

***Dnajc15* Cas9-KO Strategy**

Designer: Xueting Zhang

Reviewer: Daohua Xu

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Project Overview

Project Name

Dnajc15

Project type

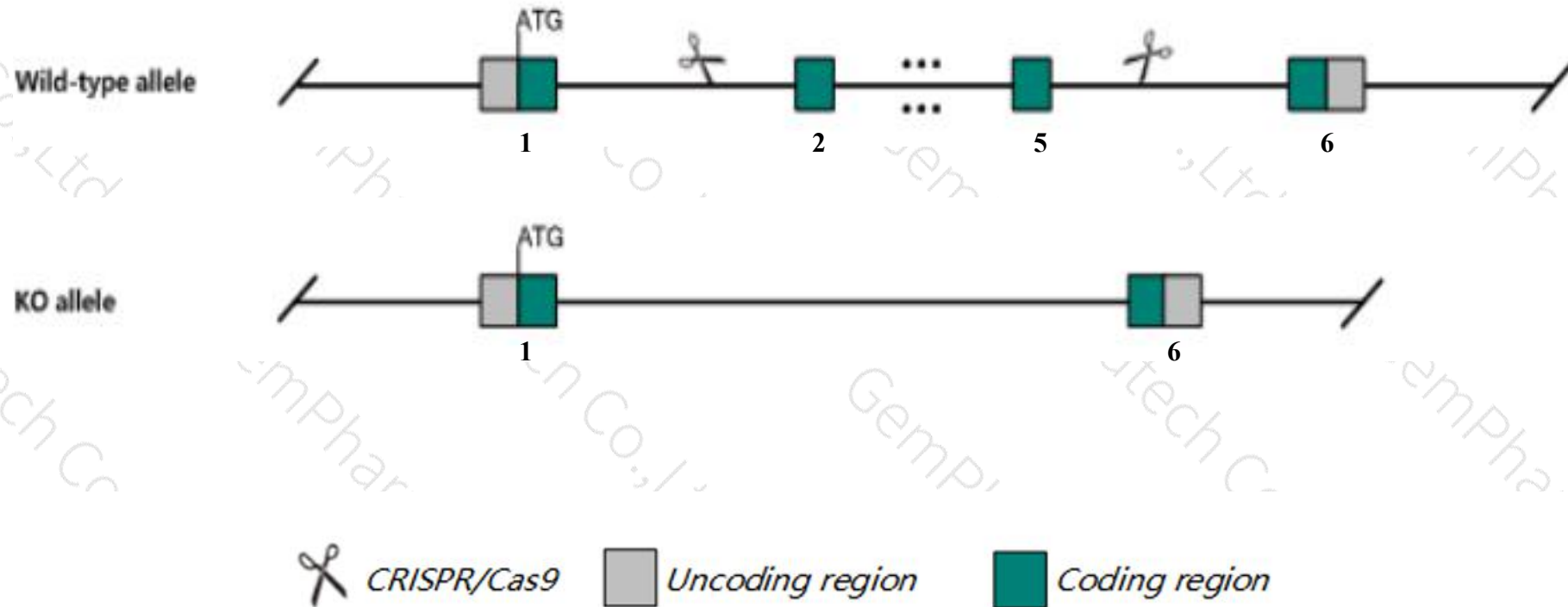
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dnajc15* gene. The schematic diagram is as follows:



- The *Dnajc15* gene has 3 transcripts. According to the structure of *Dnajc15* gene, exon2-exon5 of *Dnajc15*-202(ENSMUST00000226459.1) transcript is recommended as the knockout region. The region contains 274bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Dnajc15* gene. The brief process is as follows: CRISPR/Cas9 system 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.

- According to the existing MGI data, mice homozygous for a knock-out allele exhibit increased mitochondrial activity that results in rapid metabolism in fasted mice or mice fed a high fat diet.
- The *Dnajc15* gene is located on the Chr14. 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)

Dnajc15 DnaJ heat shock protein family (Hsp40) member C15 [Mus musculus (house mouse)]

Gene ID: 66148, updated on 13-Mar-2020

Summary



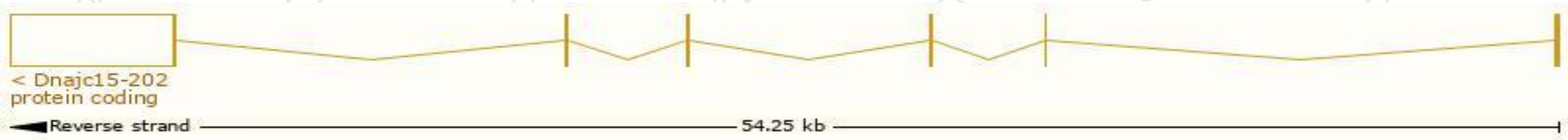
Official Symbol	Dnajc15 provided by MGI
Official Full Name	DnaJ heat shock protein family (Hsp40) member C15 provided by MGI
Primary source	MGI:MGI:1913398
See related	Ensembl:ENSMUSG00000022013
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1110003P16Rik, Dnajd1
Expression	Broad expression in testis adult (RPKM 177.3), ovary adult (RPKM 65.1) and 27 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

