

Acsf3 Cas9-CKO Strategy

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Design Date: 2020-6-16

Project Overview

Project Name

Acsf3

Project type

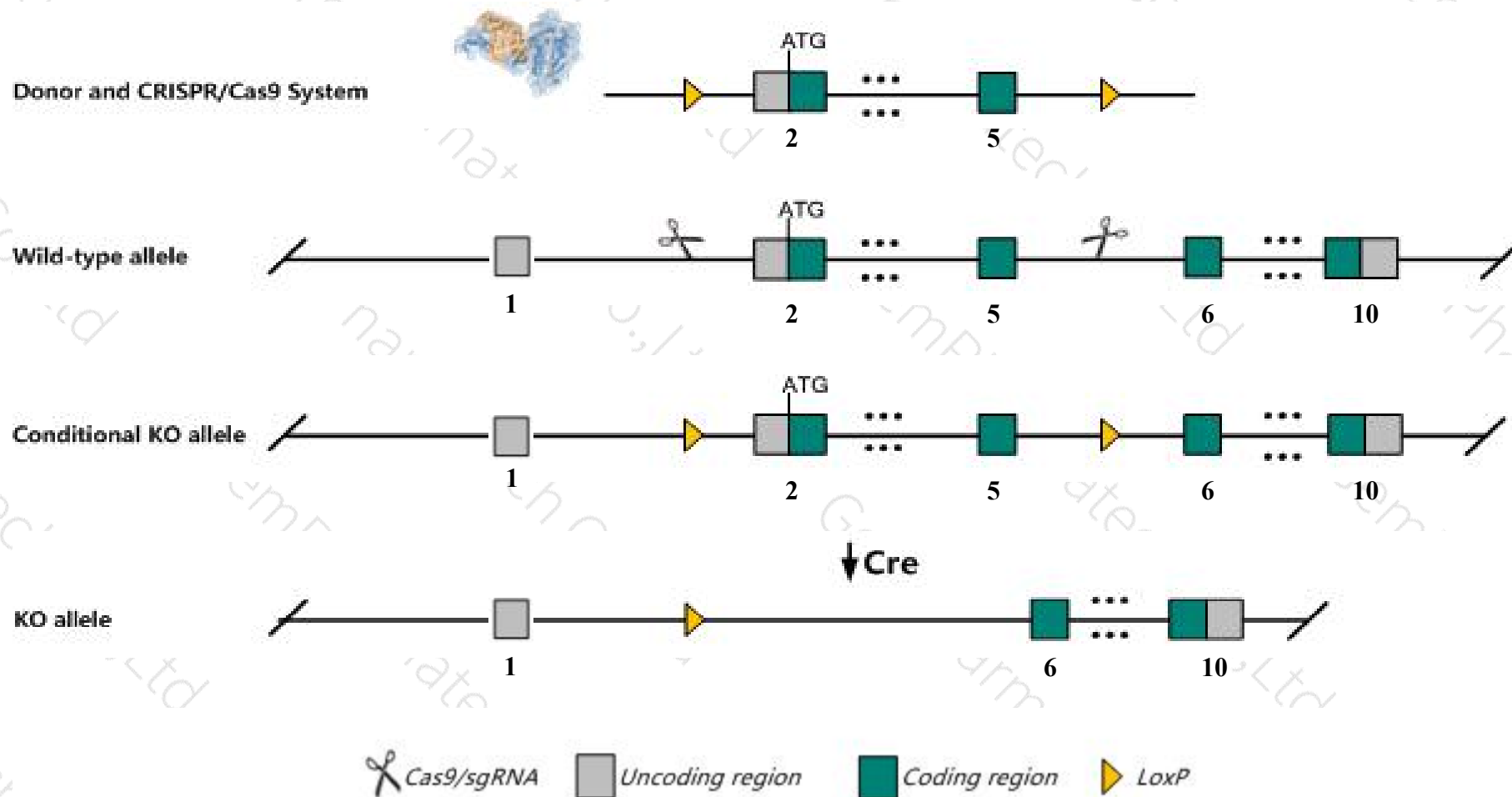
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Acsf3* gene. The schematic diagram is as follows:



