Fabp7 Cas9-KO Strategy

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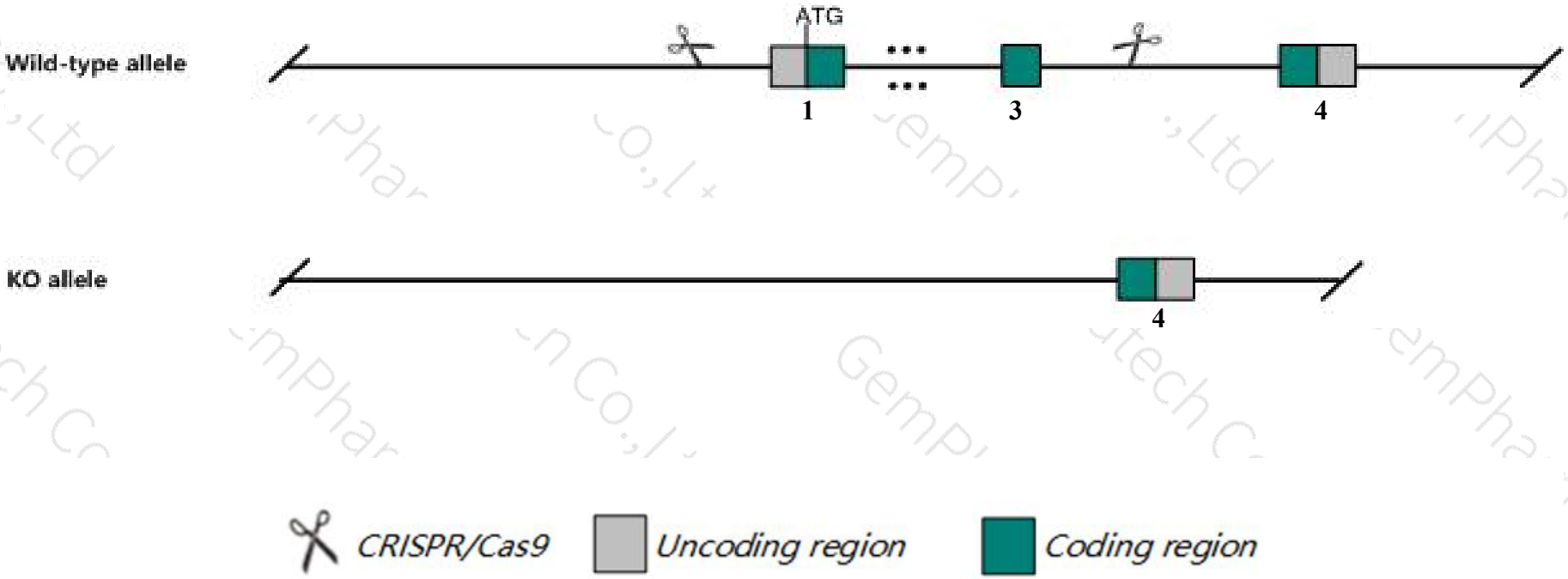
Project Overview

Project Name	***Fabp7***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fabp7* gene. The schematic diagram is as follows:



Technical routes

➢ The *Fabp7* gene has 2 transcripts. According to the structure of *Fabp7* gene, exon1-exon3 of *Fabp7-201* (ENSMUST00000020024.11) transcript is recommended as the knockout region.The region contains start codon ATG. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Fabp7* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

➢ According to the existing MGI data,Mice homozygous for a knock-out allele exhibit increased fear memory, increased anxiety, and decreased sensitivity to DHA-induced NMDA currents.

➢The KO region contains *Gm5777* gene.

➢ The *Fabp7* gene is located on the Chr10. 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）

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Fabp7 fatty acid binding protein 7, brain [*Mus musculus* (house mouse)]

Gene ID: 12140, updated on 29-Oct-2019

Summary

Official Symbol	Fabp7 provided by MGI
Official Full Name	fatty acid binding protein 7, brain provided by MGI
Primary source	MGI:MGI:101916
See related	Ensembl:ENSMUSG00000019874
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	MRG; Blbp; BFABP; B-FABP
Expression	Biased expression in CNS E18 (RPKM 518.0), CNS E14 (RPKM 302.8) and 4 other tissues See more
Orthologs	human all

