

Aacs Cas9-CKO Strategy

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Project Overview

Project Name

Aacs

Project type

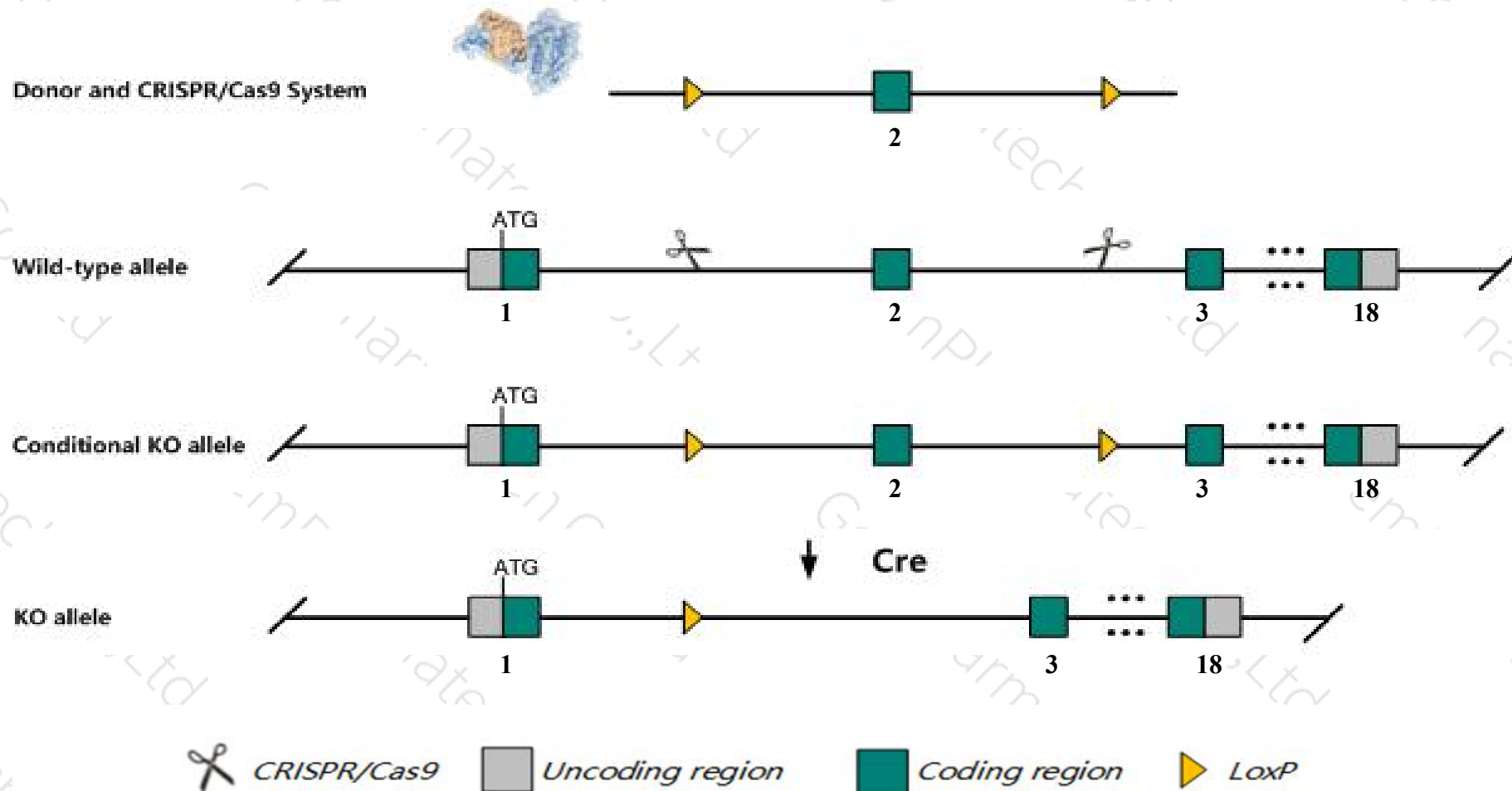
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



- The *Aacs* gene has 6 transcripts. According to the structure of *Aacs* gene, exon2 of *Aacs-201* (ENSMUST00000031445.4) transcript is recommended as the knockout region. The region contains 104bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Aacs* gene. The brief process is as follows: CRISPR/Cas9 system and Donor were microinjected into the fertilized eggs of C57BL/6JGpt mice. Fertilized eggs were transplanted to obtain positive F0 mice which were confirmed by PCR and sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.
- The flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

