

Apoa4 Cas9-KO Strategy

Designer:

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Project Overview

Project Name

Apoa4

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Apoa4* gene. The schematic diagram is as follows:



- The *Apoa4* gene has 1 transcript. According to the structure of *Apoa4* gene, exon3 of *Apoa4-201* (ENSMUST00000034585.6) transcript is recommended as the knockout region. The region contains 1012bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Apoa4* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for disruption of this gene have lower HDL cholesterol levels but normal lipid absorption, growth, and feeding behavior.
- The *Apoa4* gene is located on the Chr9. 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)

Apoa4 apolipoprotein A-IV [Mus musculus (house mouse)]

Gene ID: 11808, updated on 17-Feb-2019

Summary



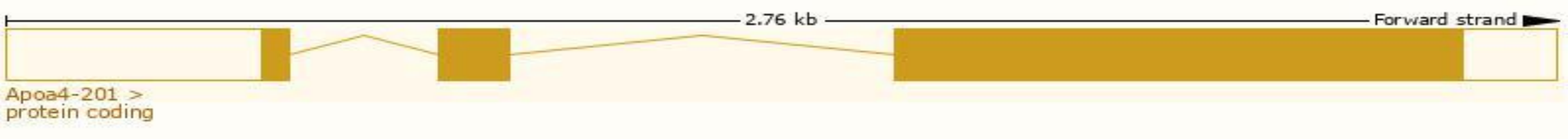
Official Symbol	Apoa4 provided by MGI
Official Full Name	apolipoprotein A-IV provided by MGI
Primary source	MGI:MGI:88051
See related	Ensembl:ENSMUSG00000032080
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Apoa-4
Expression	Biased expression in duodenum adult (RPKM 2830.4), small intestine adult (RPKM 1726.5) and 2 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

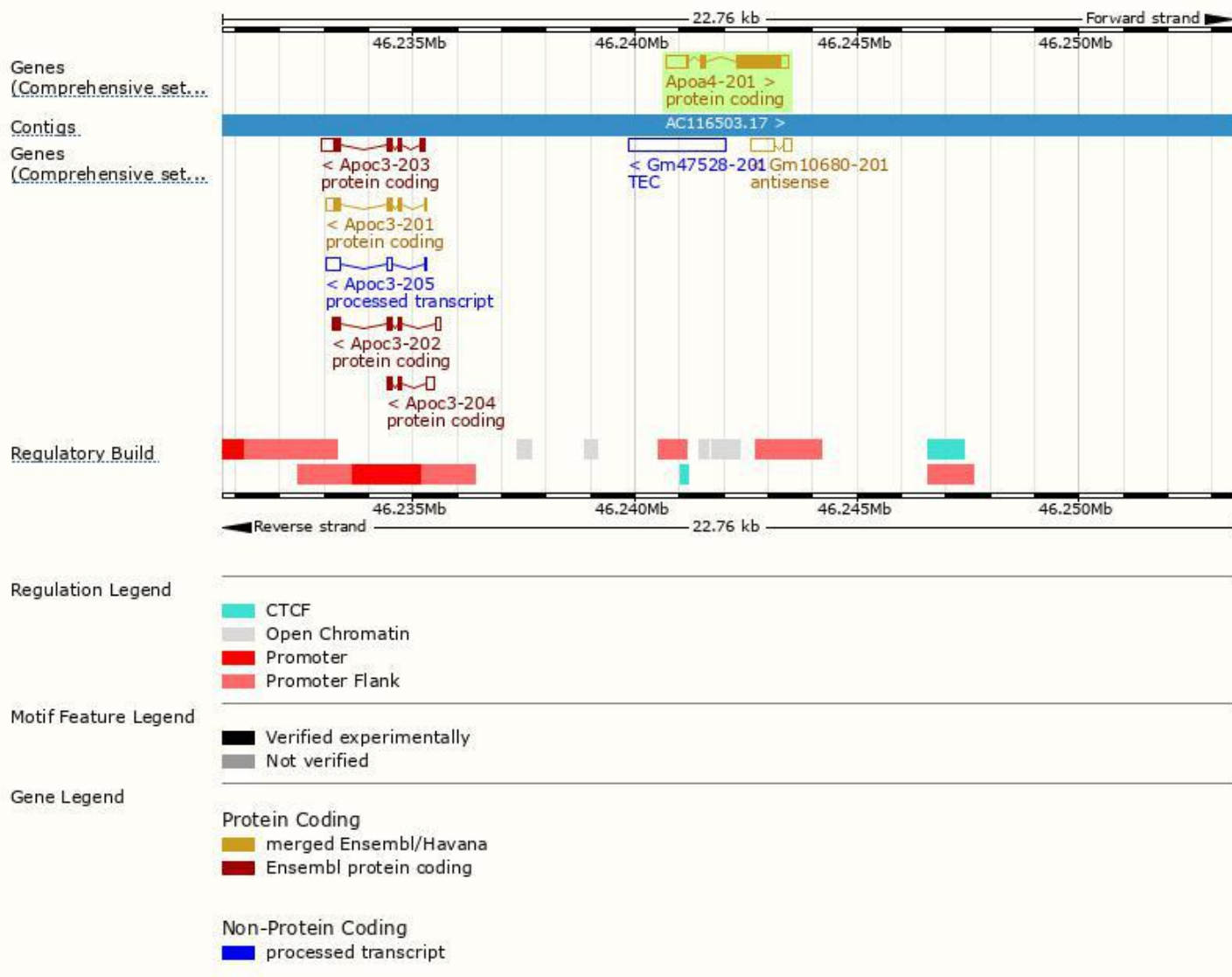
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Apoa4-201	ENSMUST00000034585.6	1815	395aa	Protein coding	CCDS23142	P06728	TSL:1 GENCODE basic APPRIS P1

