

*Apo*h Cas9-KO Strategy

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Reviewer:

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Project Overview

Project Name

ApoH

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *ApoB* gene has 4 transcripts. According to the structure of *ApoB* gene, exon1-exon8 of *ApoB-201* (ENSMUST00000000049.5) transcript is recommended as the knockout region. The region contains all of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *ApoB* gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, Homozygous mutation of this gene results in reduced viability and reduced thrombin production. Only 8% homozygous null animals are born from heterozygous intercrosses.
- The *ApoH* 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)

ApoH apolipoprotein H [Mus musculus (house mouse)]

Gene ID: 11818, updated on 31-Jan-2019

Summary



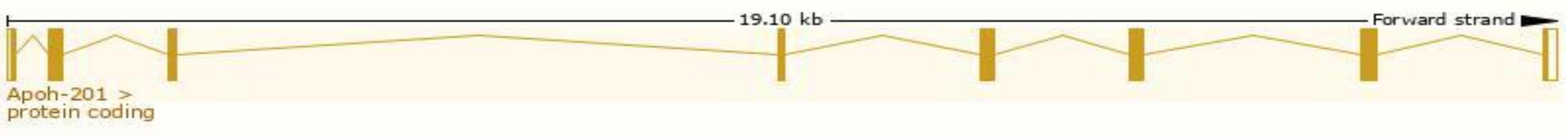
Official Symbol	ApoH provided by MGI
Official Full Name	apolipoprotein H provided by MGI
Primary source	MGI:MGI:88058
See related	Ensembl:ENSMUSG000000000049
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	B2GPI, beta-2-GPI, beta2-GPI
Expression	Biased expression in liver E18 (RPKM 1780.2), liver adult (RPKM 813.8) and 2 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