Notice

- The *Aacs* gene is located on the Chr5. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Aacs acetoacetyl-CoA synthetase [*Mus musculus* (house mouse)]

Gene ID: 78894, updated on 12-Aug-2019

Summary

Official Symbol Aacs provided by [MGI](#)

Official Full Name acetoacetyl-CoA synthetase provided by [MGI](#)

Primary source [MGI:MGI:1926144](#)

See related [Ensembl:ENSMUSG000000029482](#)

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 SUR5; 2210408B16Rik

Expression Broad expression in mammary gland adult (RPKM 107.7), subcutaneous fat pad adult (RPKM 90.4) and 27 other tissues [See more](#)

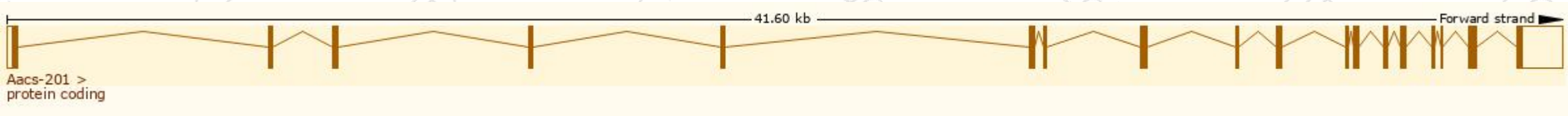
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

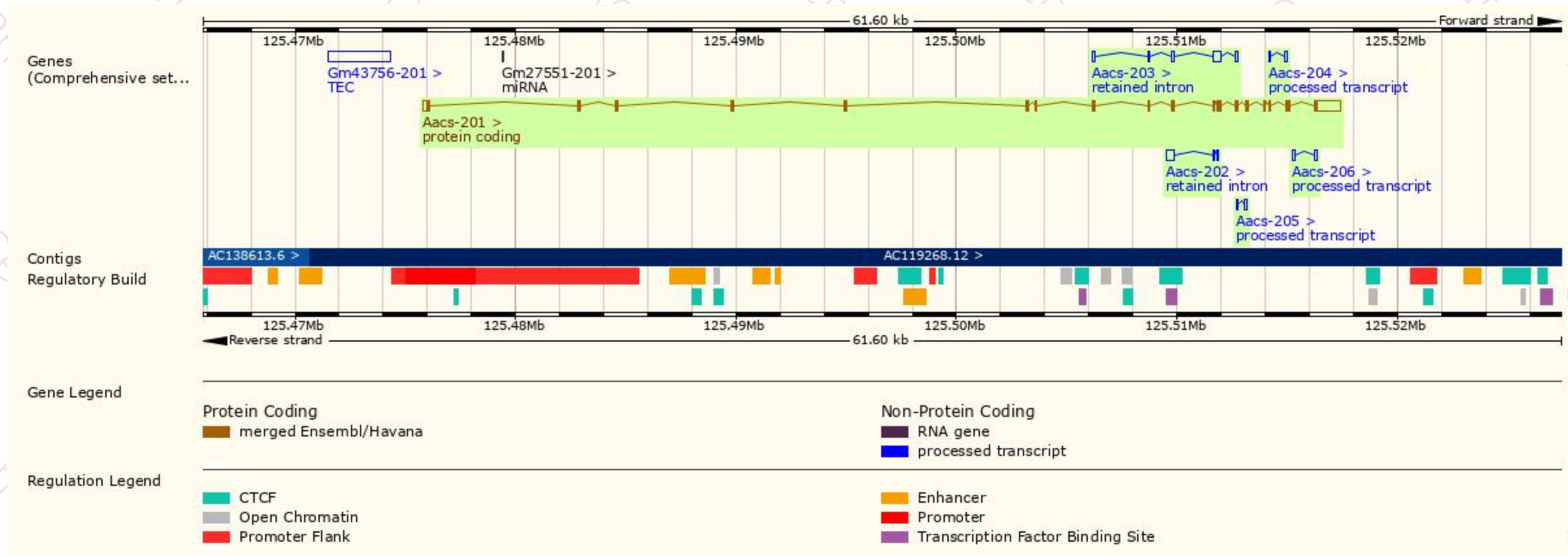
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Aacs-203	ENSMUST00000144361.1	796	No protein	Retained intron	-	-	TSL:5
Aacs-202	ENSMUST00000131355.1	527	No protein	Retained intron	-	-	TSL:2
Aacs-201	ENSMUST00000031445.4	3239	672aa	Protein coding	CCDS19687	Q9D2R0	TSL:1 GENCODE basic APPRIS P1
Aacs-206	ENSMUST00000200286.1	245	No protein	Processed transcript	-	-	TSL:5
Aacs-204	ENSMUST00000196556.1	163	No protein	Processed transcript	-	-	TSL:1
Aacs-205	ENSMUST00000199978.1	158	No protein	Processed transcript	-	-	TSL:1