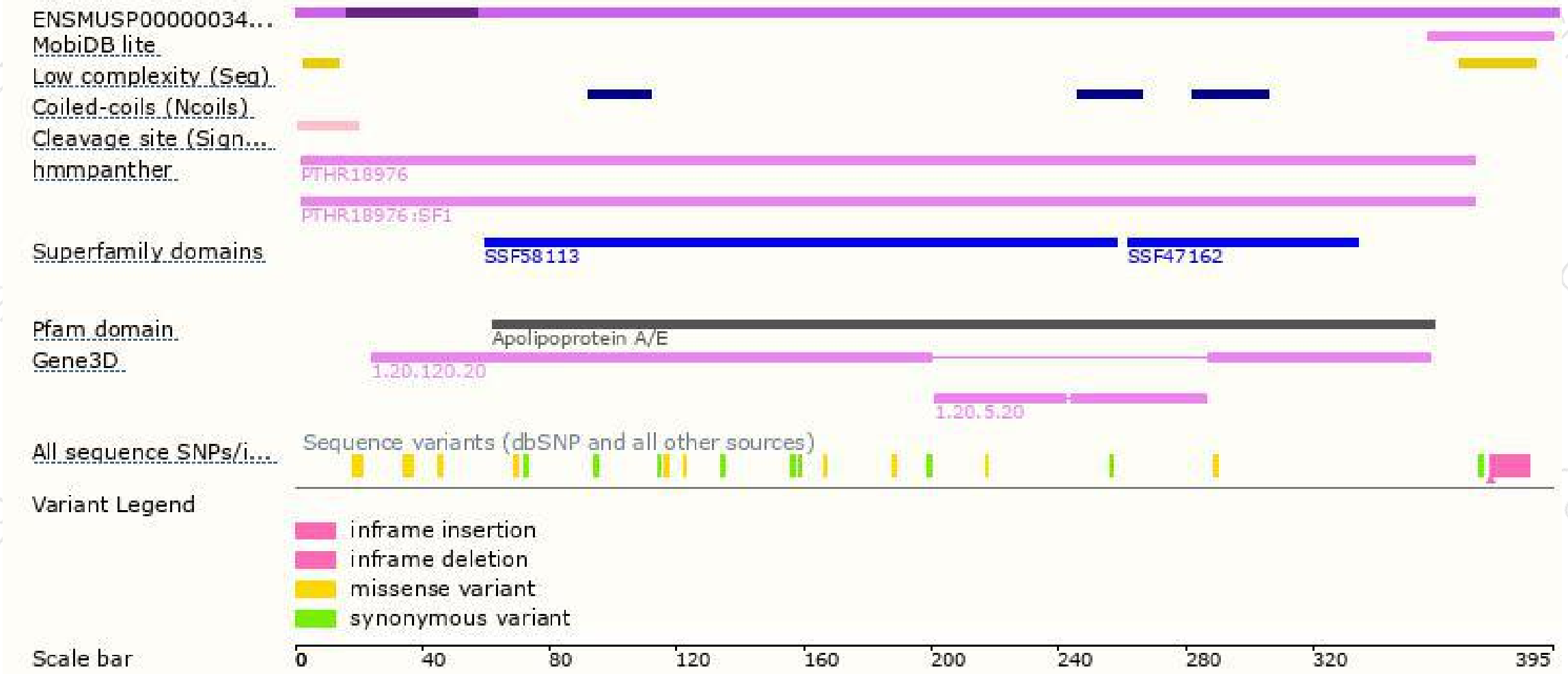
The strategy is based on the design of *Apoa4-201* transcript, The transcription is shown below



