

Erf Cas9-KO Strategy

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Project Overview

Project Name

Erf

Project type

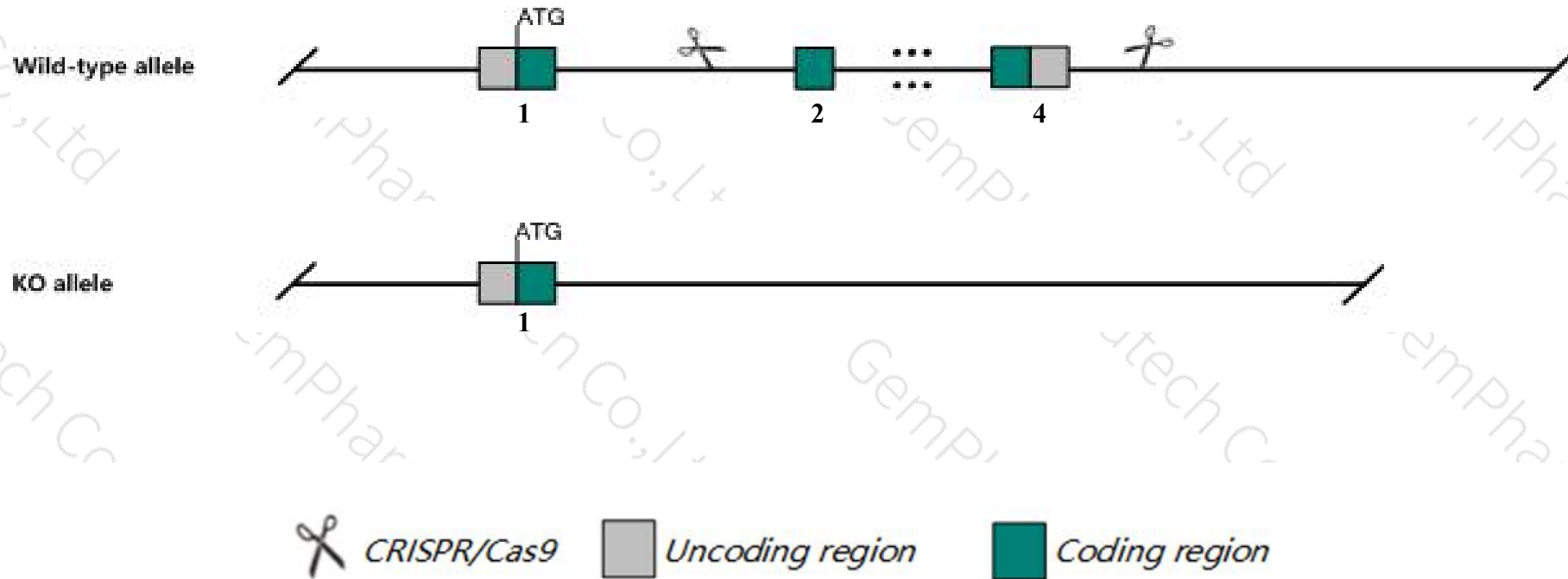
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Erf* gene has 2 transcripts. According to the structure of *Erf* gene, exon2-exon4 of *Erf-201* (ENSMUST00000045847.14) transcript is recommended as the knockout region. The region contains 1634bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Erf* gene. The brief process is as follows: CRISPR/Cas9 system we

- According to the existing MGI data, Mice homozygous for a null allele exhibit embryonic lethality around E10.5, reduced size, brain hypoplasia, defects in extraembryonic tissue formation affecting the chorion, allantois, placental labyrinth and umbilical cord, and increase in apoptosis.
- The *Erf* 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)

Erf Ets2 repressor factor [Mus musculus (house mouse)]