Technical routes

- The *Acsf3* gene has 4 transcripts. According to the structure of *Acsf3* gene, exon2-exon5 of *Acsf3-201* (ENSMUST00000015160.5) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Acsf3* 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 *Acsf3* gene is located on the Chr8. 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.
- The knockout region contains part intron of *Galnt2l-201* gene.
- 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)

Acsf3 acyl-CoA synthetase family member 3 [*Mus musculus* (house mouse)]

Gene ID: 257633, updated on 3-May-2020

Summary



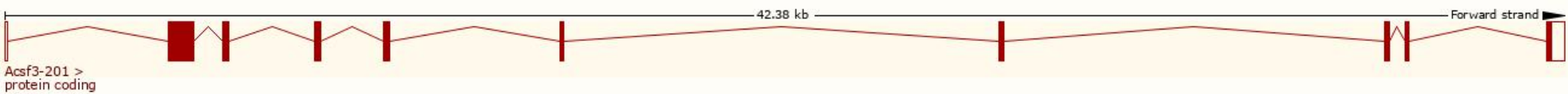
Official Symbol	Acsf3 provided by MGI
Official Full Name	acyl-CoA synthetase family member 3 provided by MGI
Primary source	MGI:MGI:2182591
See related	Ensembl:ENSMUSG00000015016
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	BB101783
Expression	Ubiquitous expression in kidney adult (RPKM 25.7), adrenal adult (RPKM 17.5) and 28 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
Acsf3-201	ENSMUST00000015160.5	2206	583aa	Protein coding	CCDS40505	Q3URE1	TSL:5 GENCODE basic APPRIS P2
Acsf3-203	ENSMUST00000212790.1	2171	583aa	Protein coding	CCDS40505	Q3URE1	TSL:5 GENCODE basic APPRIS P2
Acsf3-202	ENSMUST00000212781.1	2604	536aa	Protein coding	-	A0A1D5RMC8	TSL:2 GENCODE basic APPRIS ALT2
Acsf3-204	ENSMUST00000212903.1	1798	No protein	Processed transcript	-	-	TSL:2

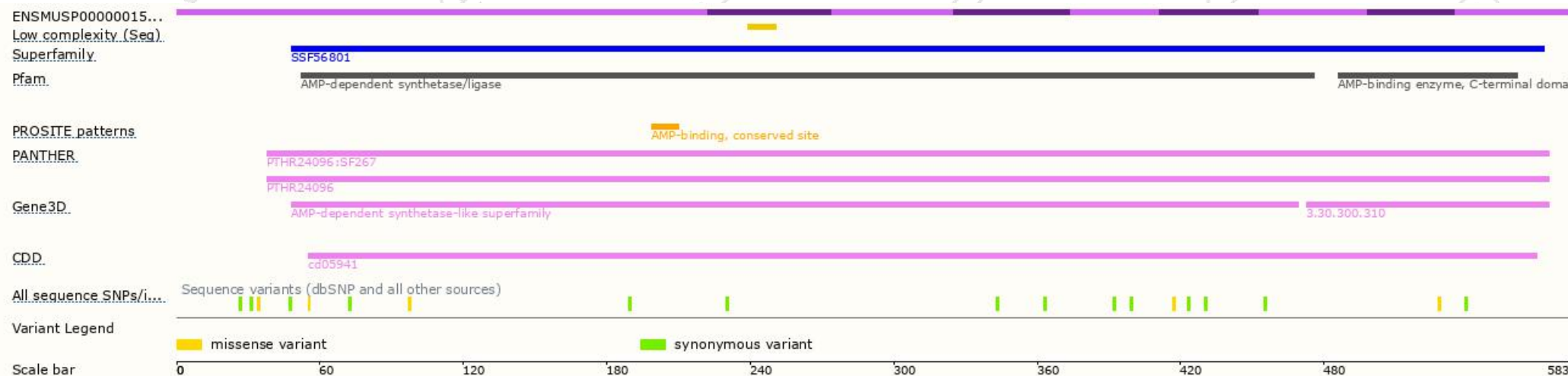
The strategy is based on the design of *Acsf3-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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