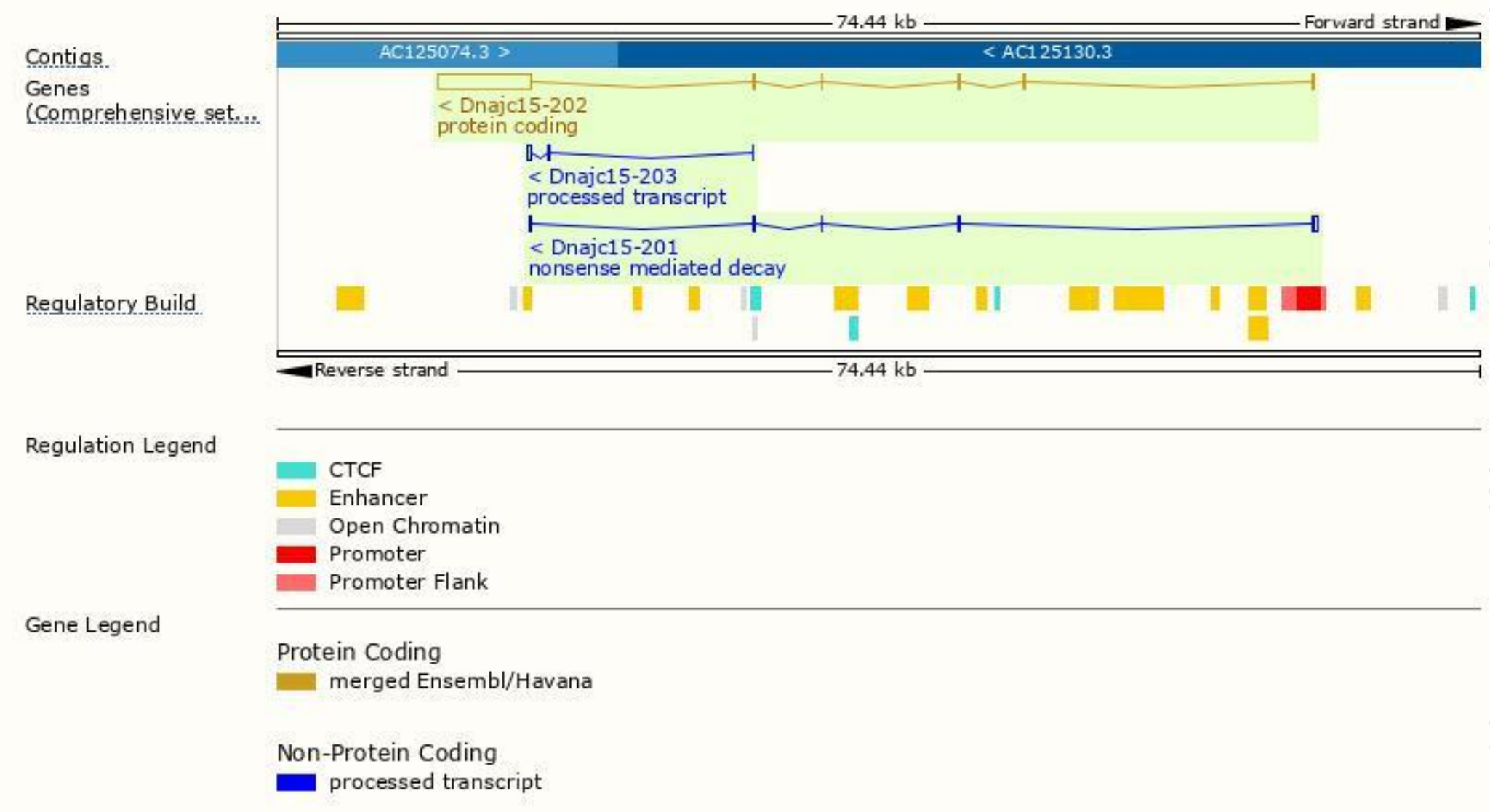
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dnajc15-202	ENSMUST00000226459.1	6193	149aa	Protein coding	CCDS27292	Q78YY6	GENCODE basic APPRIS P1
Dnajc15-201	ENSMUST00000022590.4	674	44aa	Nonsense mediated decay	-	A0A2K6EDK0	TSL:1
Dnajc15-203	ENSMUST00000227249.1	419	No protein	Processed transcript	-	-	

