

Myoz2 Cas9-KO Strategy

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Design Date:

2020-2-13

Project Overview

Project Name

Myoz2

Project type

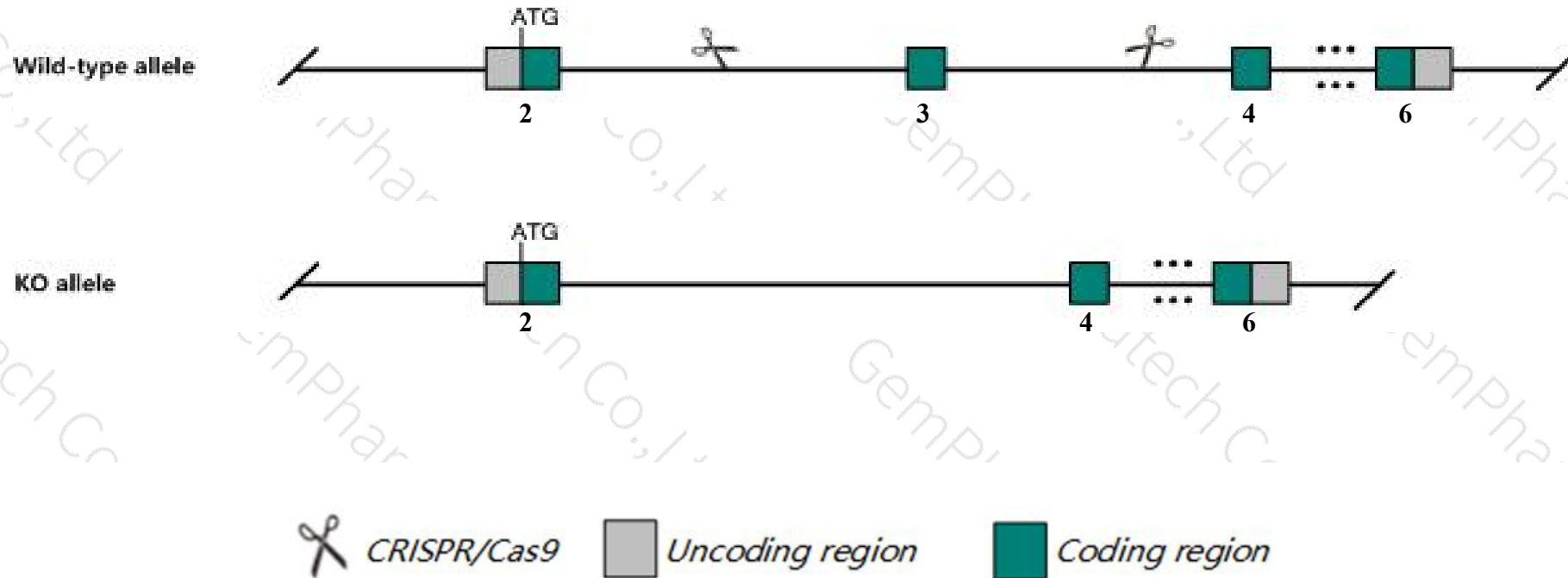
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Myoz2* gene. The schematic diagram is as follows:



- The *Myoz2* gene has 5 transcripts. According to the structure of *Myoz2* gene, exon3 of *Myoz2-201* (ENSMUST00000029761.13) transcript is recommended as the knockout region. The region contains 170bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Myoz2* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous null mutants show an excess of skeletal muscle fibers and chronically activated hypertrophic gene program despite the absence of hypertrophy. However, stressed null mutants do form cardiac hypertrophy.
- The *Myoz2* gene is located on the Chr3. 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)

Myoz2 myozenin 2 [Mus musculus (house mouse)]

Gene ID: 59006, updated on 31-Jan-2019

Summary



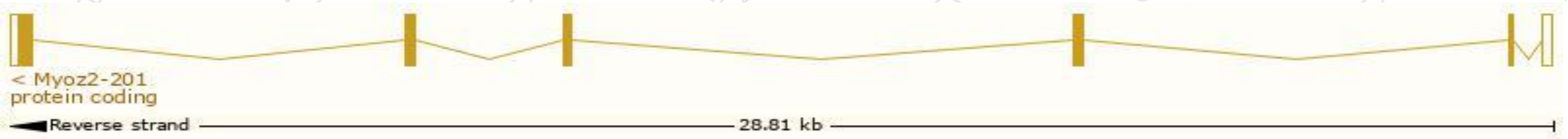
Official Symbol	Myoz2 provided by MGI
Official Full Name	myozenin 2 provided by MGI
Primary source	MGI:MGI:1913063
See related	Ensembl:ENSMUSG00000028116
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1110012124Rik, Fatz-2, Myozl2
Expression	Restricted expression toward heart adult (RPKM 172.8) See more
Orthologs	human all

