

Acsbg1 Cas9-KO Strategy

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Project Overview

Project Name

Acsbg1

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Acsbg1* gene. The schematic diagram is as follows:



- The *Acsbg1* gene has 5 transcripts. According to the structure of *Acsbg1* gene, exon3-exon5 of *Acsbg1-201* (ENSMUST00000034822.11) transcript is recommended as the knockout region. The region contains 431bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Acsbg1* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for a null mutation display abnormalities in gonadotropin induced changes in testosterone production, Leydig cell morphology and long chain and very long chain fatty acid levels.
- The effect on transcript *Acsbg1*-202&203&205 is unknown.
- Transcript *Acsbg1*-204 may not be affected.
- The *Acsbg1* 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)

Acsbg1 acyl-CoA synthetase bubblegum family member 1 [*Mus musculus* (house mouse)]

Gene ID: 94180, updated on 10-Oct-2019

Summary

- Official Symbol** Acsbg1 provided by MGI
- Official Full Name** acyl-CoA synthetase bubblegum family member 1 provided by MGI
- Primary source** MGI:MGI:2385656
- See related** Ensembl:ENSMUSG00000032281
- 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** BG1; Bgm; Lpd; R75185; GR-LACS; E230019G03Rik
- Expression** Biased expression in ovary adult (RPKM 280.6), adrenal adult (RPKM 69.5) and 4 other tissues [See more](#)
- Orthologs** [human](#) [all](#)

Genomic context

Location: 9; 9 A5.3 See Acsbg1 in [Genome Data Viewer](#)

Exon count: 17

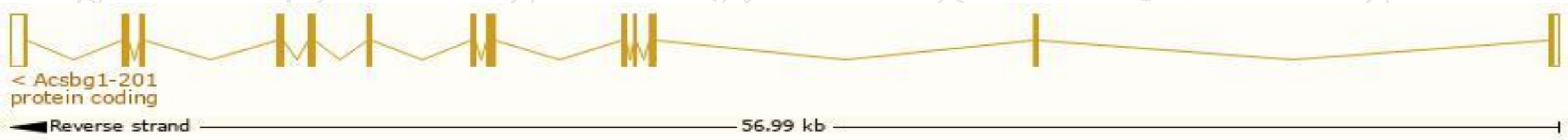
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	9	NC_000075.6 (54604886..54661885, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	9	NC_000075.5 (54452804..54509692, complement)

Transcript information (Ensembl)