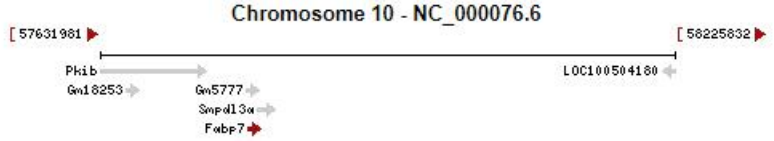
Genomic context

Location: 10; 10 B4

See Fabp7 in Genome Data Viewer

Exon count: 4

Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	10	NC_000076.6 (57784923..57788450)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	10	NC_000076.5 (57504729..57508256)

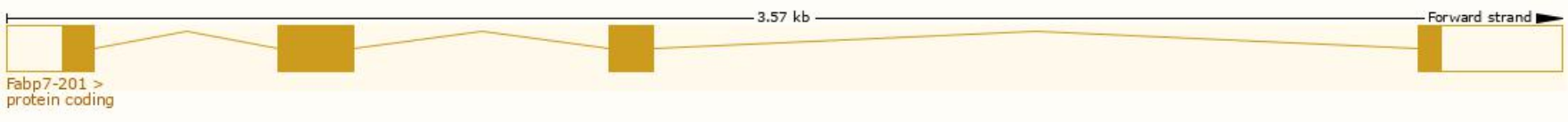


Transcript information（Ensembl）

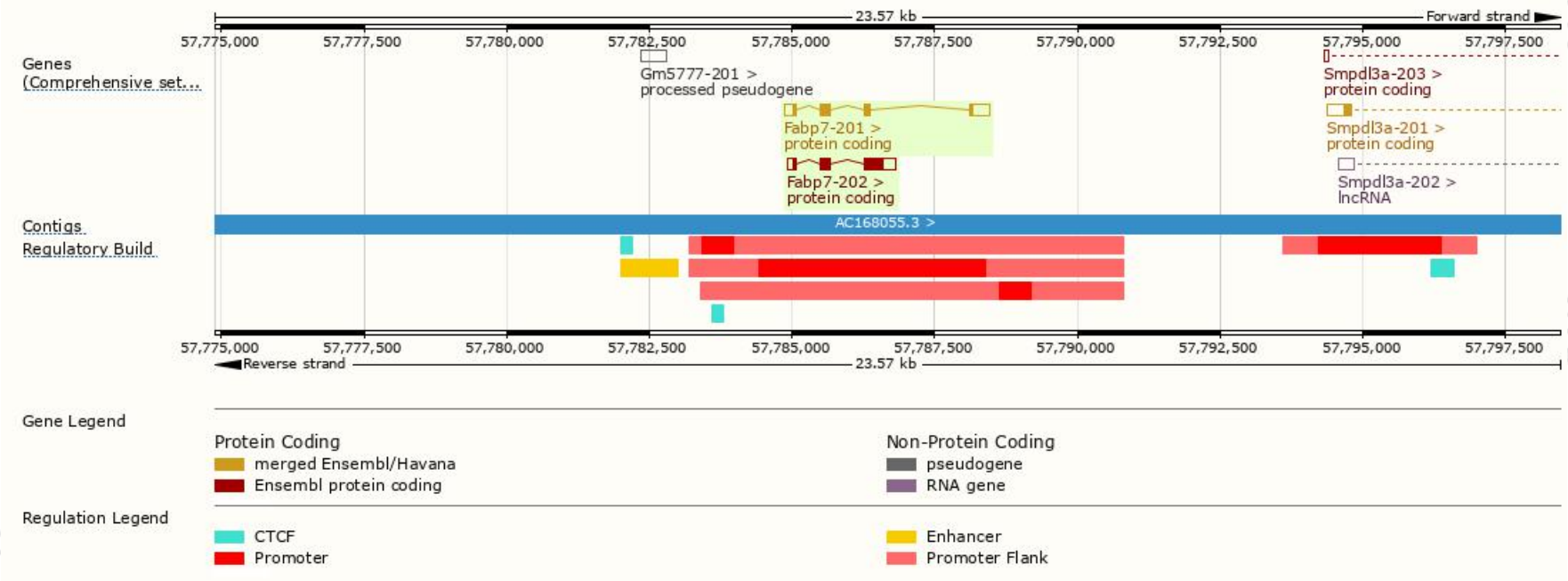
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Fabp7-201	ENSMUST00000020024.11	804	132aa	Protein coding	CCDS23856	P51880	TSL:1 GENCODE basic APPRIS P1
Fabp7-202	ENSMUST00000165013.1	880	188aa	Protein coding	-	E9Q0H6	TSL:2 GENCODE basic

