

Acot6 Cas9-KO Strategy

Designer: Xueting Zhang

Reviewer: Daohua Xu

Design Date: 2020-5-8

Project Overview

Project Name

Acot6

Project type

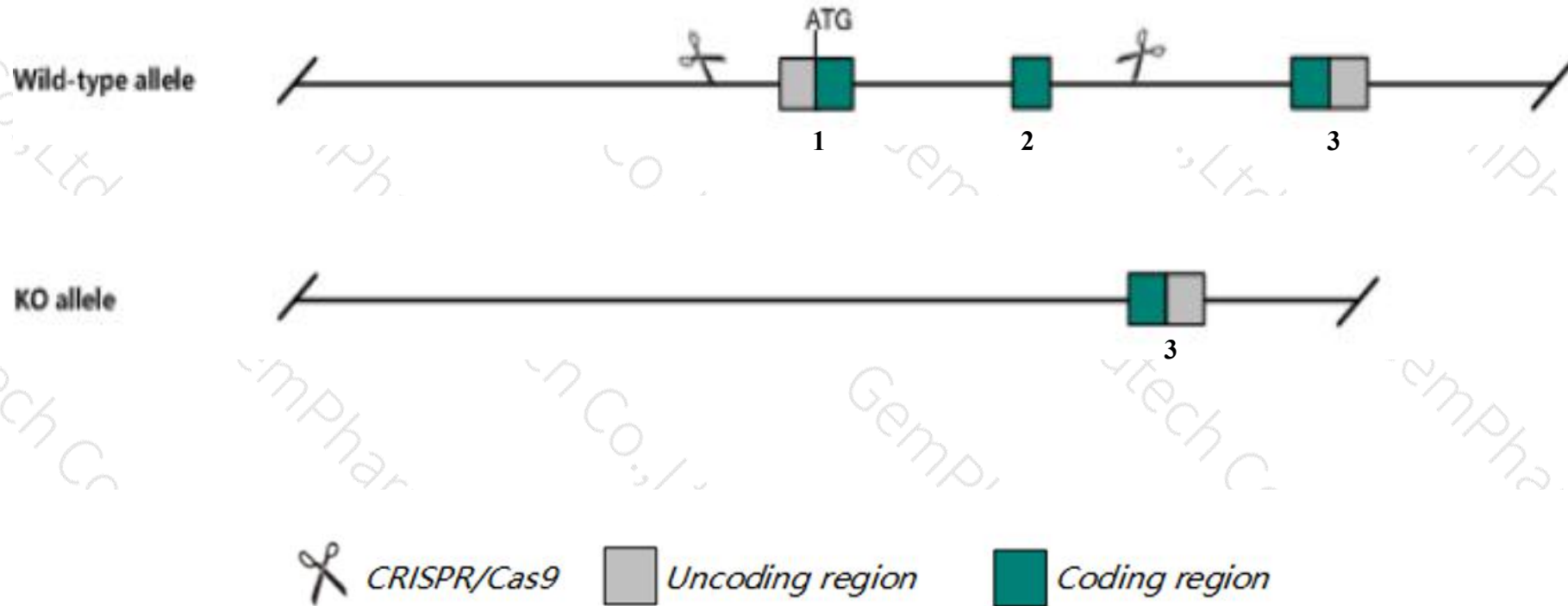
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Acot6* gene. The schematic diagram is as follows:



- The *Acot6* gene has 2 transcripts. According to the structure of *Acot6* gene, exon1-exon2 of *Acot6-201* (ENSMUST00000056822.3) 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 *Acot6* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, mice homozygous for a knock-out allele exhibit no detectable phenotypic abnormalities.
- The knockout region is near to the N-terminal of *Dnall* gene, this strategy may influence the regulatory function of the N-terminal of *Dnall* gene.
- The *Acot6* gene is located on the Chr12. 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)

Acot6 acyl-CoA thioesterase 6 [Mus musculus (house mouse)]

Gene ID: 217700, updated on 13-Mar-2020

Summary



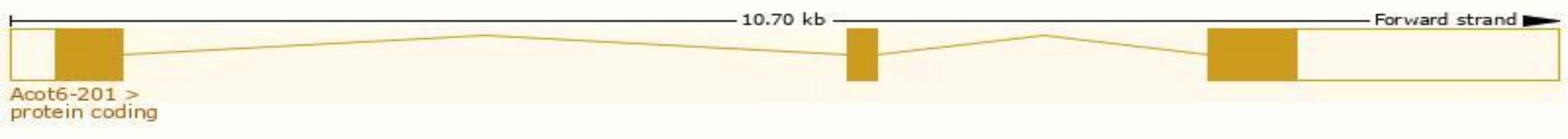
Official Symbol	Acot6 provided by MGI
Official Full Name	acyl-CoA thioesterase 6 provided by MGI
Primary source	MGI:MGI:1921287
See related	Ensembl:ENSMUSG00000043487
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	4632408A20Rik, A330054B07, BE688602
Expression	Ubiquitous expression in ovary adult (RPKM 11.9), kidney adult (RPKM 8.5) and 27 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