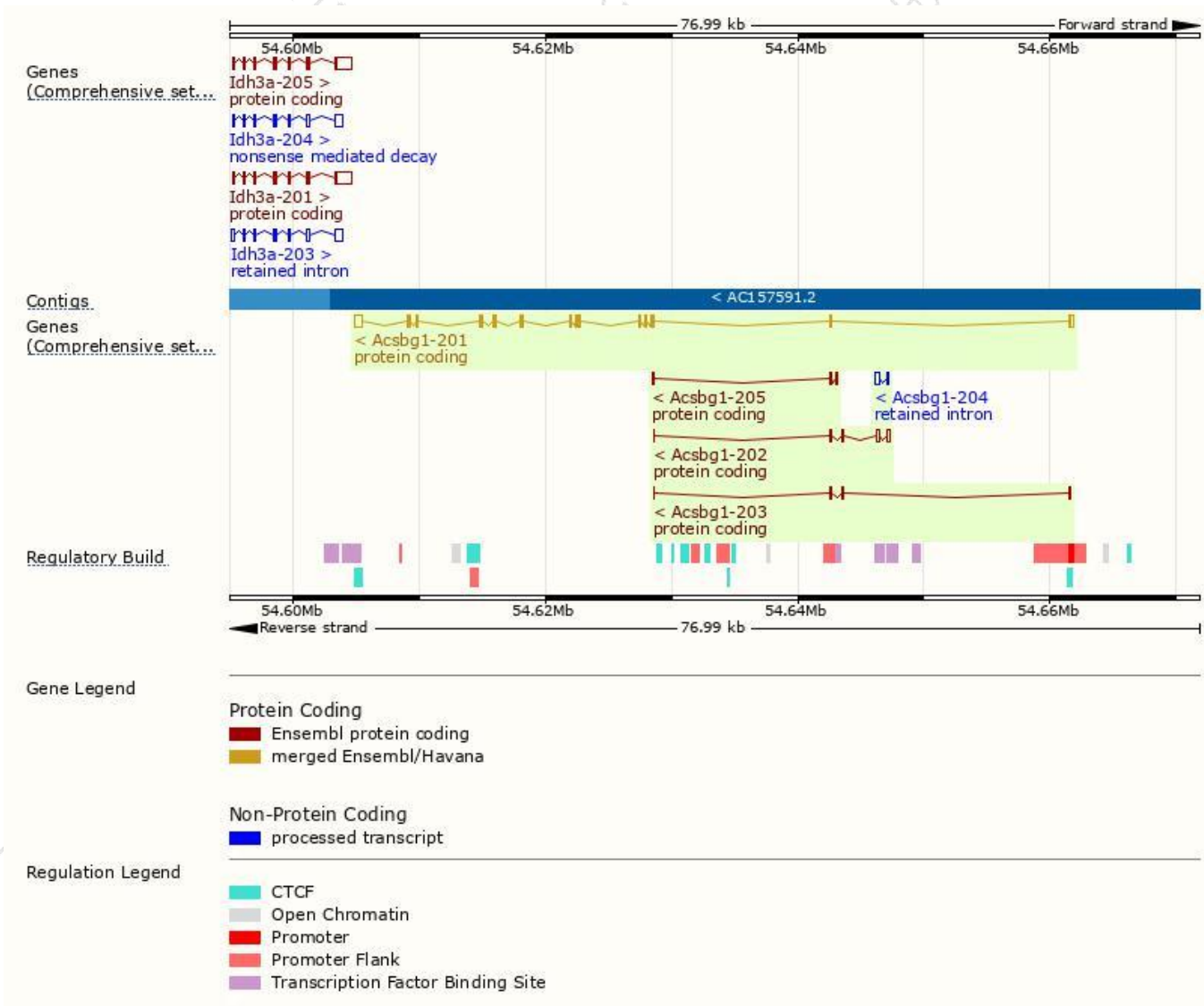
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Acsbg1-201	ENSMUST00000034822.11	2880	721aa	Protein coding	CCDS23192	Q99PU5	TSL:1 GENCODE basic APPRIS P1
Acsbg1-202	ENSMUST00000128163.7	668	110aa	Protein coding	-	D3Z1Z2	CDS 3' incomplete TSL:2
Acsbg1-203	ENSMUST00000128624.1	407	127aa	Protein coding	-	D3Z2G8	CDS 3' incomplete TSL:3
Acsbg1-205	ENSMUST00000138315.1	358	65aa	Protein coding	-	D3YZ56	CDS 3' incomplete TSL:3
Acsbg1-204	ENSMUST00000132914.1	345	No protein	Retained intron	-	-	TSL:2

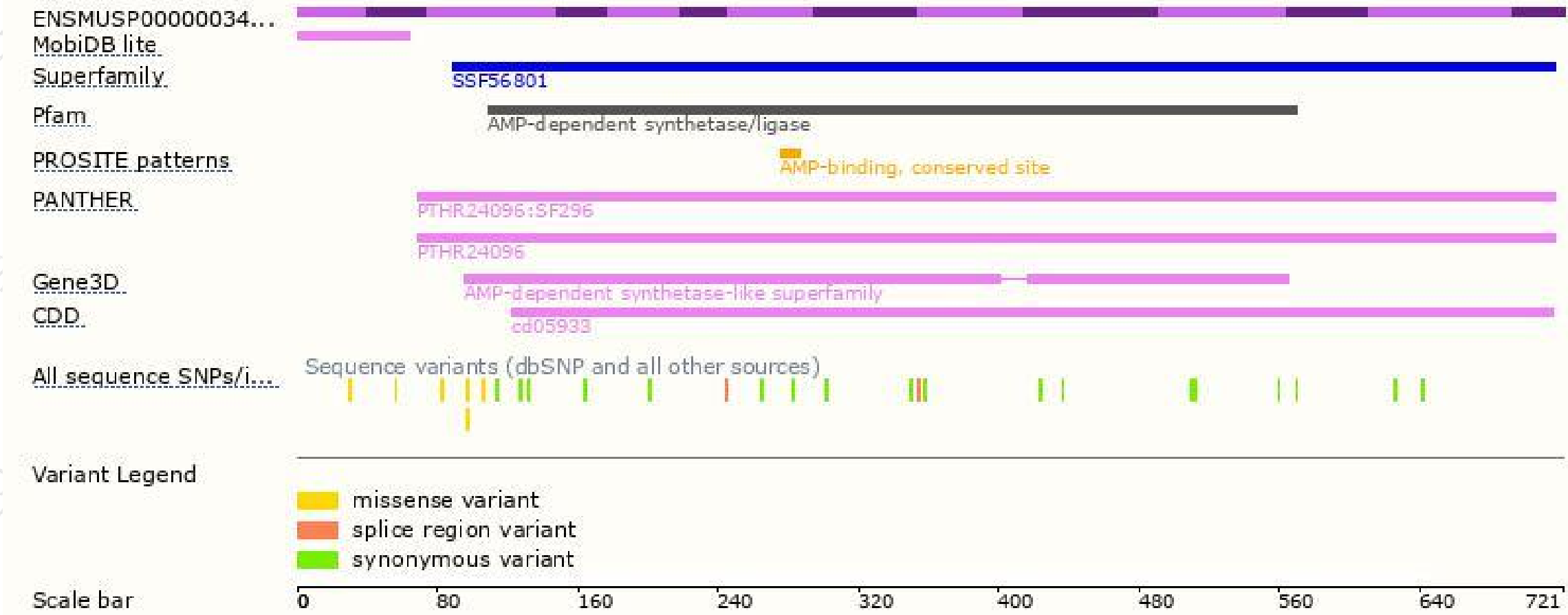
The strategy is based on the design of *Acsbg1-201* transcript,The transcription is shown below