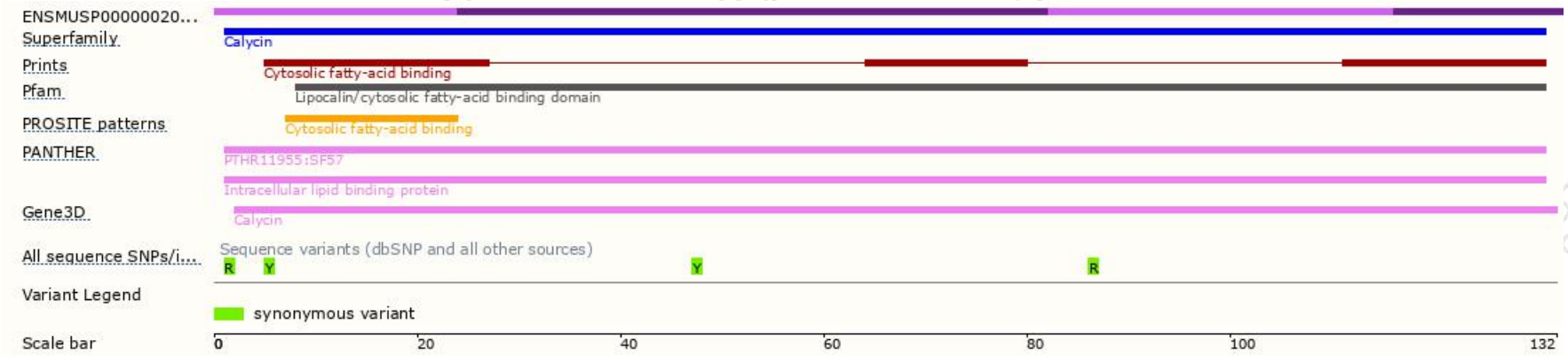
The strategy is based on the design of *Fabp7-201* transcript,The transcription is shown below



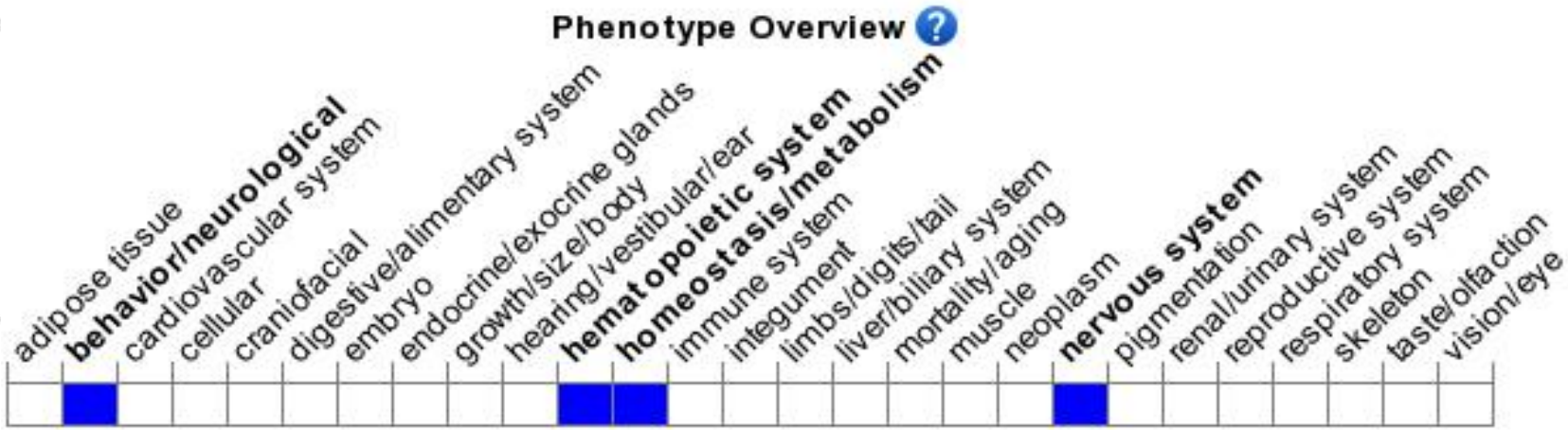
Genomic location distribution



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/).

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

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