

Mnx1 Cas9-KO Strategy

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Reviewer

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Project Overview

Project Name

Mnx1

Project type

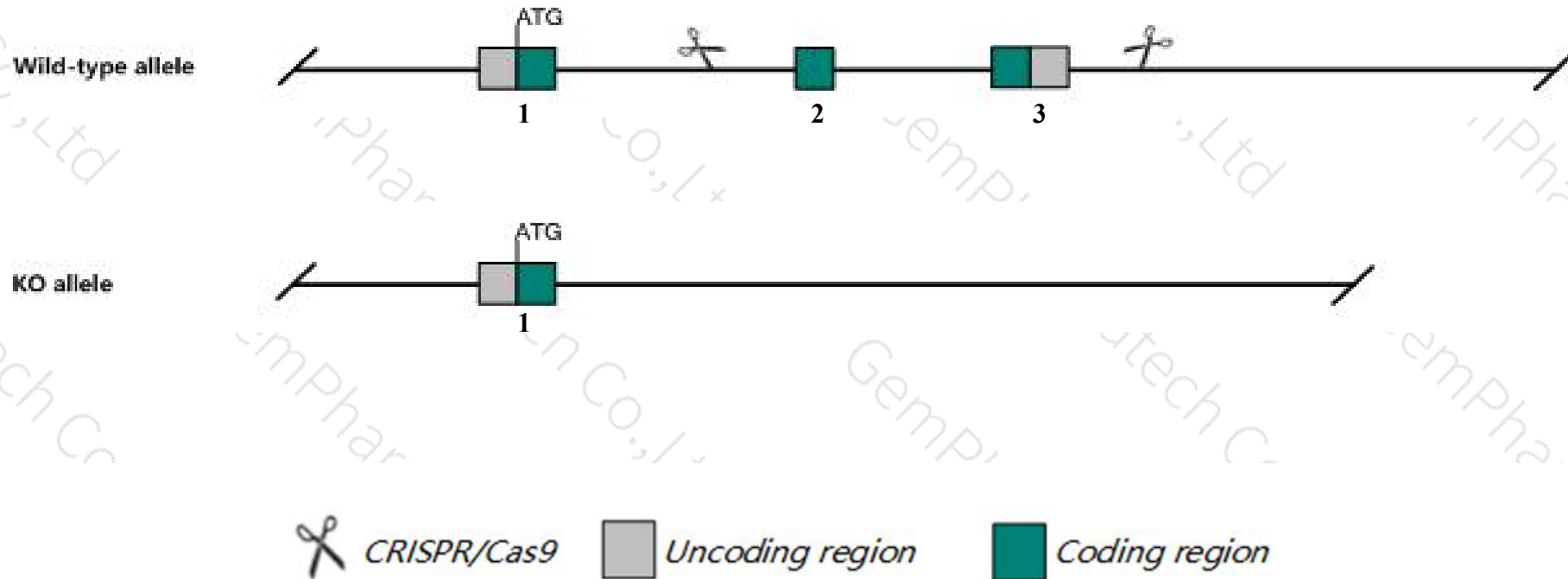
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Mnx1* gene. The schematic diagram is as follows:



- The *Mnx1* gene has 2 transcripts. According to the structure of *Mnx1* gene, exon2-exon3 of *Mnx1-202* (ENSMUST00000165512.3) transcript is recommended as the knockout region. The region contains 524bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Mnx1* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous null mice die at birth exhibiting pancreas dorsal lobe agenesis, small pancreatic islets, and aberrant beta-cell function and motor axon guidance. Mice homozygous for other reporter/null alleles show neonatal death, atelectasis, and impaired motor neuron and pancreas differentiation.
- The *Mnx1* gene is located on the Chr5. 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.

