

Myh4 Cas9-KO Strategy

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Reviewer:

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Project Overview

Project Name

Myh4

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Myh4* gene. The schematic diagram is as follows:



- The *Myh4* gene has 2 transcripts. According to the structure of *Myh4* gene, exon5-exon10 of *Myh4-201* (ENSMUST00000018632.10) transcript is recommended as the knockout region. The region contains 503bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Myh4* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygotes for a targeted null mutation exhibit decreased growth and muscle defects including reduced muscle mass, muscle fiber loss, compensatory fiber hypertrophy, and impaired strength.
- The *Myh4* gene is located on the Chr11. 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)

Myh4 myosin, heavy polypeptide 4, skeletal muscle [*Mus musculus* (house mouse)]

Gene ID: 17884, updated on 1-Oct-2019

Summary

Official Symbol Myh4 provided by [MGI](#)

Official Full Name myosin, heavy polypeptide 4, skeletal muscle provided by [MGI](#)

Primary source [MGI:MGI:1339713](#)

See related [Ensembl:ENSMUSG000000057003](#)

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 MM; MHC2B; Myhsf; MYH-2B; Minmus; Minimsc; AI506973; MyHC-IIb

Expression Restricted expression toward mammary gland adult (RPKM 118.7) [See more](#)

Orthologs [human](#) [all](#)

Transcript information (Ensembl)

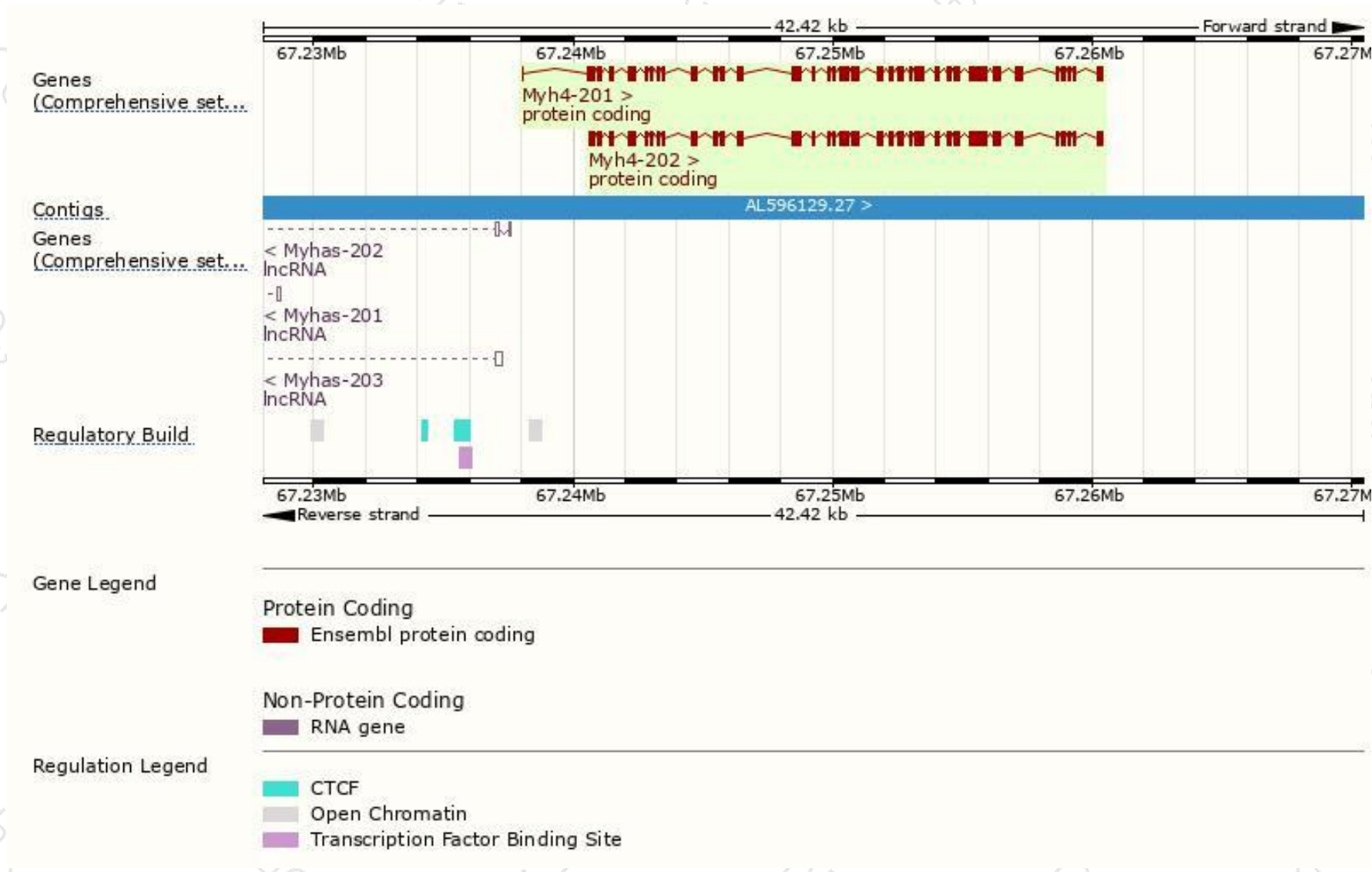
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Myh4-201	ENSMUST00000018632.10	6016	1939aa	Protein coding	CCDS24856	Q5SX39	TSL:5 GENCODE basic APPRIS P1
Myh4-202	ENSMUST00000170942.1	5912	1939aa	Protein coding	CCDS24856	Q5SX39	TSL:1 GENCODE basic APPRIS P1

