

Gfap Cas9-KO Strategy

Designer:

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Project Overview

Project Name

Gfap

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Gfap* gene has 3 transcripts. According to the structure of *Gfap* gene, exon2-exon3 of *Gfap-201* (ENSMUST00000067444.9) transcript is recommended as the knockout region. The region contains 157bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Gfap* gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, Homozygotes for targeted null mutations show reduced astrocyte-associated intermediate filaments, enhanced long-term potentiation and impaired eye-blink conditioning. Aged mutants may show hydrocephaly, reduced myelination and impaired blood-brain barrier.
- The *Gfap* gene is located on the Chr11. 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)

Gfap glial fibrillary acidic protein [Mus musculus (house mouse)]

Gene ID: 14580, updated on 7-Apr-2019

Summary



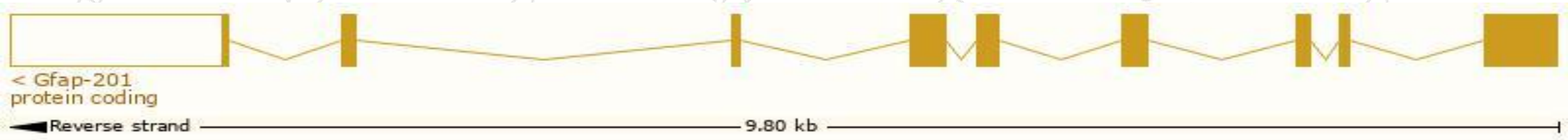
Official Symbol	Gfap provided by MGI
Official Full Name	glial fibrillary acidic protein provided by MGI
Primary source	MGI:MGI:95697
See related	Ensembl:ENSMUSG00000020932
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI836096
Expression	Biased expression in cerebellum adult (RPKM 34.4), frontal lobe adult (RPKM 32.7) and 4 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

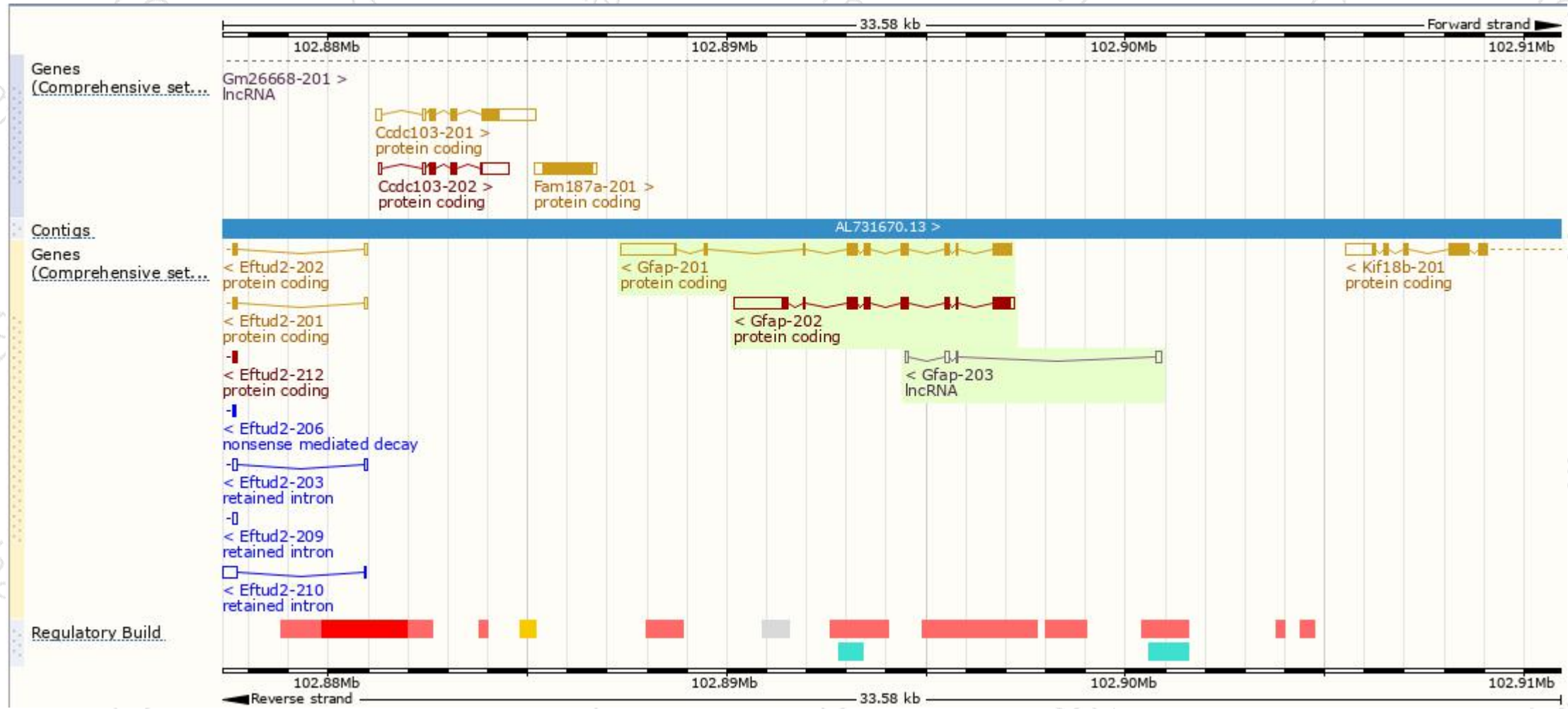
The gene has 3 transcripts,all transcripts are shown below:

Show/hide columns (1 hidden)							Filter	
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags	
Gfap-201	ENSMUST00000067444.9	2648	430aa	 Protein coding	CCDS25507	P03995	TSL:1	GENCODE basic APPRIS P1
Gfap-202	ENSMUST00000077902.4	2600	428aa	 Protein coding	CCDS48950	P03995	TSL:1	GENCODE basic
Gfap-203	ENSMUST00000127909.1	356	No protein	 lncRNA	-	-	TSL:3	

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



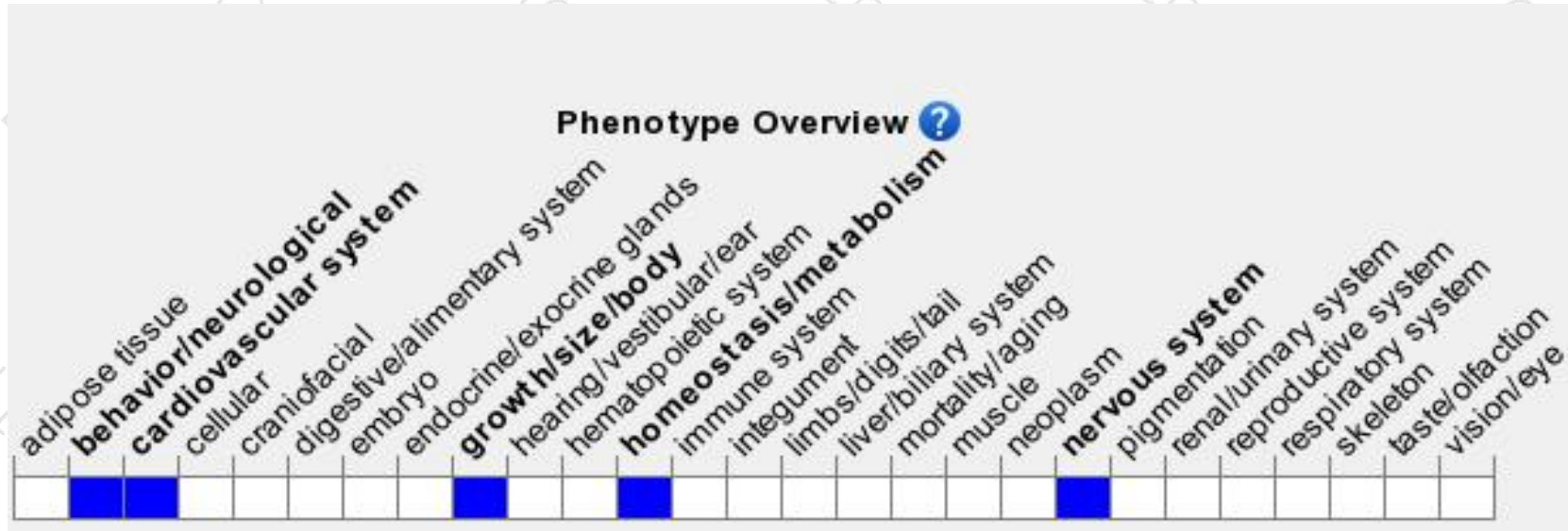
Genomic location distribution



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, Homozygotes for targeted null mutations show reduced astrocyte-associated intermediate filaments, enhanced long-term potentiation and impaired eye-blink conditioning. Aged mutants may show hydrocephaly, reduced myelination and impaired blood-brain barrier.

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

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