Gene ID: 13875, updated on 31-Jan-2019

Summary



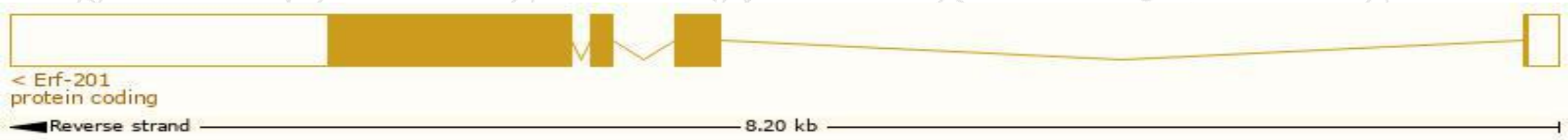
Official Symbol	Erf provided by MGI
Official Full Name	Ets2 repressor factor provided by MGI
Primary source	MGI:MGI:109637
See related	Ensembl:ENSMUSG00000040857
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Expression	Ubiquitous expression in limb E14.5 (RPKM 38.0), ovary adult (RPKM 27.6) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

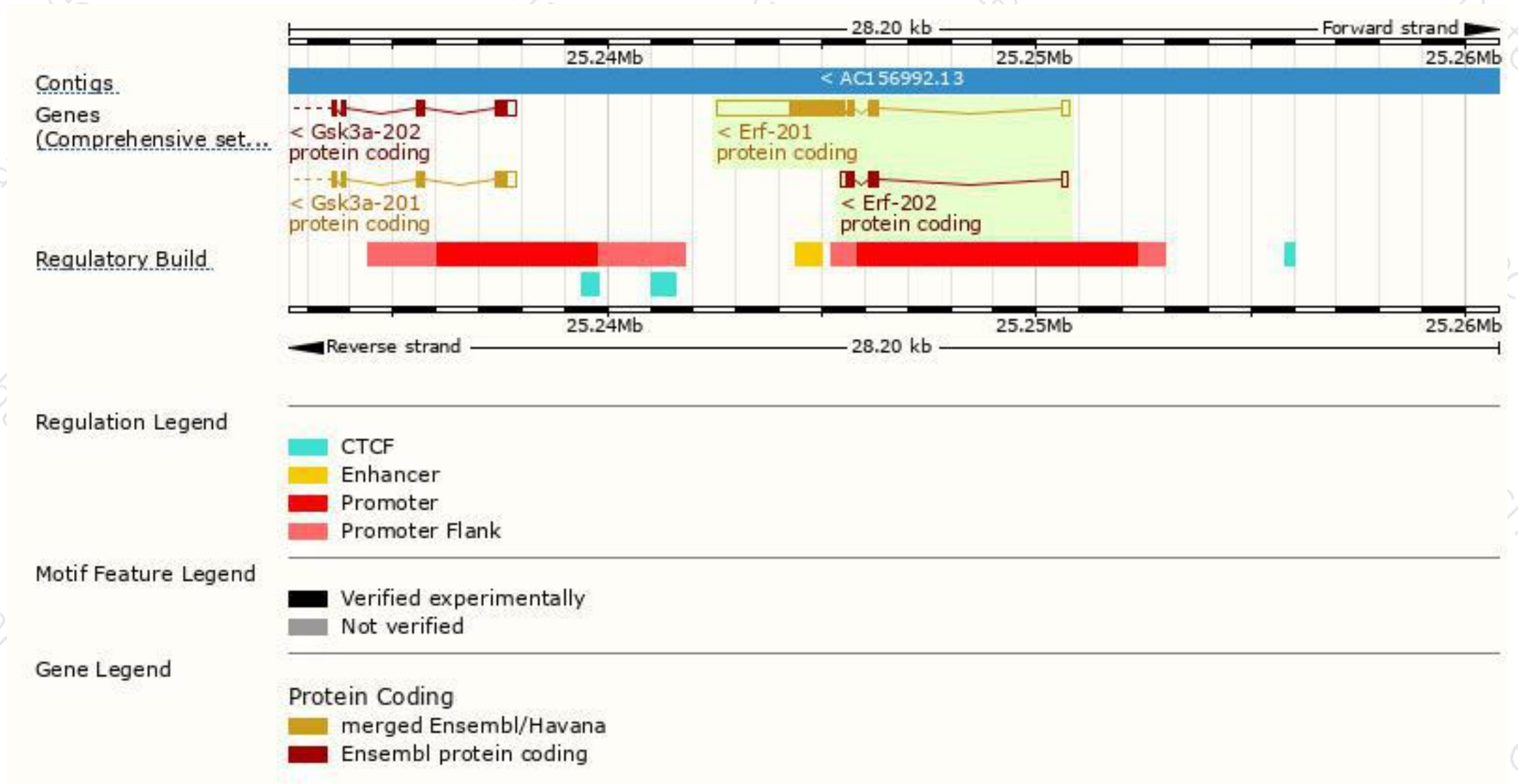
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Erf-201	ENSMUST00000045847.14	3505	551aa	Protein coding	CCDS20978	A0A0R4J0I0	TSL:1 GENCODE basic APPRIS P2
Erf-202	ENSMUST00000116343.2	690	149aa	Protein coding	-	D3YXK6	TSL:2 GENCODE basic APPRIS ALT2

