

Abhd6 Cas9-CKO Strategy

Designer:	Huan Wang
Reviewer:	Huan Fan
Design Date:	2020-5-12

Project Overview

Project Name

Abhd6

Project type

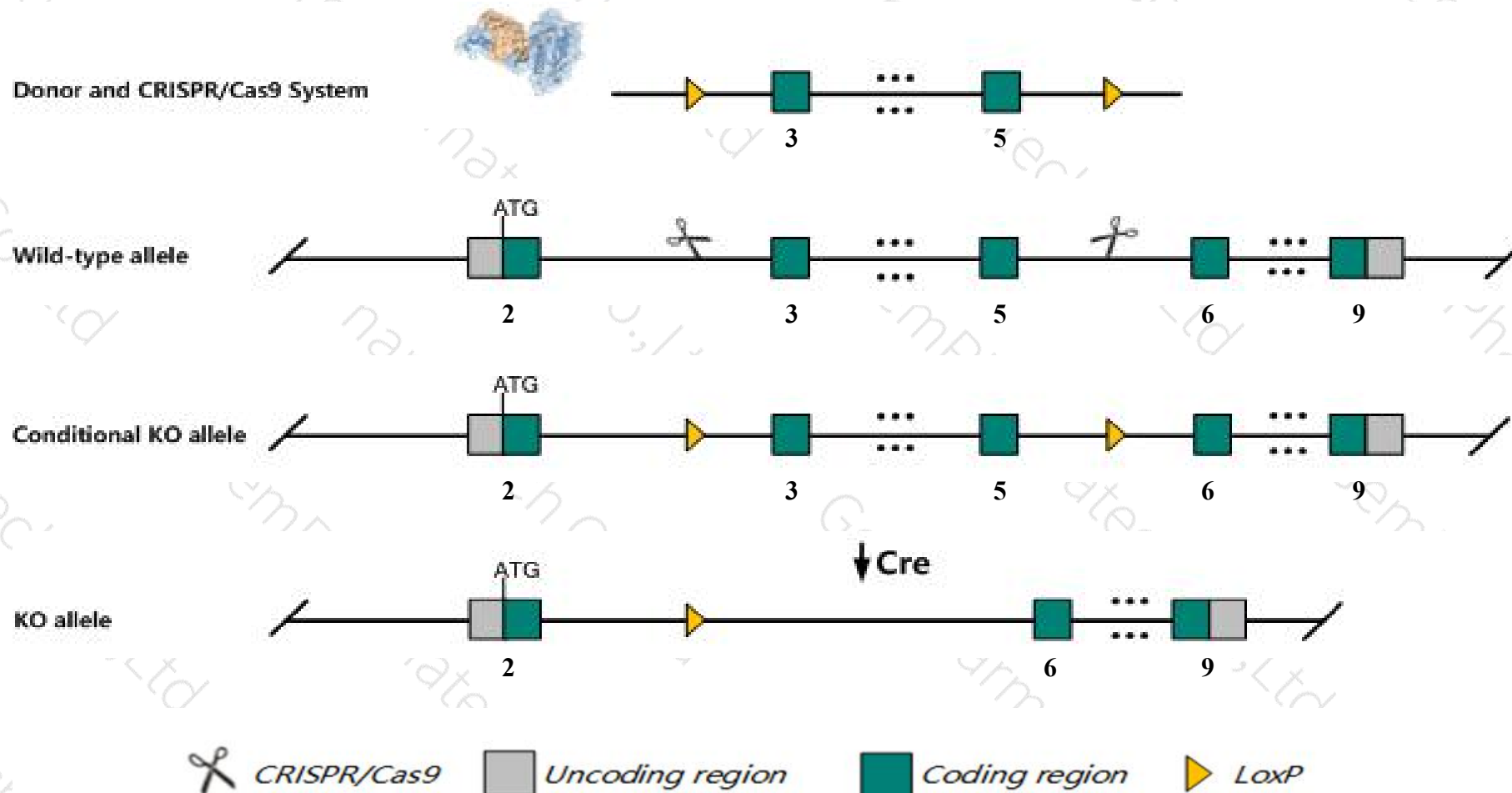
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Abhd6* gene. The schematic diagram is as follows:



- The *Abhd6* gene has 3 transcripts. According to the structure of *Abhd6* gene, exon3-exon5 of *Abhd6*-202 (ENSMUST00000166497.8) 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 *Abhd6* 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, homozygous null mice show increased glucose-stimulated insulin secretion from islets which exhibit elevated monoacylglycerol content in response to glucose.
- The *Abhd6* gene is located on the Chr14. 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)

Abhd6 abhydrolase domain containing 6 [Mus musculus (house mouse)]

Gene ID: 66082, updated on 13-Mar-2020

Summary



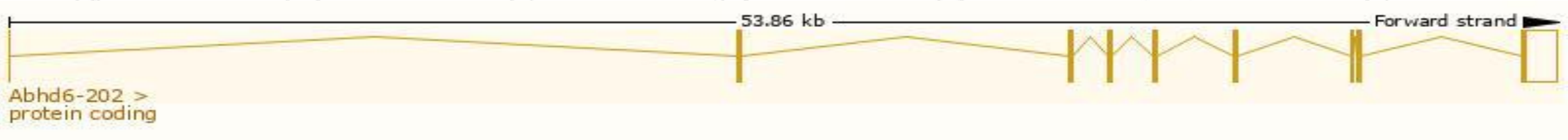
Official Symbol	Abhd6 provided by MGI
Official Full Name	abhydrolase domain containing 6 provided by MGI
Primary source	MGI:MGI:1913332
See related	Ensembl:ENSMUSG00000025277
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	0610041D24Rik, AA673485, AV065425
Expression	Ubiquitous expression in adrenal adult (RPKM 11.3), large intestine adult (RPKM 9.3) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

