

Gabpa Cas9-KO Strategy

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Project Overview

Project Name

Gabpa

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Gabpa* gene has 5 transcripts. According to the structure of *Gabpa* gene, exon3-exon5 of *Gabpa-201* (ENSMUST00000009120.7) transcript is recommended as the knockout region. The region contains 476bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Gabpa* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for disruptions in this gene die early in embryonic development.
- The *Gabpa* gene is located on the Chr16. 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)

Gabpa GA repeat binding protein, alpha [Mus musculus (house mouse)]

Gene ID: 14390, updated on 5-Mar-2019

Summary



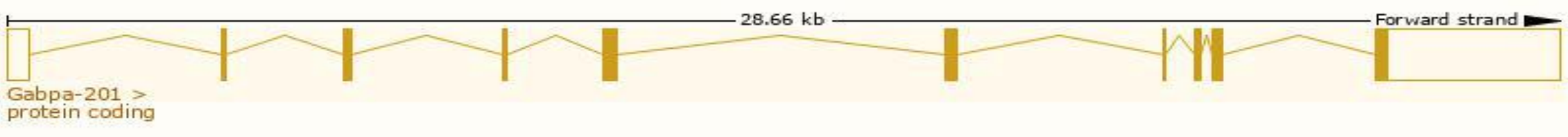
Official Symbol	Gabpa provided by MGI
Official Full Name	GA repeat binding protein, alpha provided by MGI
Primary source	MGI:MGI:95610
See related	Ensembl:ENSMUSG00000008976
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	GABPalpha
Expression	Ubiquitous expression in CNS E11.5 (RPKM 12.4), limb E14.5 (RPKM 10.9) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

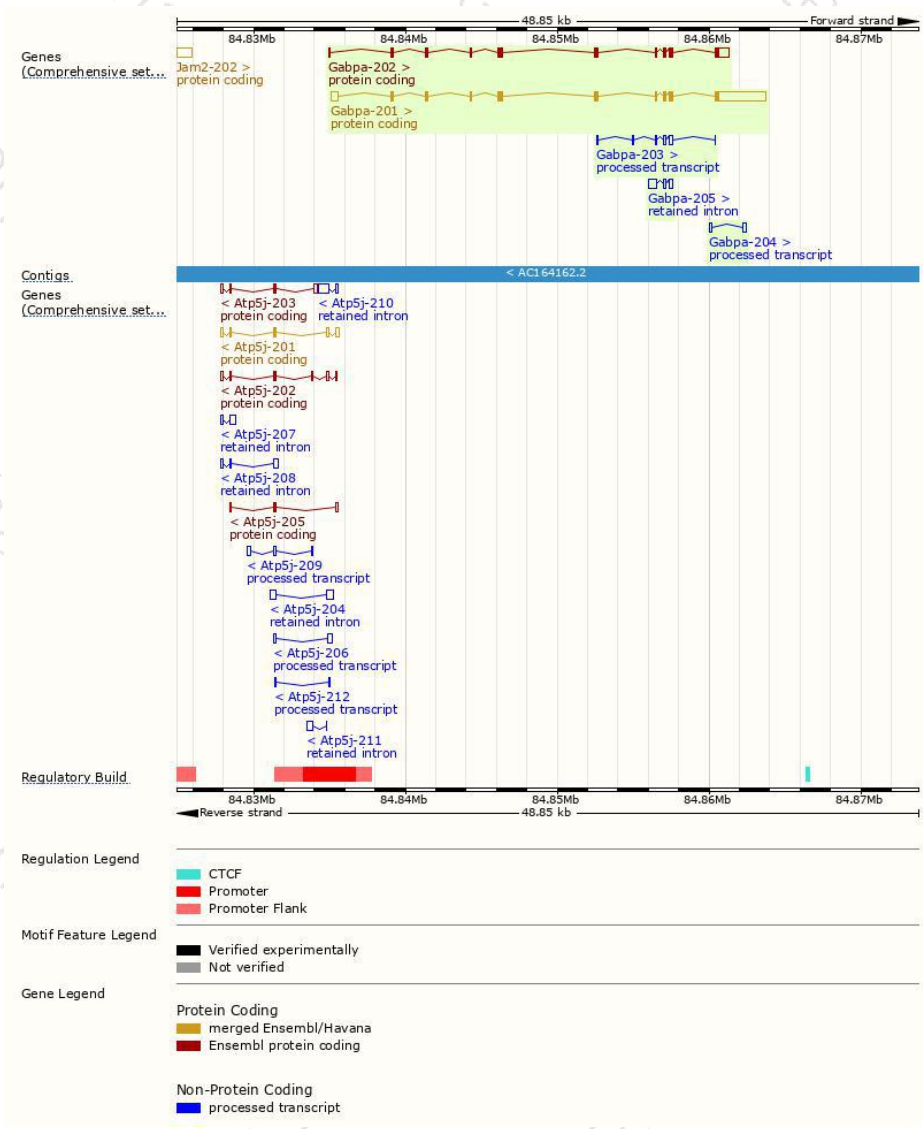
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Gabpa-201	ENSMUST00000009120.7	4987	454aa	Protein coding	CCDS28284	Q00422	TSL:1 GENCODE basic APPRIS P1
Gabpa-202	ENSMUST00000114184.7	2202	454aa	Protein coding	CCDS28284	Q00422	TSL:1 GENCODE basic APPRIS P1
Gabpa-203	ENSMUST00000126031.7	586	No protein	Processed transcript	-	-	TSL:5
Gabpa-204	ENSMUST00000139101.1	336	No protein	Processed transcript	-	-	TSL:5
Gabpa-205	ENSMUST00000148035.1	816	No protein	Retained intron	-	-	TSL:3

