

Agpat4 Cas9-KO Strategy

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Project Overview

Project Name

Agpat4

Project type

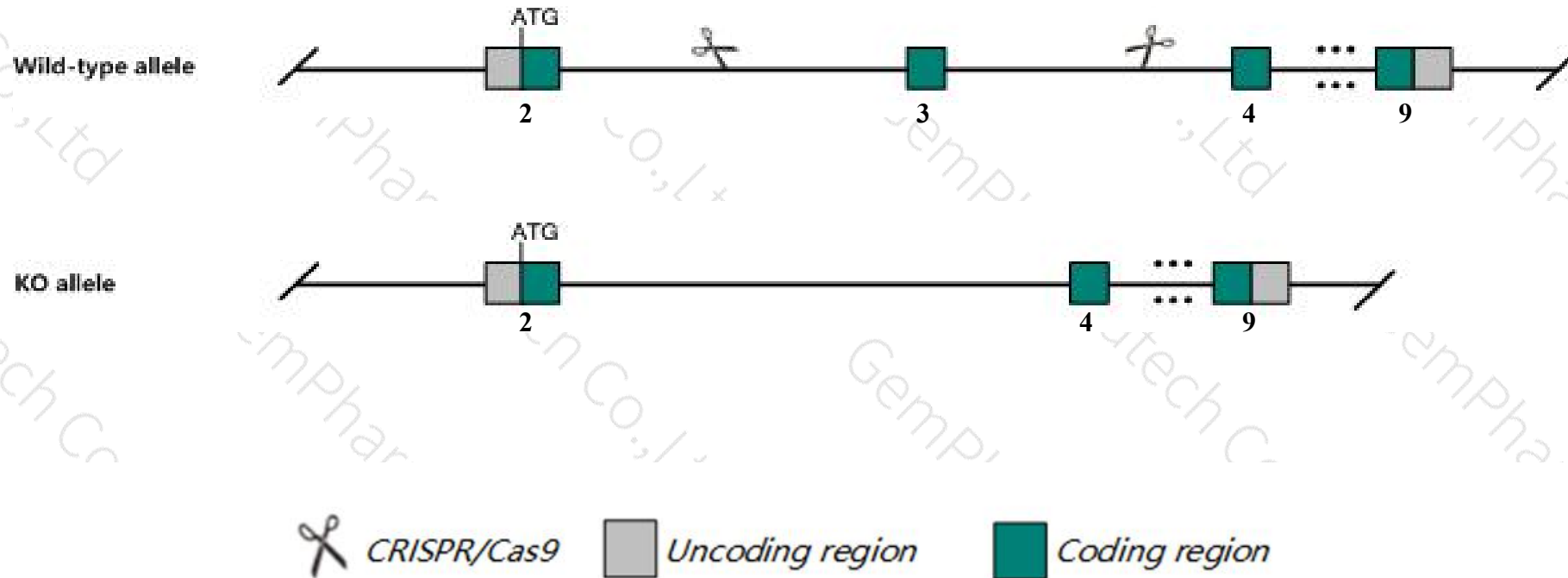
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Agpat4* gene. The schematic diagram is as follows:



- The *Agpat4* gene has 6 transcripts. According to the structure of *Agpat4* gene, exon3 of *Agpat4-201* (ENSMUST00000024594.8) transcript is recommended as the knockout region. The region contains 170bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Agpat4* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, mice homozygous for a targeted null mutation exhibit changes in brain phospholipid content.
- Transcript *Agpat4-205* may not be affected.
- The *Agpat4* gene is located on the Chr17. 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)

Agpat4 1-acylglycerol-3-phosphate O-acyltransferase 4 (lysophosphatidic acid acyltransferase, delta) [*Mus musculus* (house mouse)]

Gene ID: 68262, updated on 10-Oct-2019

Summary

Official Symbol Agpat4 provided by [MGI](#)

Official Full Name 1-acylglycerol-3-phosphate O-acyltransferase 4 (lysophosphatidic acid acyltransferase, delta) provided by [MGI](#)

Primary source [MGI:MGI:1915512](#)

See related [Ensembl:ENSMUSG000000023827](#)

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 1500003P24Rik

Expression Ubiquitous expression in colon adult (RPKM 23.0), lung adult (RPKM 13.9) and 27 other tissues [See more](#)

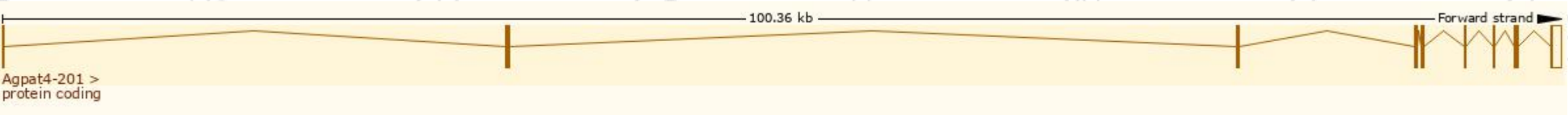
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

