

Cavin4 Cas9-KO Strategy

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Reviewer:

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Project Overview

Project Name

Cavin4

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cavin4* gene. The schematic diagram is as follows:



- The *Cavin4* gene has 1 transcript. According to the structure of *Cavin4* gene, exon2 of *Cavin4-201* (ENSMUST00000030033.4) transcript is recommended as the knockout region. The region contains most of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Cavin4* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous null mice are viable and fertile with normal cardiac mass and function under physiological conditions. Phenylephrine-induced cardiac hypertrophy is suppressed in null mice.
- The *Cavin4* gene is located on the Chr4. 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 flox region is about 1.5 kb away from the 5th end of the Gm12439 gene, which may affect the regulation of this gene.
- 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)

Cavin4 caveolae associated 4 [*Mus musculus* (house mouse)]

Gene ID: 68016, updated on 13-Mar-2020

Summary

Official Symbol	Cavin4 provided by MGI
Official Full Name	caveolae associated 4 provided by MGI
Primary source	MGI:MGI:1915266
See related	Ensembl:ENSMUSG00000028348
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	Murc; 2310039E09Rik
Expression	Biased expression in heart adult (RPKM 11.9), CNS E11.5 (RPKM 1.8) and 5 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

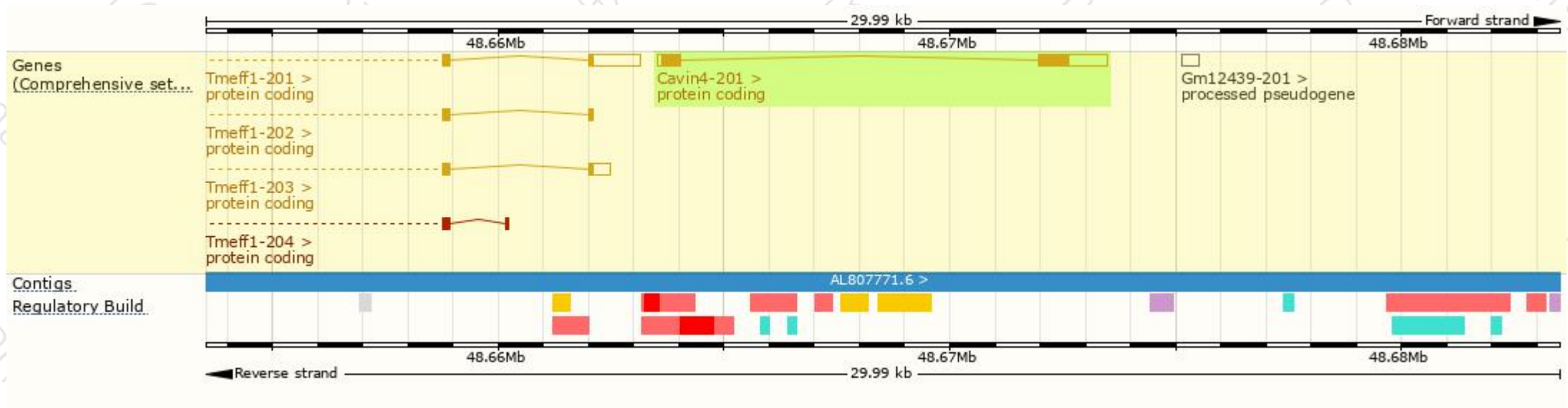
The gene has 1 transcript,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cavin4-201	ENSMUST00000030033.4	2054	362aa	Protein coding	CCDS18169	A2AMM0	TSL:1 Gencode basic APPRIS P1

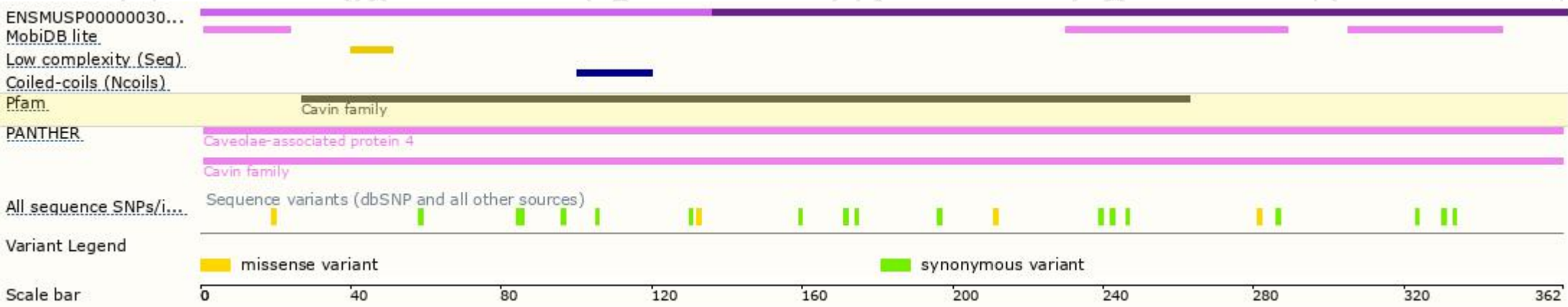
The strategy is based on the design of *Cavin4-201* transcript,The transcription is shown below



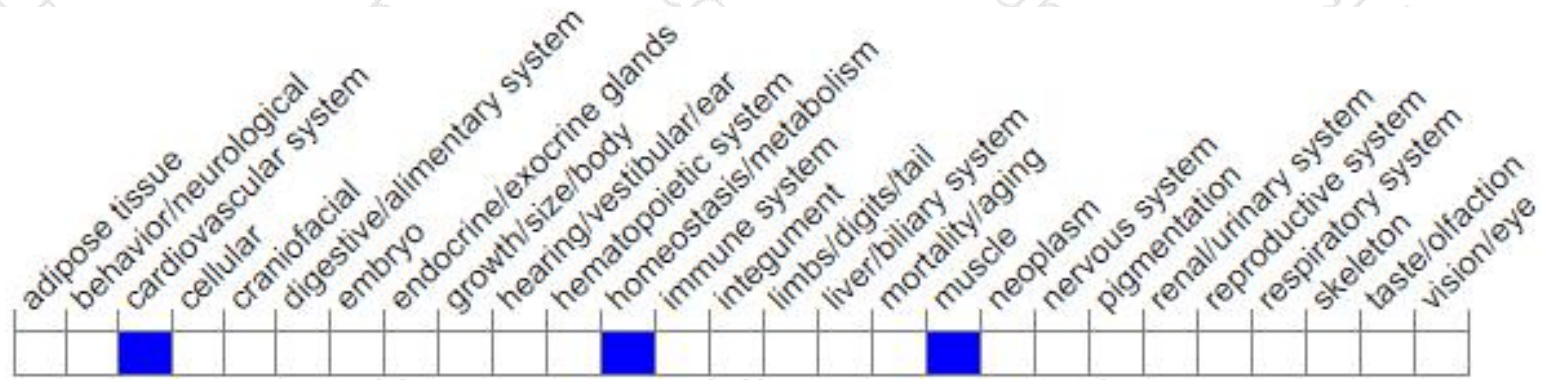
Genomic location distribution



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, Homozygous null mice are viable and fertile with normal cardiac mass and function under physiological conditions. Phenylephrine-induced cardiac hypertrophy is suppressed in null mice.

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

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