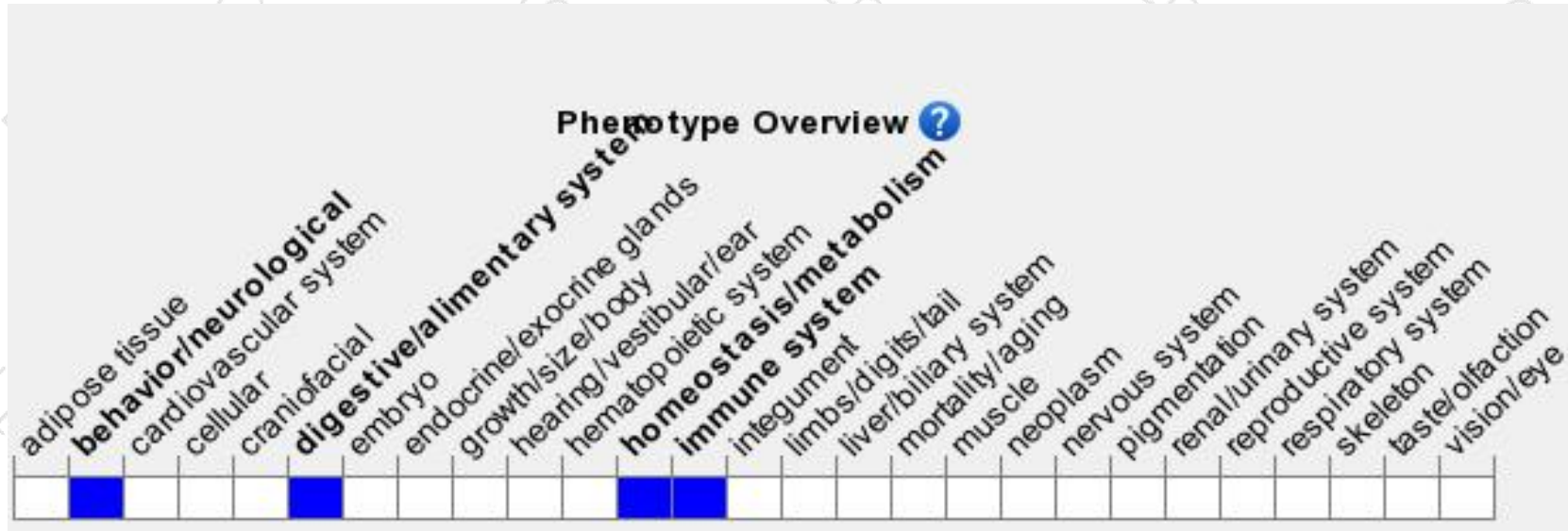
Genomic location distribution



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 disruption of this gene have lower HDL cholesterol levels but normal lipid absorption, growth, and feeding behavior.

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

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