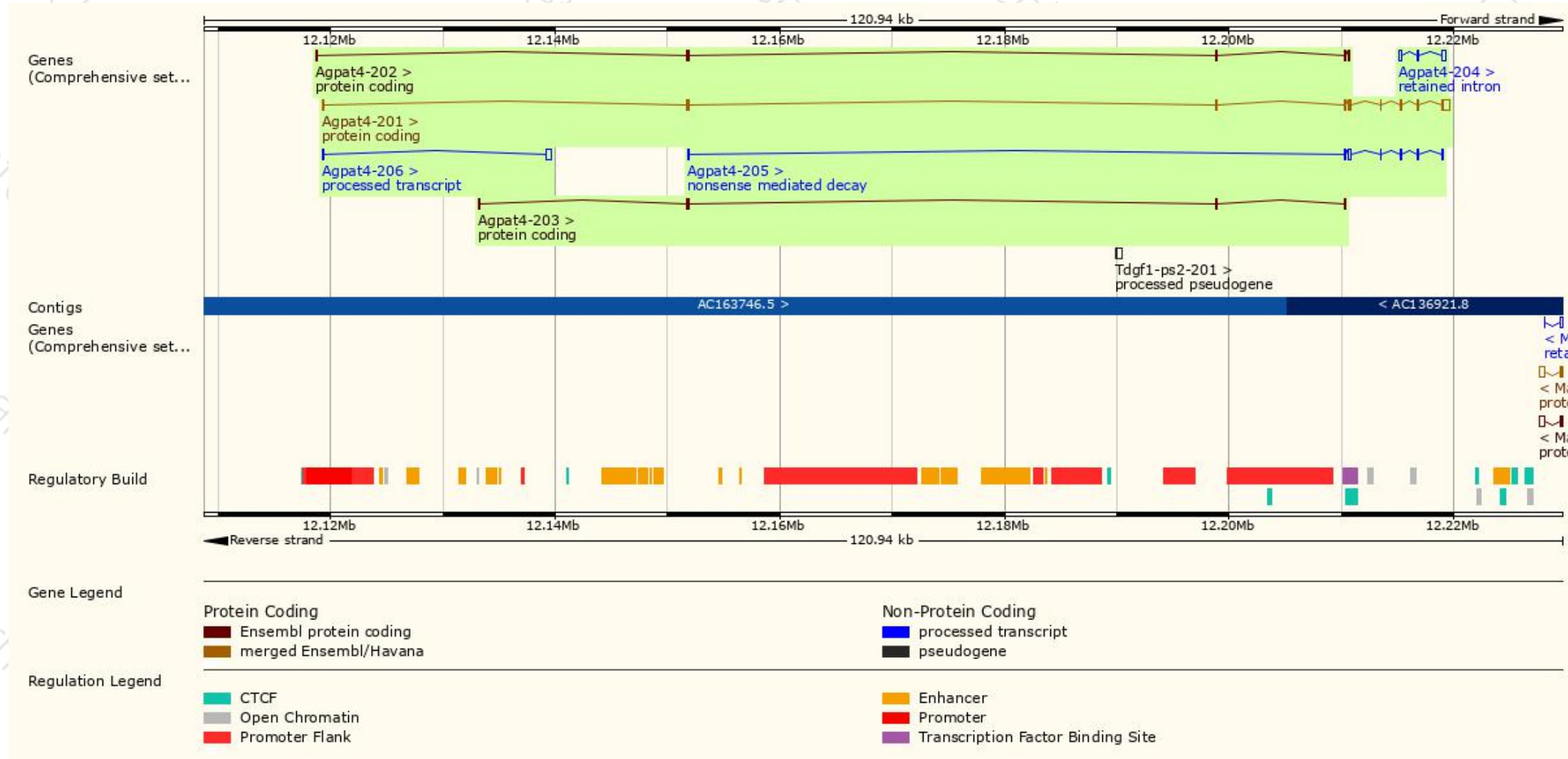
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Agpat4-201	ENSMUST00000024594.8	1915	378aa	Protein coding	CCDS28389	Q8K4X7	TSL:1 GENCODE basic APPRIS P1
Agpat4-202	ENSMUST00000164143.7	799	194aa	Protein coding	-	E9Q6S5	CDS 3' incomplete TSL:5
Agpat4-203	ENSMUST00000167792.1	662	166aa	Protein coding	-	E9Q2T9	CDS 3' incomplete TSL:5
Agpat4-205	ENSMUST00000170858.7	967	118aa	Nonsense mediated decay	-	E9Q2W7	TSL:5
Agpat4-206	ENSMUST00000172259.1	502	No protein	Processed transcript	-	-	TSL:2
Agpat4-204	ENSMUST00000167905.1	695	No protein	Retained intron	-	-	TSL:3

