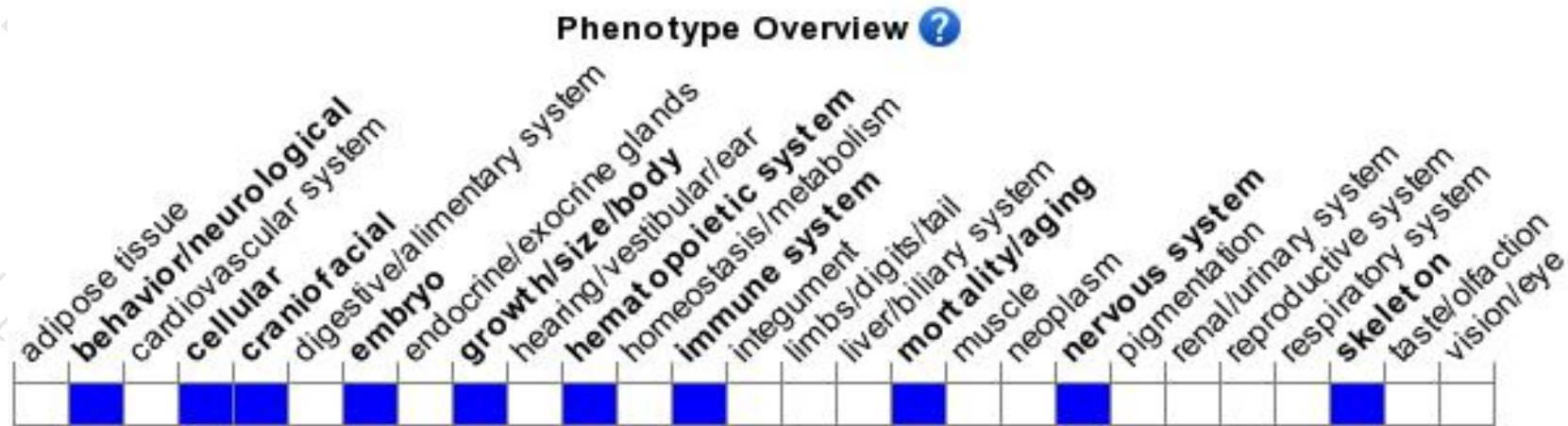
Genomic location distribution



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 disruption of this marker die early in gestation showing growth retardation and various malformations.

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

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