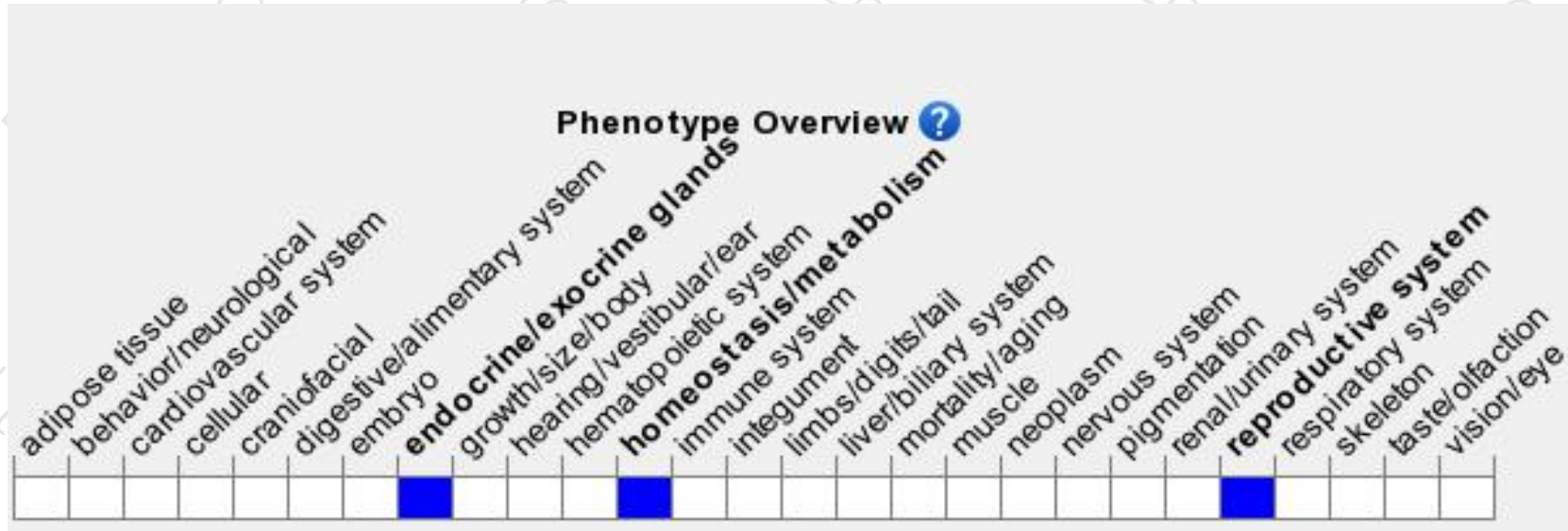
Genomic location distribution



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 a null mutation display abnormalities in gonadotropin induced changes in testosterone production, Leydig cell morphology and long chain and very long chain fatty acid levels.

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

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