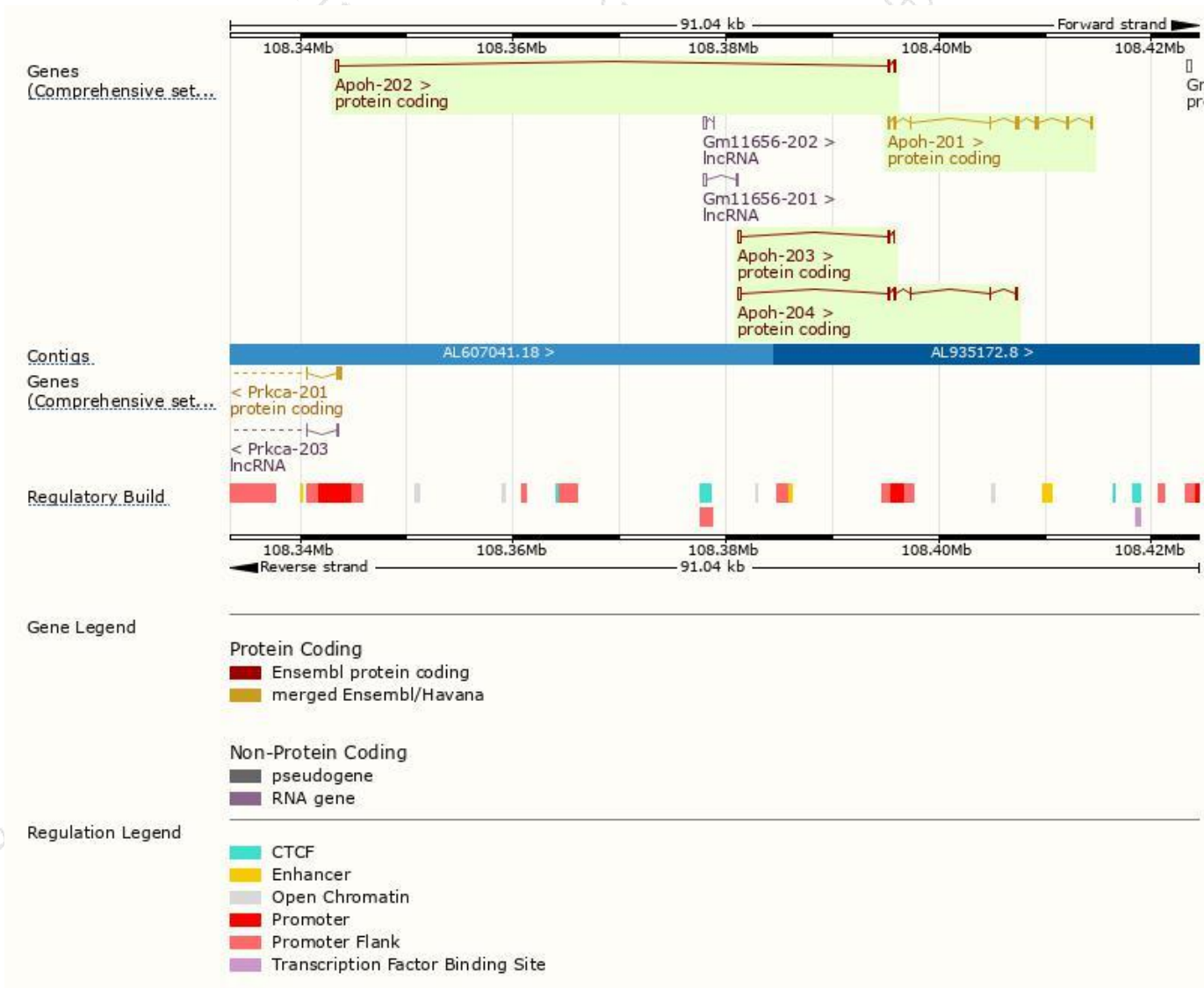
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Apoh-201	ENSMUST00000000049.5	1190	345aa	Protein coding	CCDS25574	Q01339	TSL:1 GENCODE basic APPRIS P1
Apoh-204	ENSMUST00000152958.7	731	154aa	Protein coding	-	I7HJR3	CDS 3' incomplete TSL:5
Apoh-203	ENSMUST00000146050.1	374	33aa	Protein coding	-	J3JS85	CDS 3' incomplete TSL:2
Apoh-202	ENSMUST00000133383.7	367	51aa	Protein coding	-	I7HPW5	CDS 3' incomplete TSL:3

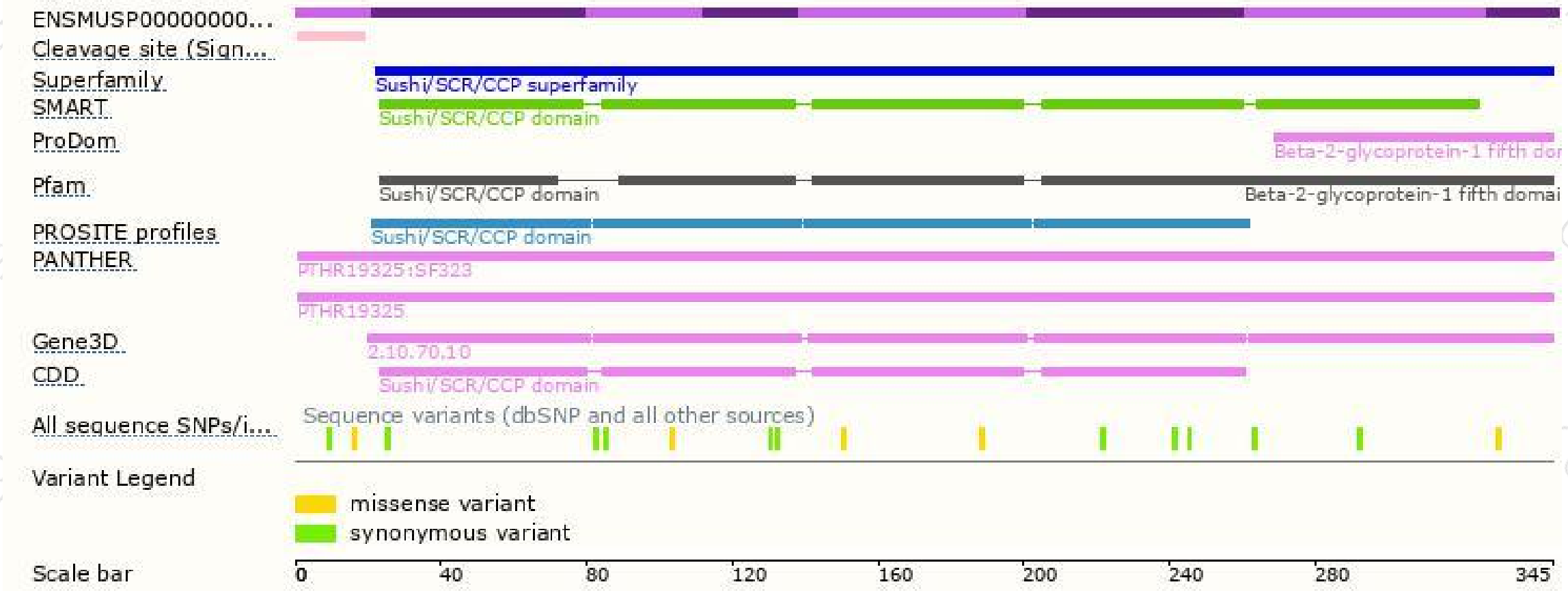
The strategy is based on the design of *Apoh-201* transcript,The transcription is shown below