Mnx1 motor neuron and pancreas homeobox 1 [Mus musculus (house mouse)]

Gene ID: 15285, updated on 2-Apr-2019

Summary



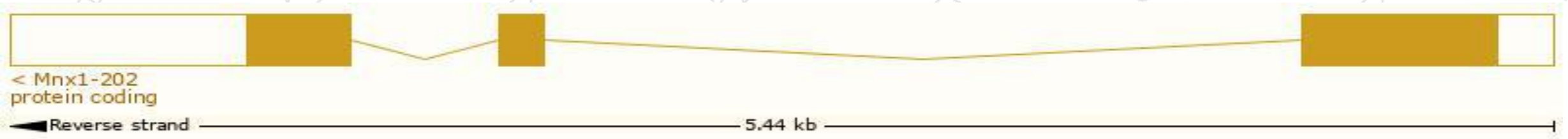
Official Symbol	Mnx1 provided by MGI
Official Full Name	motor neuron and pancreas homeobox 1 provided by MGI
Primary source	MGI:MGI:109160
See related	Ensembl:ENSMUSG000000001566
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	HB9, Hlxb9, MNR2
Expression	Biased expression in duodenum adult (RPKM 2.3), colon adult (RPKM 2.0) and 5 other tissues See more
Orthologs	human all

Transcript information Ensembl

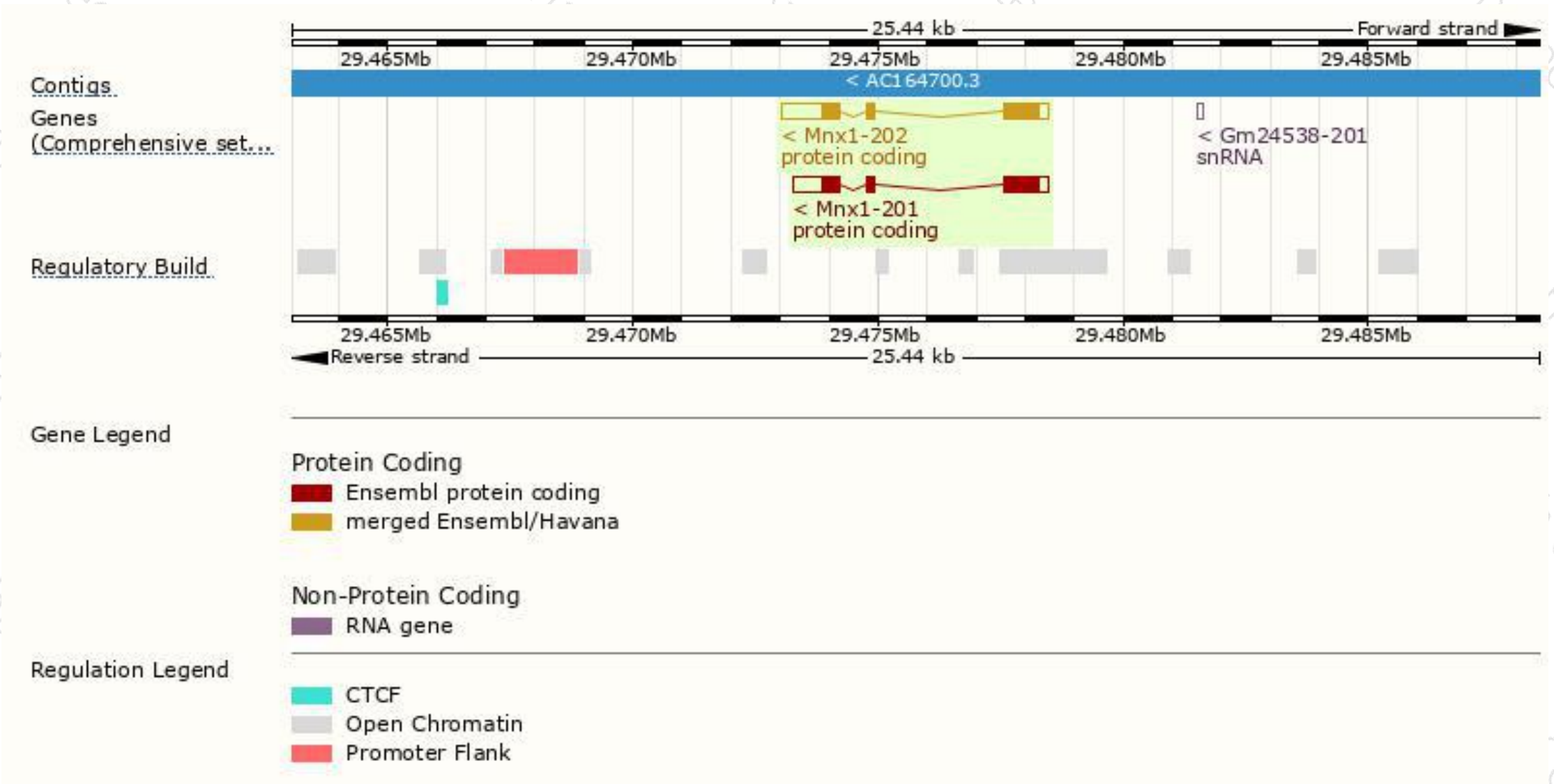
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mnx1-202	ENSMUST00000165512.3	2245	404aa	Protein coding	CCDS19150	A2RSX2	TSL:1 GENCODE basic APPRIS P2
Mnx1-201	ENSMUST00000001608.7	2018	404aa	Protein coding	-	Q9QZW9	TSL:5 GENCODE basic APPRIS ALT2