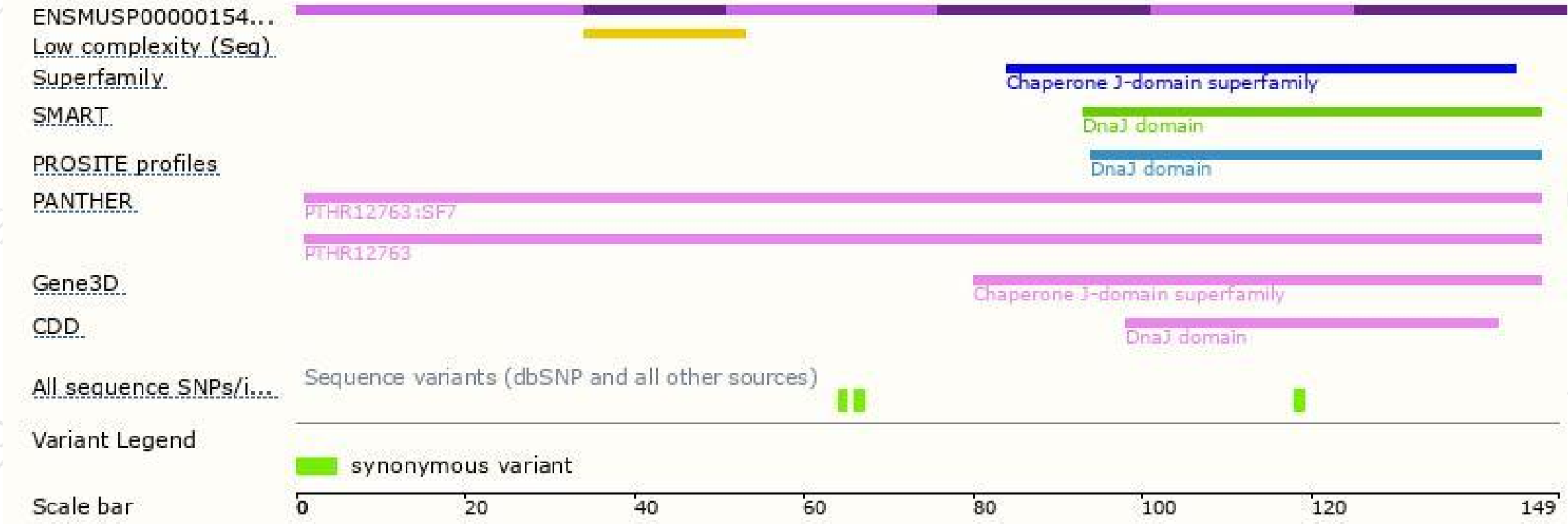
The strategy is based on the design of *Dnajc15-202* transcript,the transcription is shown below:



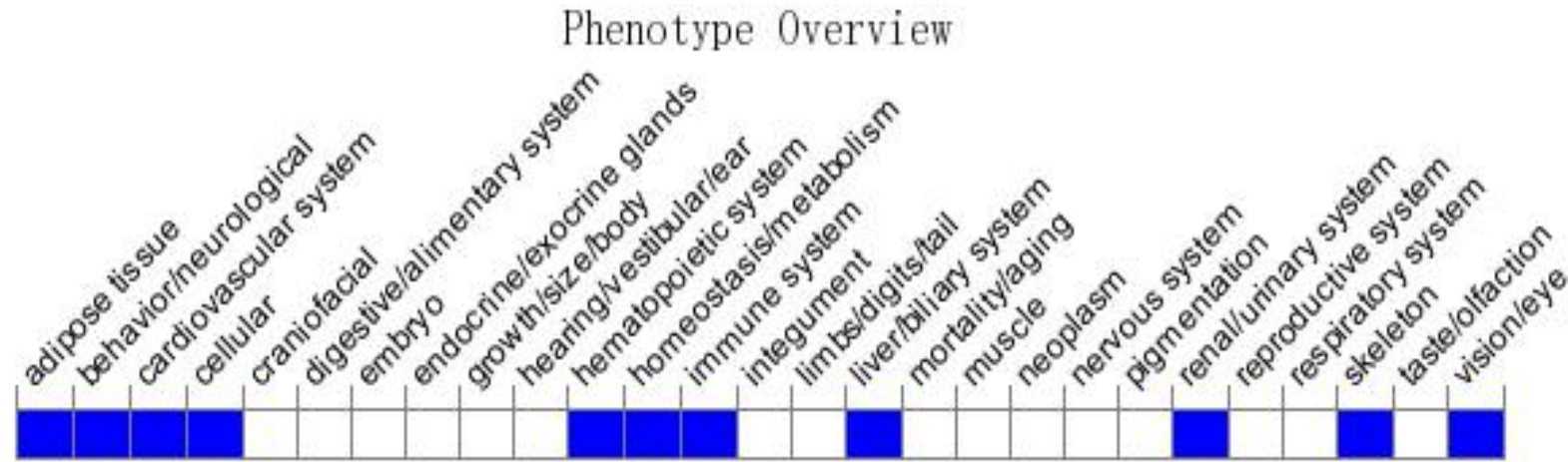
Genomic location distribution



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 increased mitochondrial activity that results in rapid metabolism in fasted mice or mice fed a high fat diet.

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

Tel: 400-9660890

