

Acss1 Cas9-KO Strategy

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Project Overview

Project Name

Acss1

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Acss1* gene. The schematic diagram is as follows:



- The *Acss1* gene has 5 transcripts. According to the structure of *Acss1* gene, exon2-exon5 of *Acss1-201* (ENSMUST00000028944.3) transcript is recommended as the knockout region. The region contains 626bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Acss1* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice with disruptions in this gene display abnormalities in acetate metabolism. Ability to maintain body temperature under fasting conditions is reduced.
- The knockout region is near to the N-terminal of *E130215H24Rik* gene, this strategy may influence the regulatory function of the N-terminal of *E130215H24Rik* gene.
- The *Acss1* gene is located on the Chr2. 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)

Acss1 acyl-CoA synthetase short-chain family member 1 [*Mus musculus* (house mouse)]

Gene ID: 68738, updated on 10-Oct-2019

Summary

Official Symbol Acss1 provided by MGI
Official Full Name acyl-CoA synthetase short-chain family member 1 provided by MGI
Primary source MGI:MGI:1915988
See related Ensembl:ENSMUSG00000027452
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 Acas2; Acas2l; AceCS2; AI788978; 1110032O15Rik
Expression Broad expression in kidney adult (RPKM 106.8), heart adult (RPKM 84.4) and 20 other tissues [See more](#)
Orthologs [human](#) [all](#)

Genomic context

Location: 2; 2 G3

See Acss1 in [Genome Data Viewer](#)

Exon count: 14

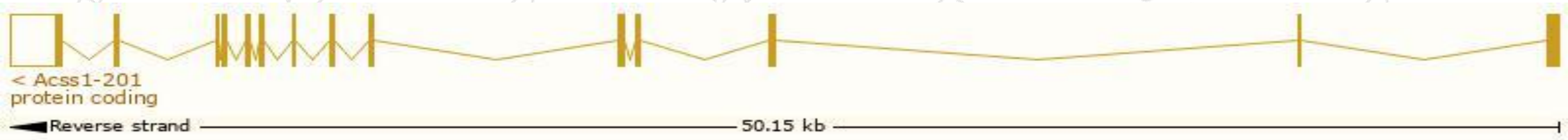
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	2	NC_000068.7 (150618111..150668240, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	2	NC_000068.6 (150443847..150493976, complement)

Transcript information (Ensembl)