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



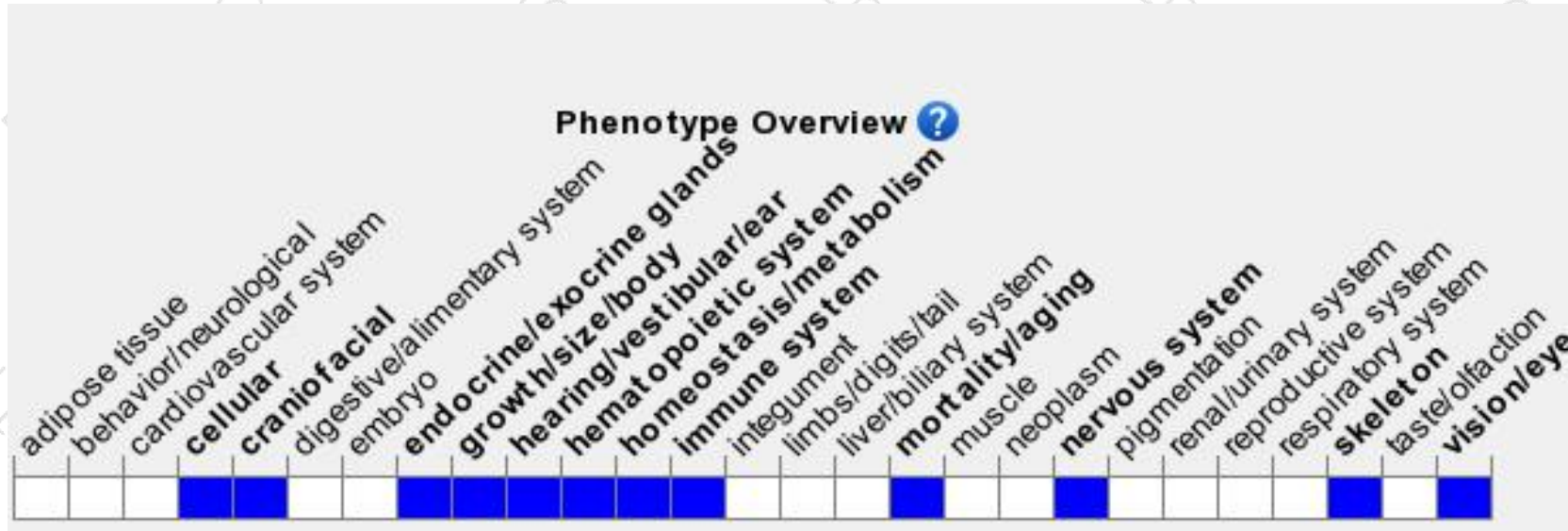
Genomic location distribution



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 disruptions in this gene die early in embryonic development.

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

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