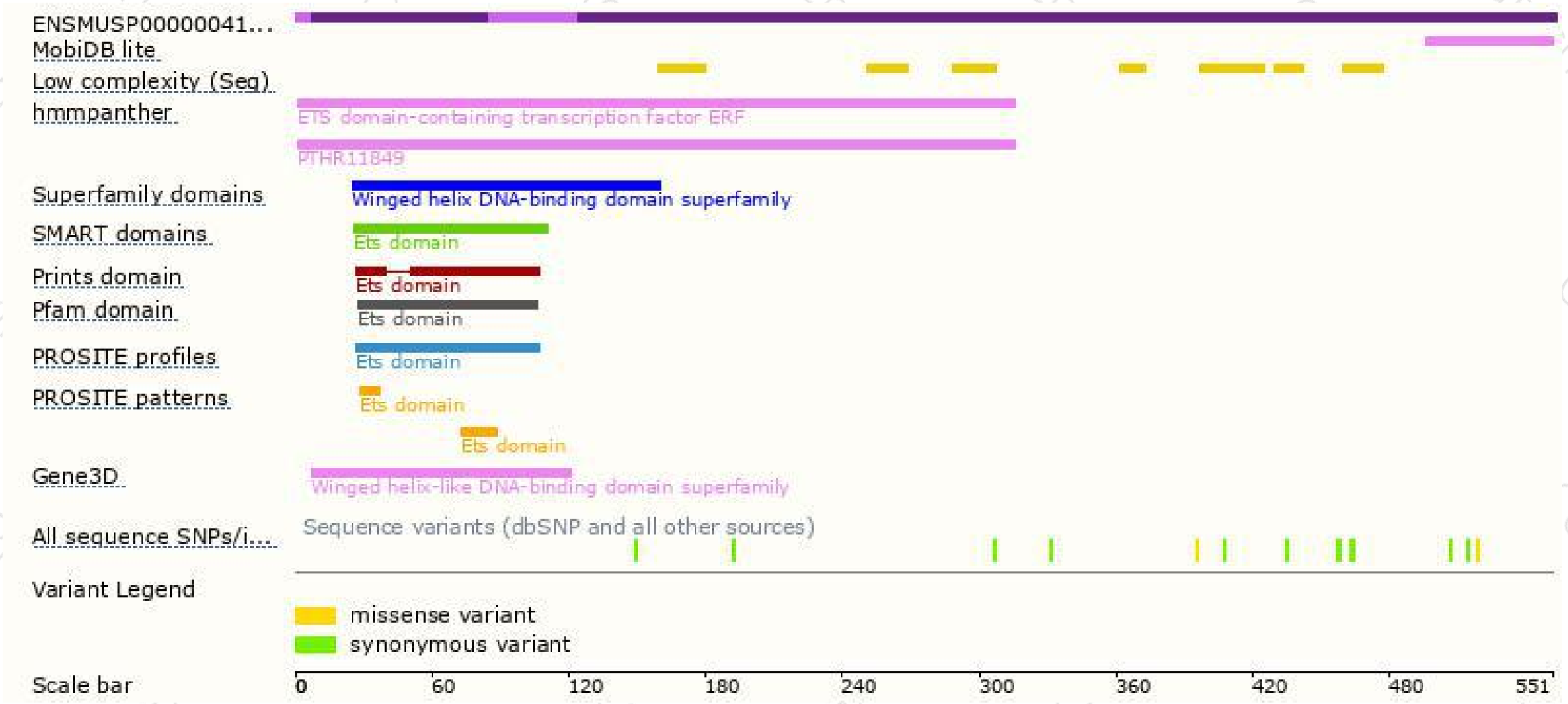
The strategy is based on the design of *Erf-201* transcript,The transcription is shown below