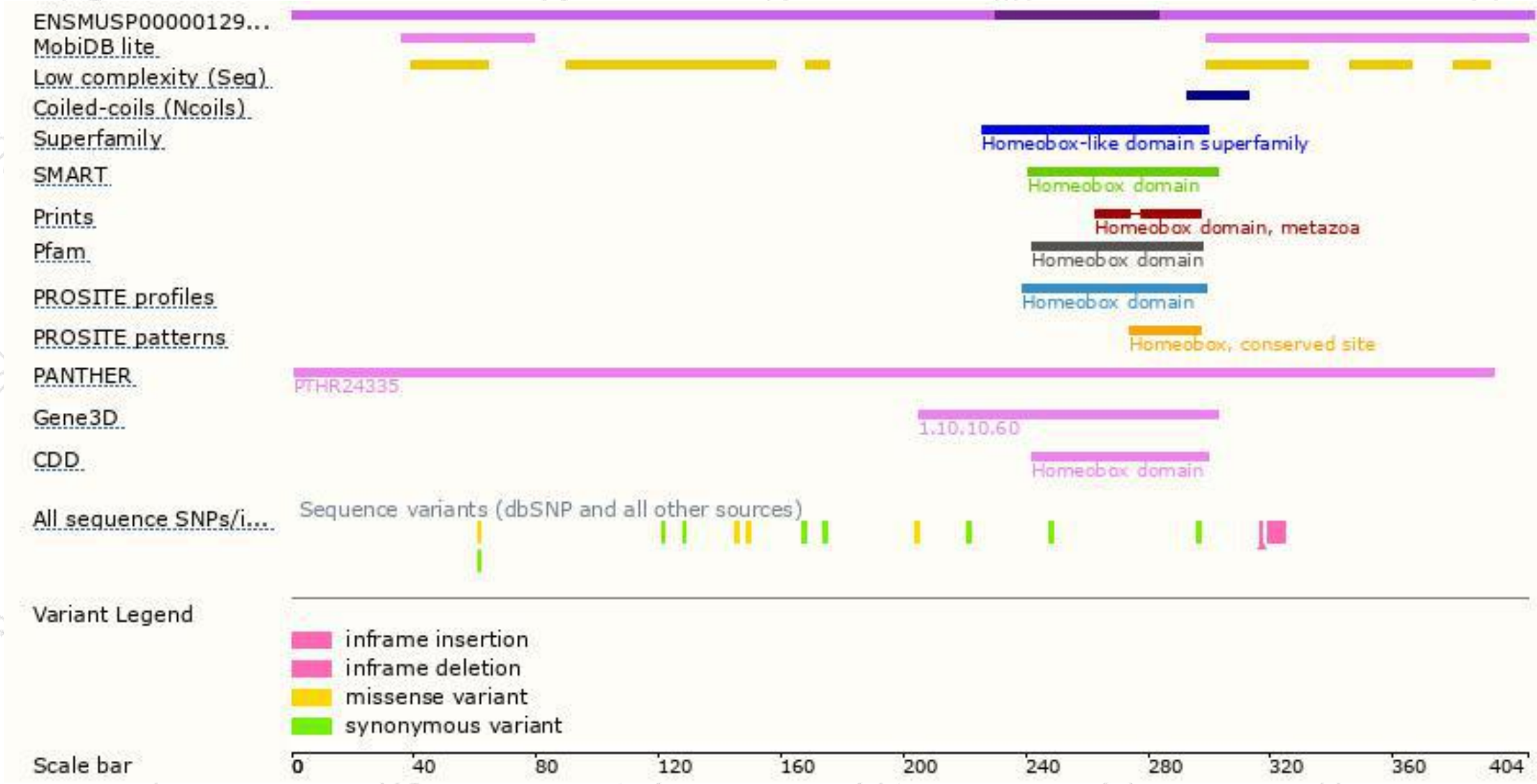
The strategy is based on the design of *Mnx1-202* transcript,The transcription is shown below



