

Cavin3 Cas9-KO Strategy

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Project Overview

Project Name

Cavin3

Project type

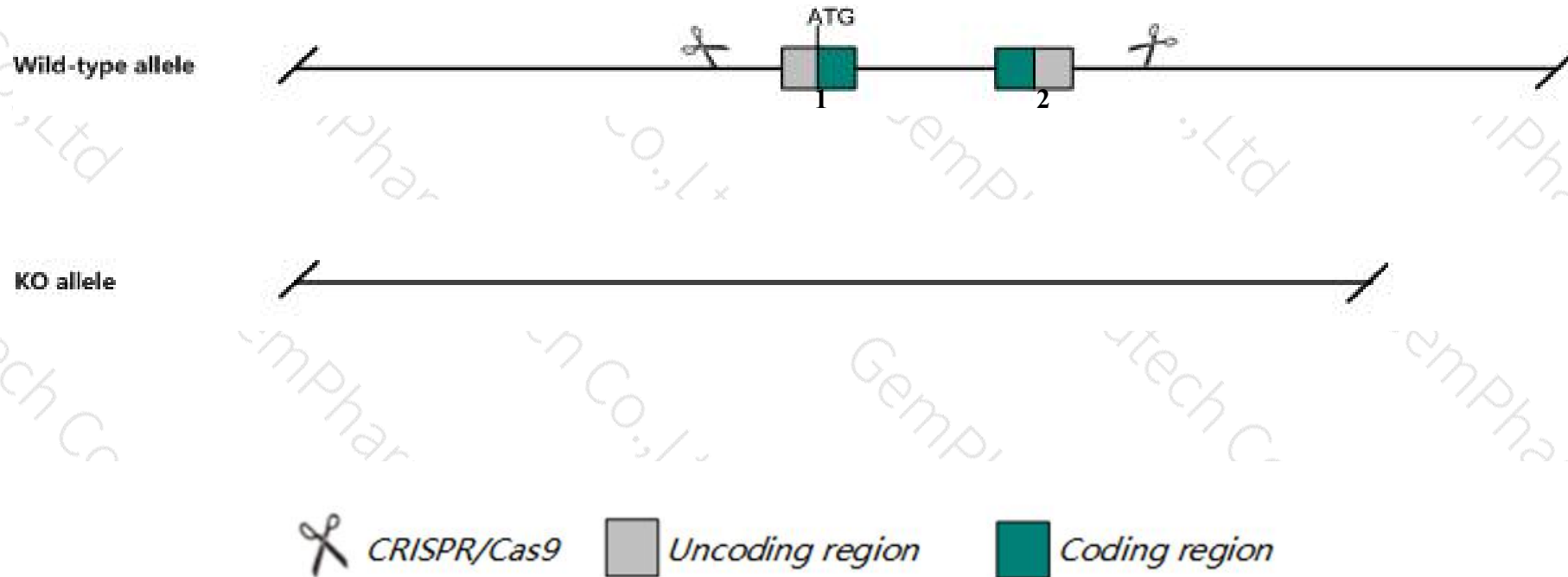
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cavin3* gene. The schematic diagram is as follows:



- The *Cavin3* gene has 1 transcript. According to the structure of *Cavin3* gene, exon1-exon2 of *Cavin3-201* (ENSMUST00000047040.3) transcript is recommended as the knockout region. The region contains all 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 *Cavin3* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for a knock-out allele exhibit decreased body weight, severe lipodystrophy, hepatic steatosis, increased fermentative glycolysis in lung tissue, and premature death as a result of cachexia.
- The KO region contains the *Gm45667* gene. Knockout the region may affect the function of the *Gm45667* gene.
- The *Cavin3* gene is located on the Chr7. 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)

Cavin3 caveolae associated 3 [Mus musculus (house mouse)]

Gene ID: 109042, updated on 31-Jan-2019

Summary



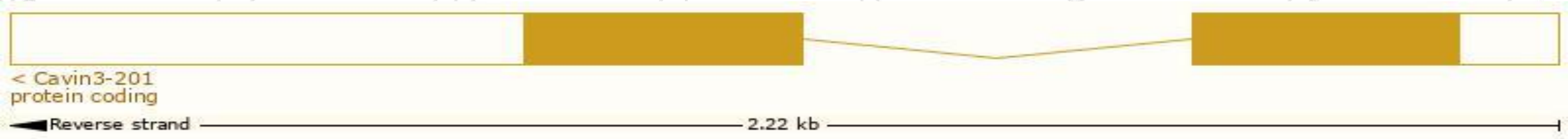
Official Symbol	Cavin3 provided by MGI
Official Full Name	caveolae associated 3 provided by MGI
Primary source	MGI:MGI:1923422
See related	Ensembl:ENSMUSG00000037060
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	3110015B12Rik, 6330514M23Rik, Prkcdbp, SRBC
Expression	Broad expression in ovary adult (RPKM 228.1), subcutaneous fat pad adult (RPKM 214.5) and 18 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