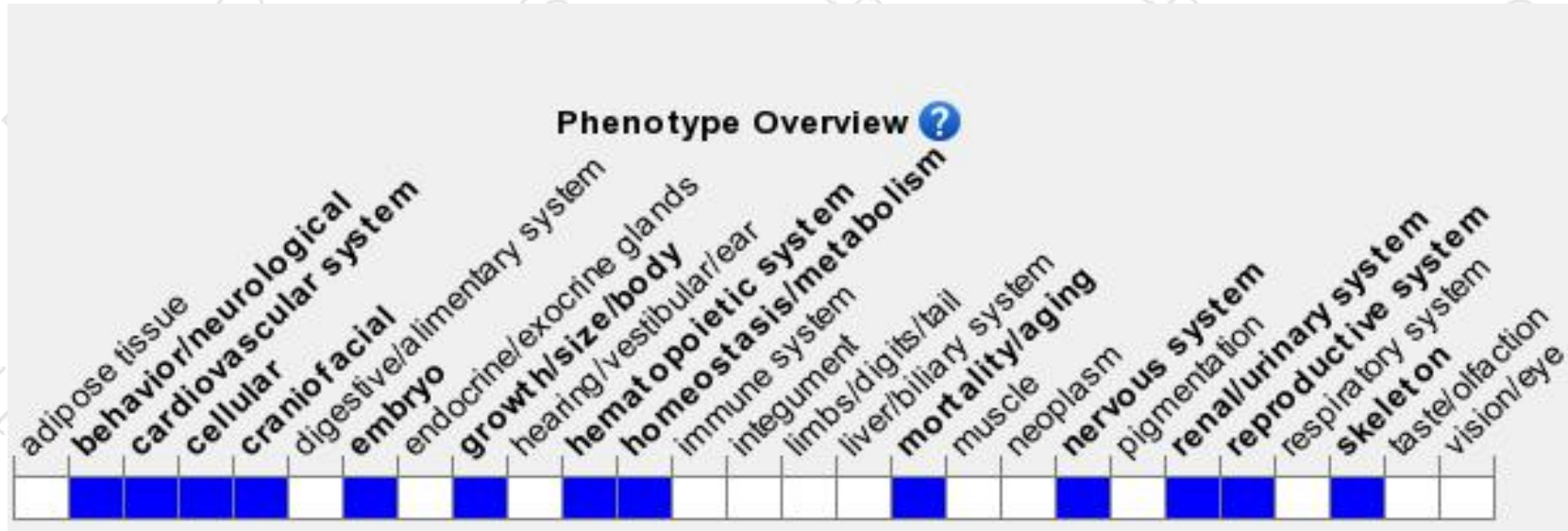
Genomic location distribution



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 null allele exhibit embryonic lethality around E10.5, reduced size, brain hypoplasia, defects in extraembryonic tissue formation affecting the chorion, allantois, placental labyrinth and umbilical cord, and increase in apoptosis.

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

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