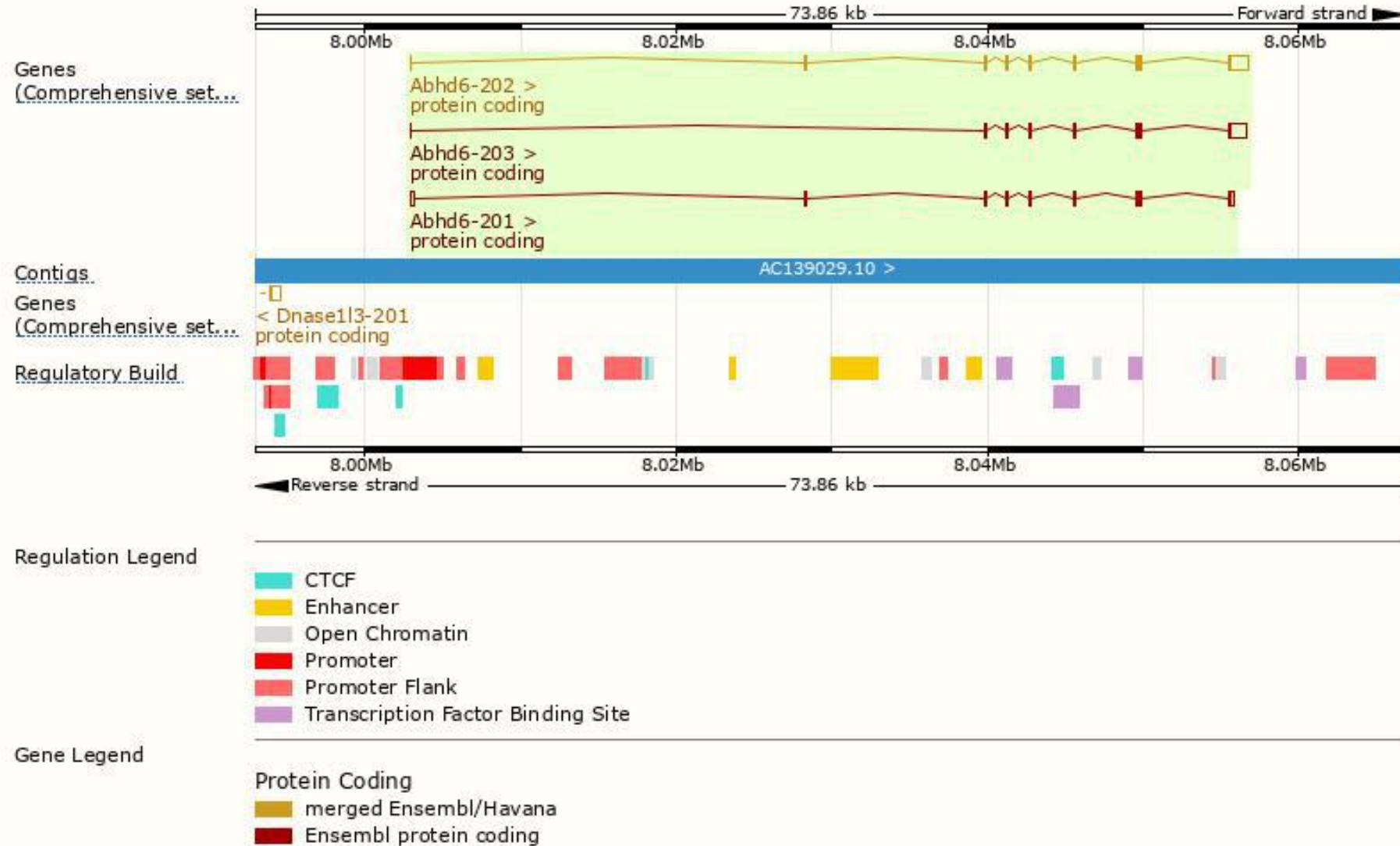
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Abhd6-202	ENSMUST00000166497.8	2226	336aa	Protein coding	CCDS26808	Q8R2Y0	TSL:1 GENCODE basic APPRIS is a system to annotate alternatively spliced transcripts based on a range of computational methods to identify the most functionally important transcript(s) of a gene. APPRIS P1
Abhd6-201	ENSMUST00000026313.3	1401	336aa	Protein coding	CCDS26808	Q8R2Y0	TSL:1 GENCODE basic APPRIS is a system to annotate alternatively spliced transcripts based on a range of computational methods to identify the most functionally important transcript(s) of a gene. APPRIS P1
Abhd6-203	ENSMUST00000225234.1	1958	289aa	Protein coding	-	Q8R2Y0 Q9D375	GENCODE basic