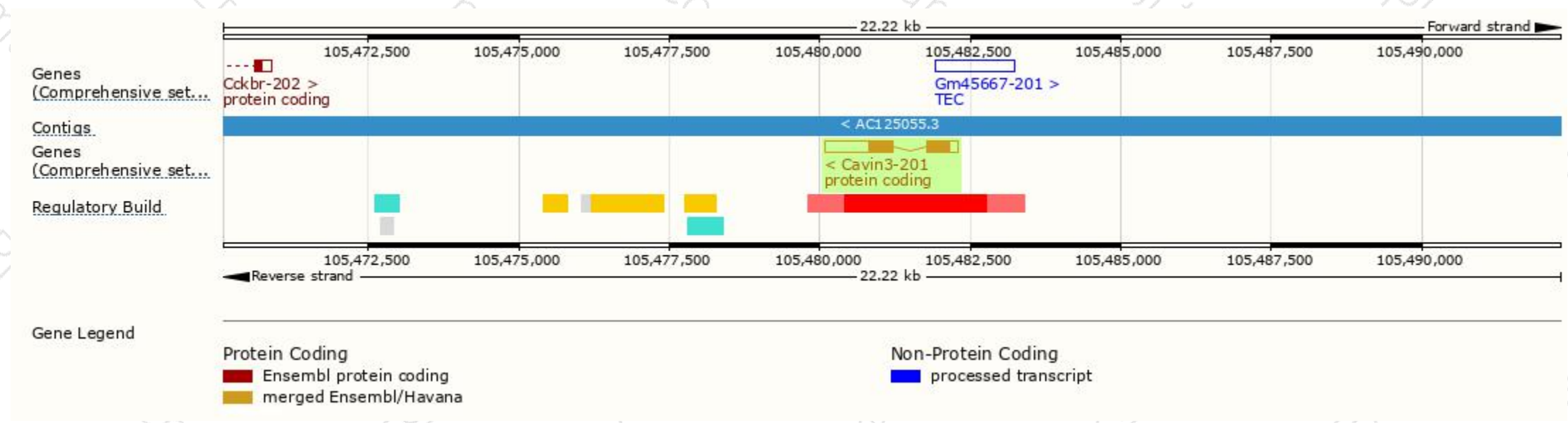
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cavin3-201	ENSMUST00000047040.3	1662	260aa	Protein coding	CCDS21652	Q91VJ2	TSL:1 GENCODE basic APPRIS P1

The strategy is based on the design of *Cavin3-201* transcript, The transcription is shown below



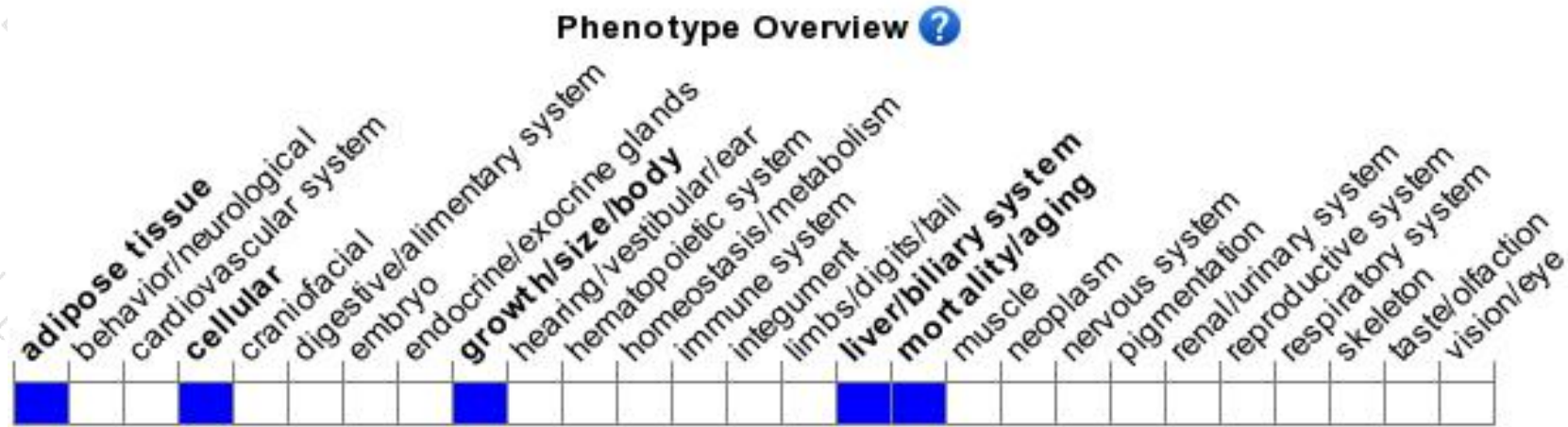
Genomic location distribution



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 knock-out allele exhibit decreased body weight, severe lipodystrophy, hepatic steatosis, increased fermentative glycolysis in lung tissue, and premature death as a result of cachexia.

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

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