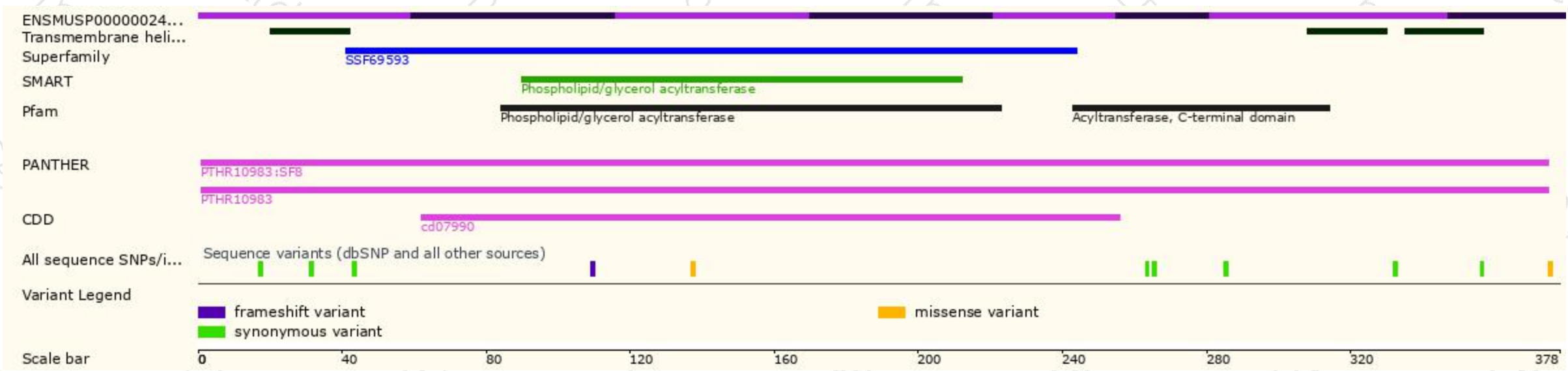
The strategy is based on the design of *Agpat4-201* transcript, the transcription is shown below:



Genomic location distribution

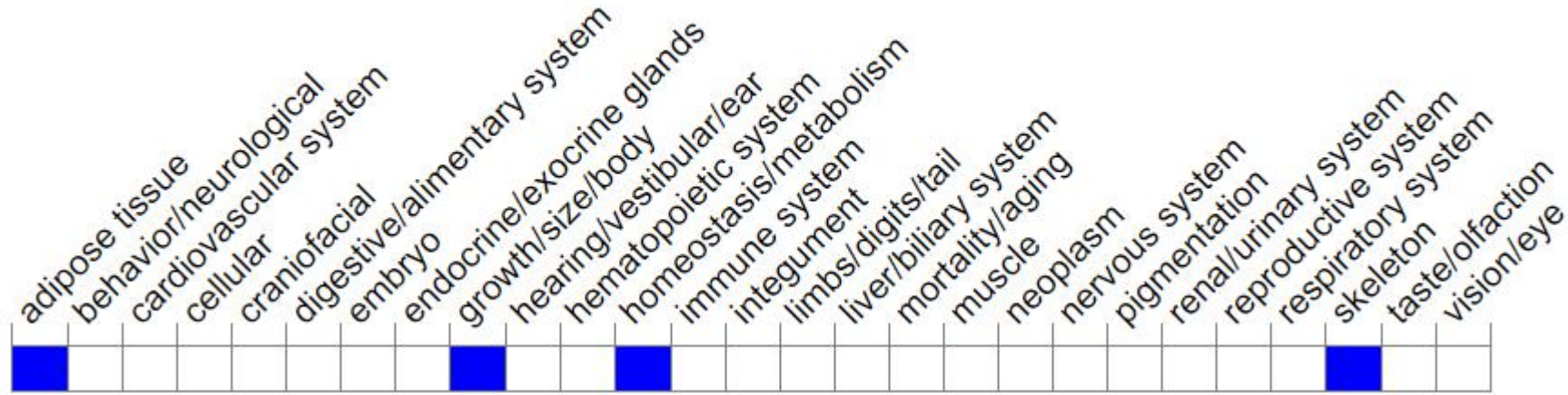


Protein domain



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, mice homozygous for a targeted null mutation exhibit changes in brain phospholipid content.

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

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