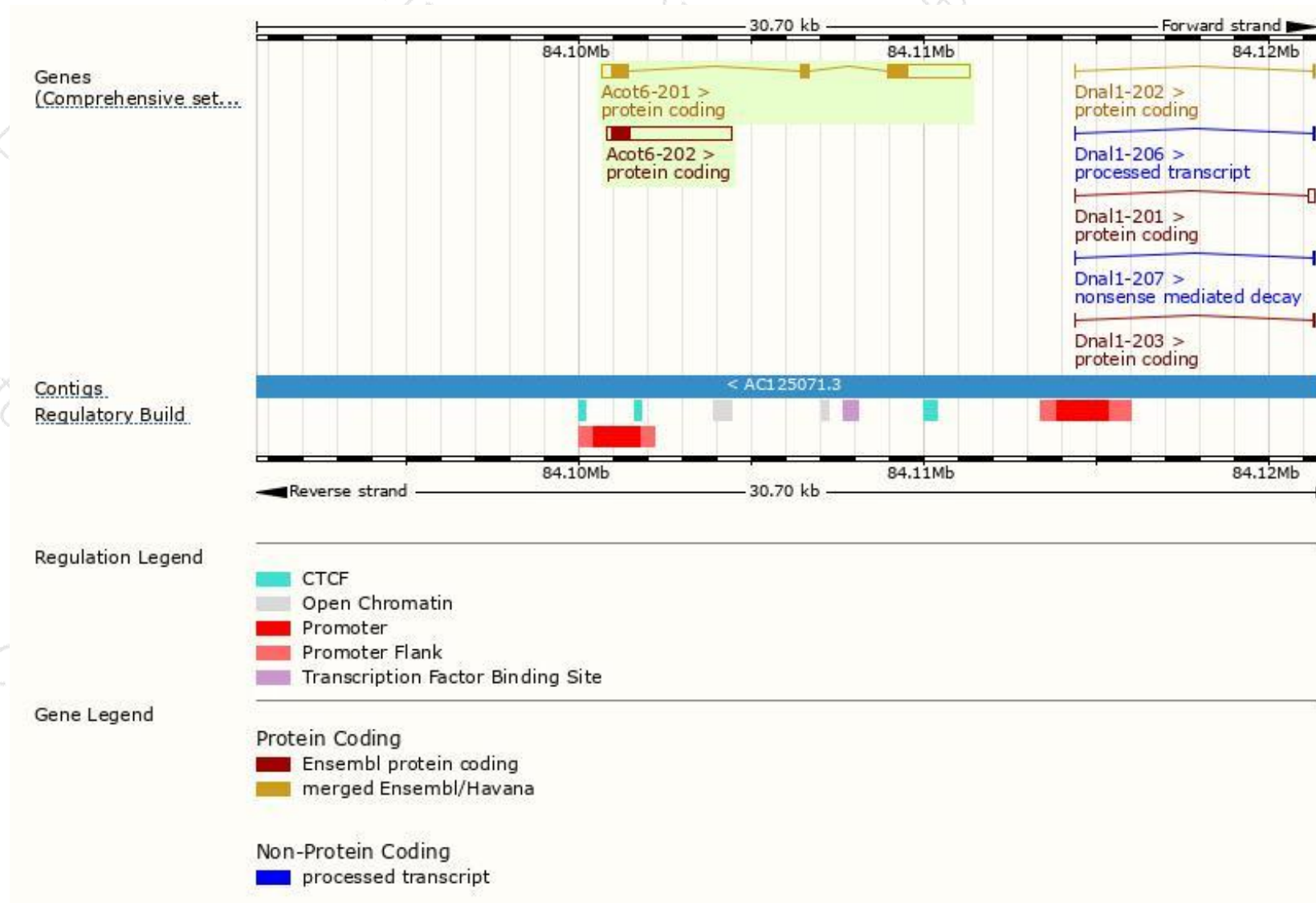
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Acot6-201	ENSMUST00000056822.3	3388	419aa	Protein coding	CCDS26038	B2RTE4_Q32Q92	TSL:1 GENCODE basic APPRIS is a system to annotate alternatively spliced transcripts based on a range of computational methods to identify the most functionally important transcript(s) of a gene. APPRIS P1
Acot6-202	ENSMUST00000222921.1	3622	176aa	Protein coding	-	Q32Q92	TSL:NA GENCODE basic

The strategy is based on the design of *Acot6-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

Tel: 400-9660890