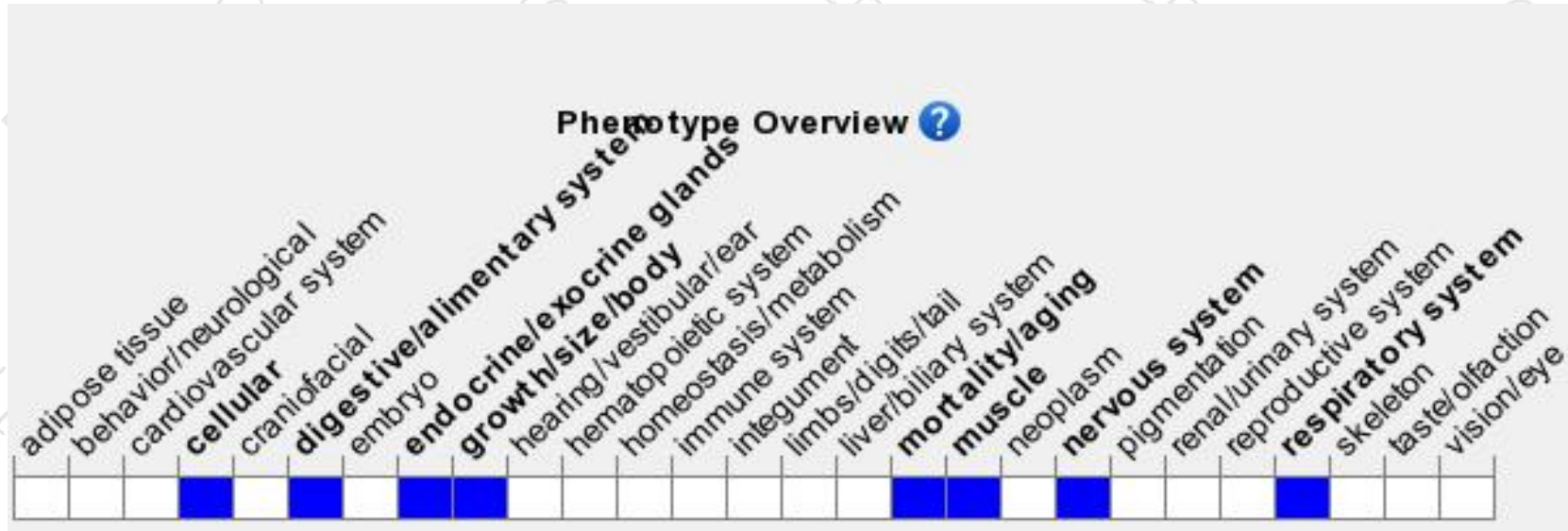
Genomic location distribution



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 die at birth exhibiting pancreas dorsal lobe agenesis, small pancreatic islets, and aberrant beta-cell function and motor axon guidance. Mice homozygous for other reporter/null alleles show neonatal death, atelectasis, and impaired motor neuron and pancreas differentiation.

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

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