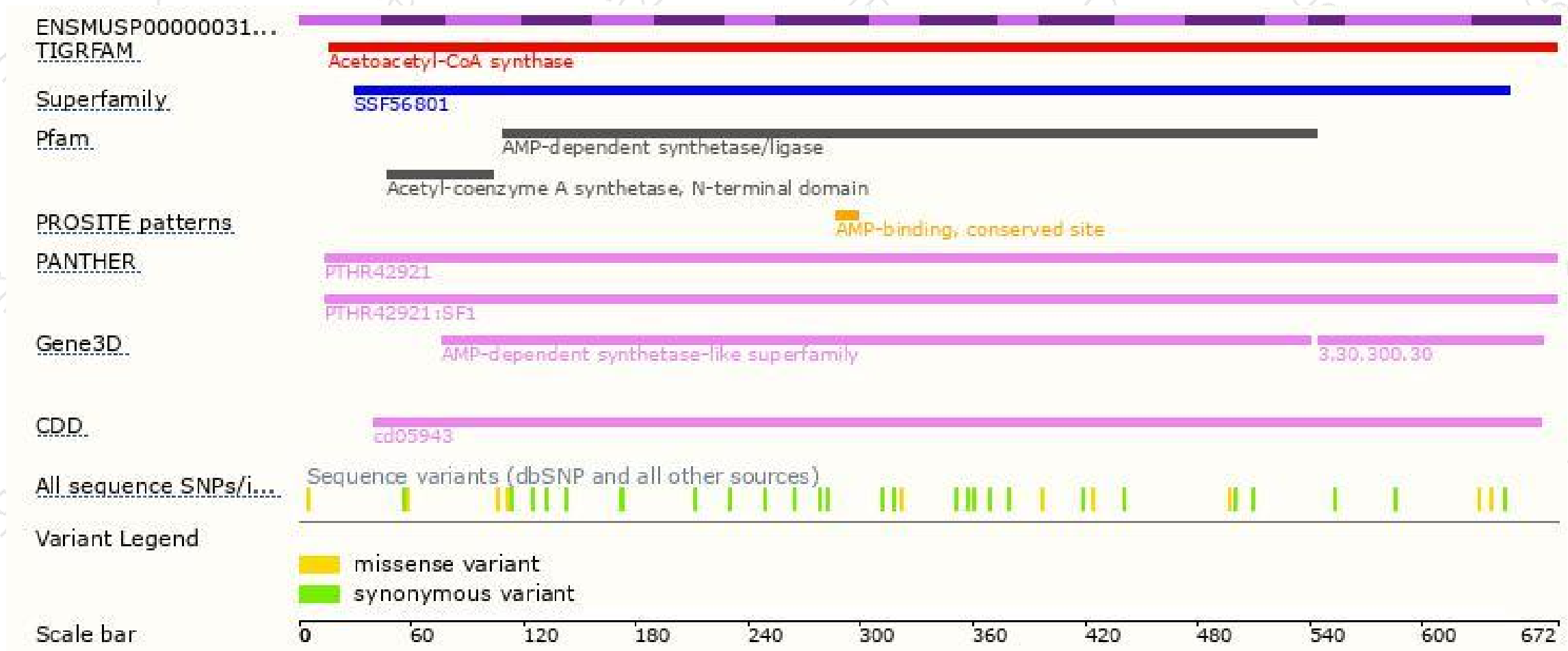
The strategy is based on the design of *Aacs-201* transcript, the transcription is shown below:



Genomic location distribution



Protein domain



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

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