The strategy is based on the design of *Myh4-201* transcript,The transcription is shown below



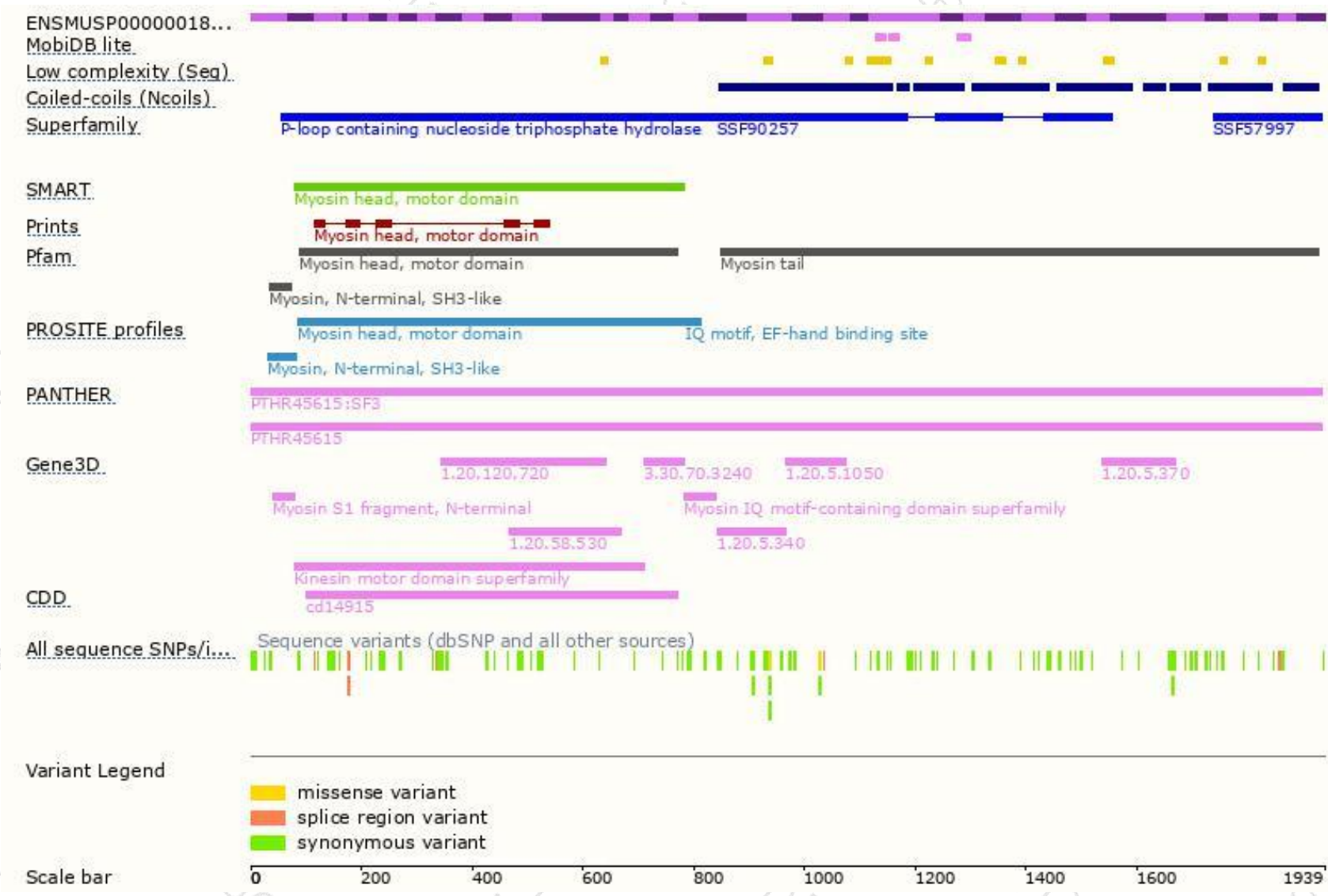
Genomic location distribution



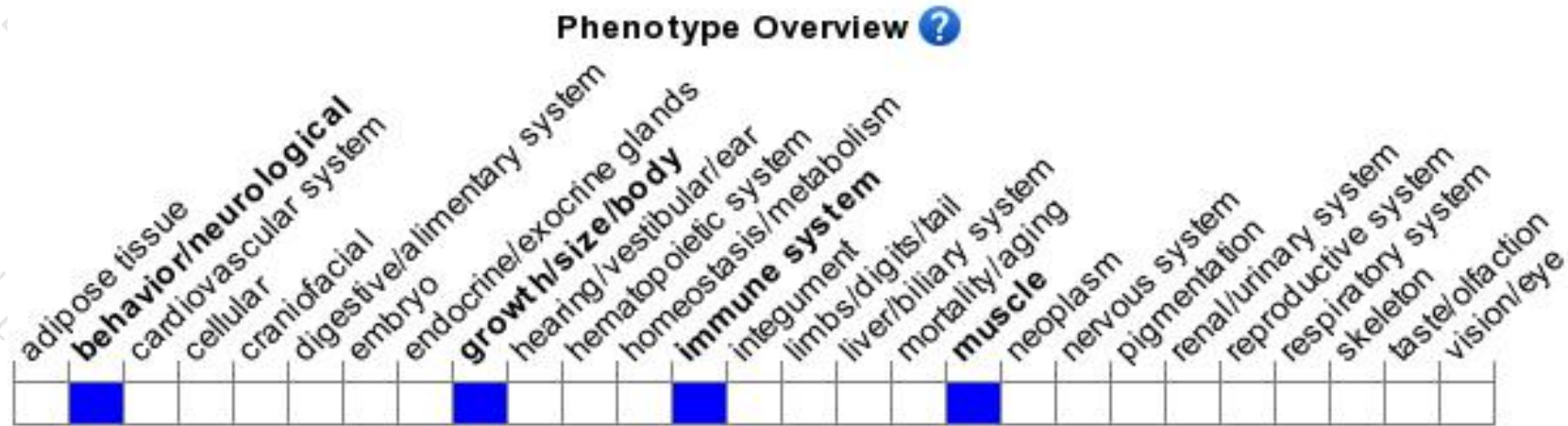
Protein domain



集萃药康
GemPharmatech



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, Homozygotes for a targeted null mutation exhibit decreased growth and muscle defects including reduced muscle mass, muscle fiber loss, compensatory fiber hypertrophy, and impaired strength.

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

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