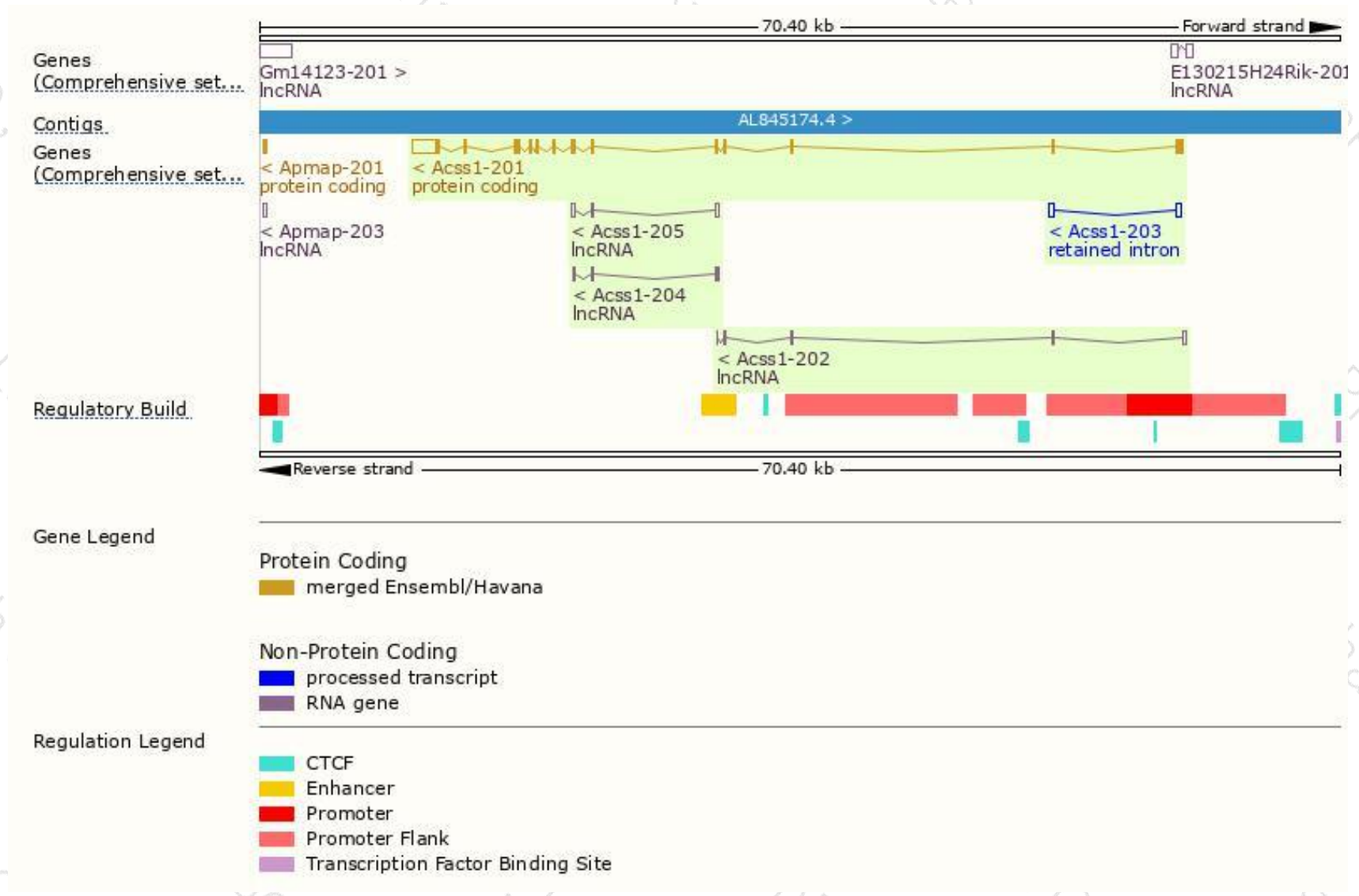
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Acss1-201	ENSMUST00000028944.3	3618	682aa	Protein coding	CCDS16859	Q3UJ89 Q99NB1	TSL:1 GENCODE basic APPRIS P1
Acss1-203	ENSMUST00000141785.1	658	No protein	Retained intron	-	-	TSL:2
Acss1-202	ENSMUST00000141500.1	656	No protein	lncRNA	-	-	TSL:5
Acss1-205	ENSMUST00000154328.7	547	No protein	lncRNA	-	-	TSL:2
Acss1-204	ENSMUST00000147135.1	392	No protein	lncRNA	-	-	TSL:2