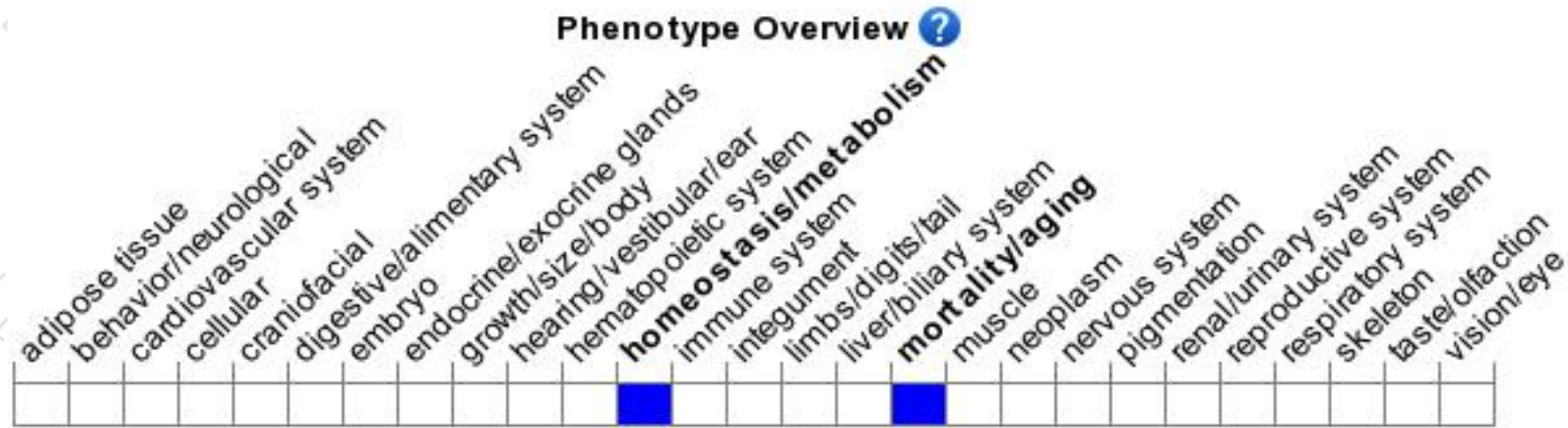
Genomic location distribution



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, Homozygous mutation of this gene results in reduced viability and reduced thrombin production. Only 8% homozygous null animals are born from heterozygous intercrosses.

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

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