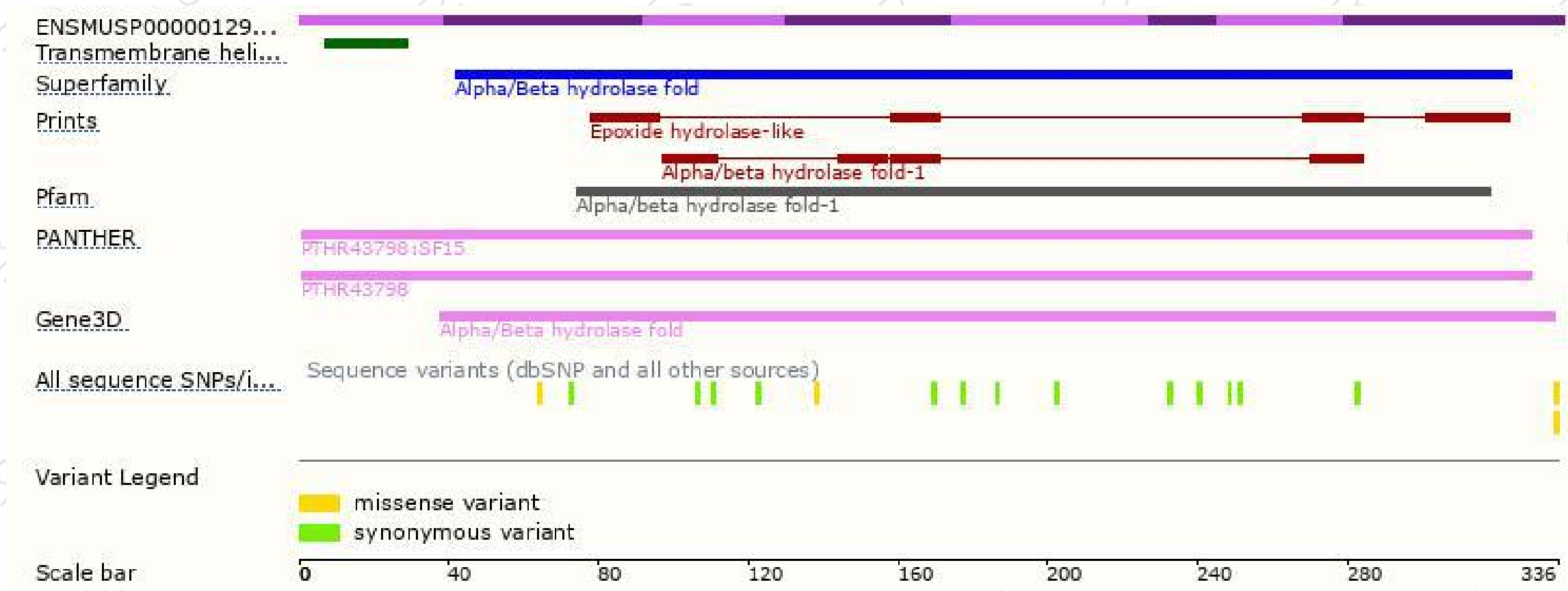
The strategy is based on the design of *Abhd6-202* transcript,the transcription is shown below



Genomic location distribution

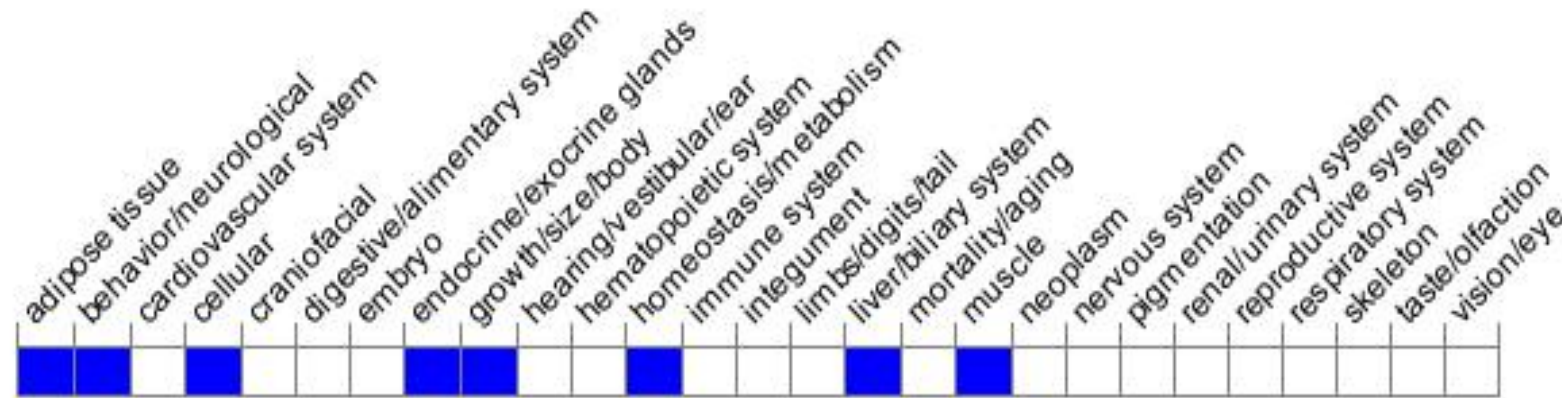


Protein domain



Mouse phenotype description(MGI)

Phenotype Overview



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 show increased glucose-stimulated insulin secretion from islets which exhibit elevated monoacylglycerol content in response to glucose.

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

Tel: 400-9660890