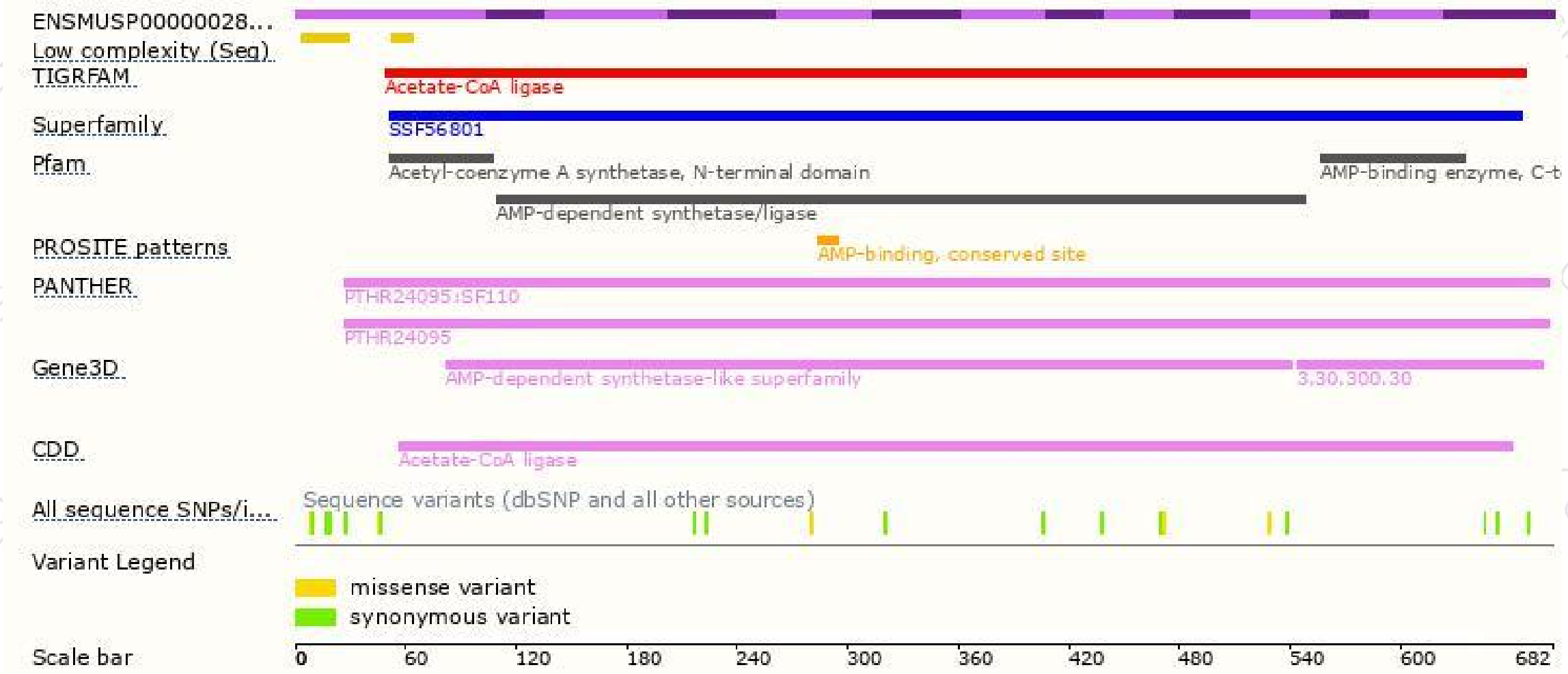
The strategy is based on the design of *Acss1-201* transcript,The transcription is shown below



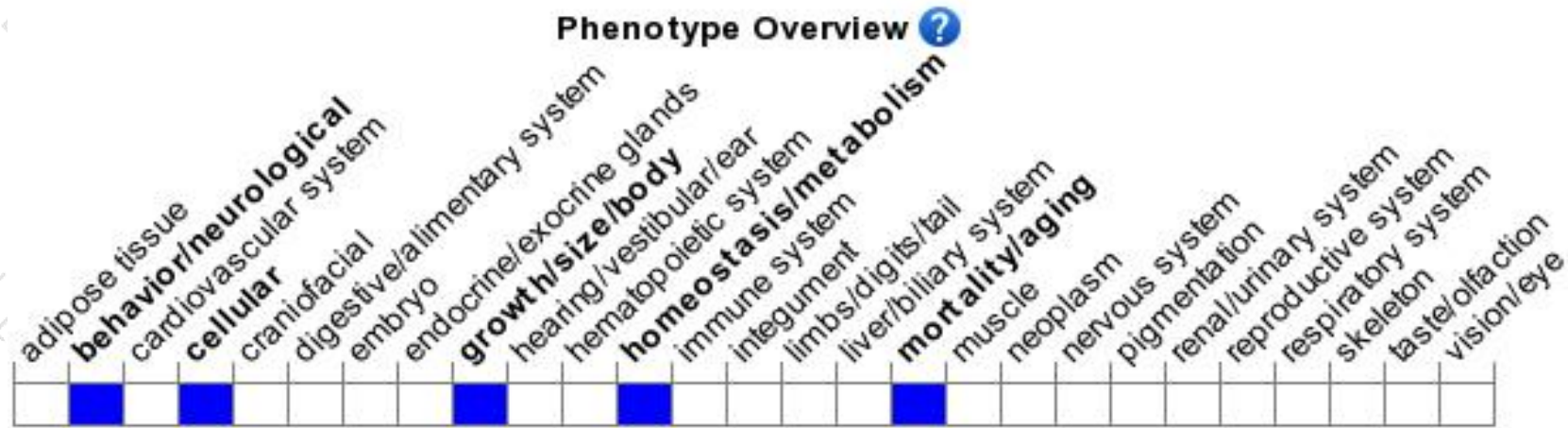
Genomic location distribution



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 with disruptions in this gene display abnormalities in acetate metabolism.

Ability to maintain body temperature under fasting conditions is reduced.

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

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