Transcript information (Ensembl)

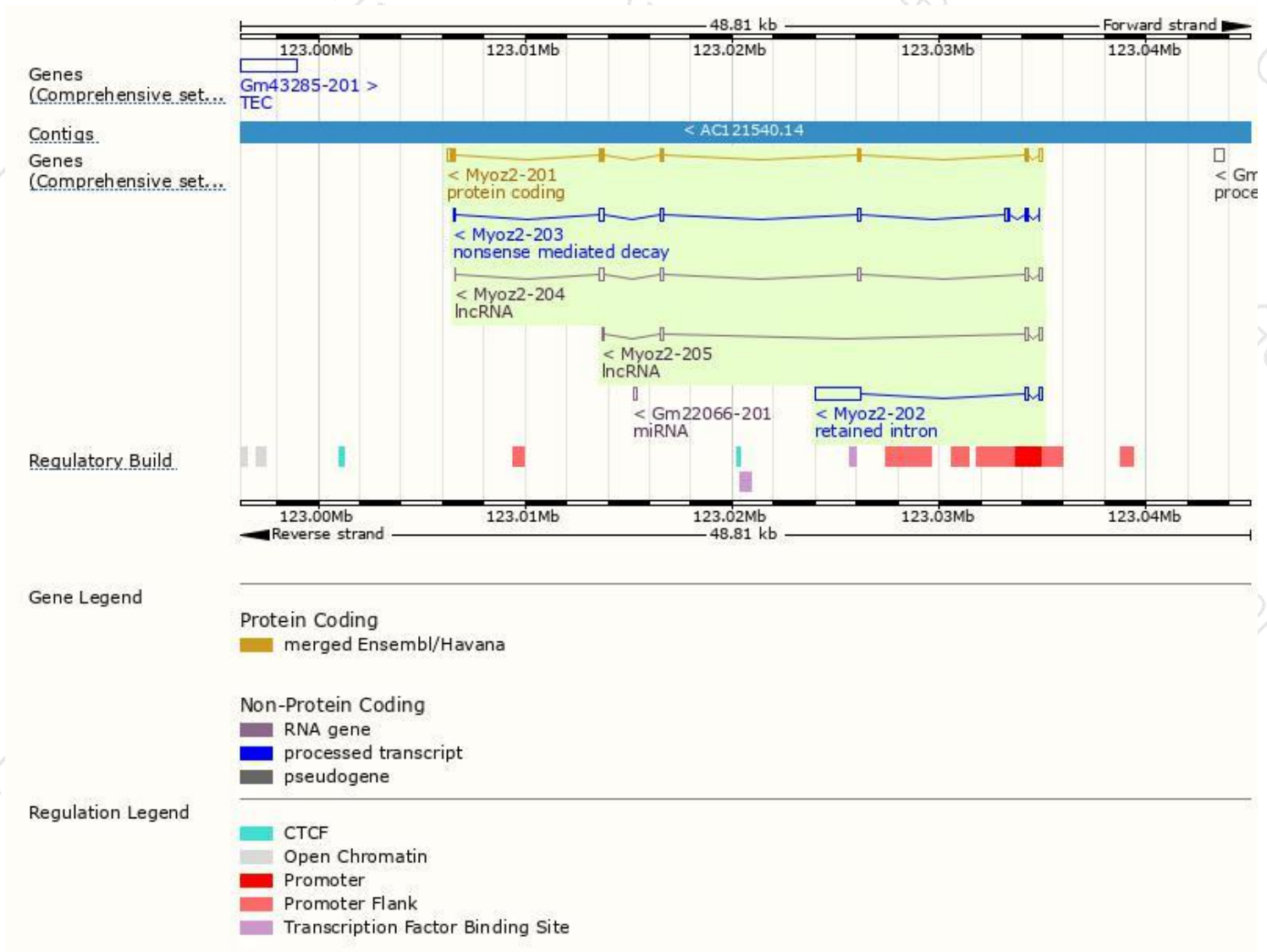
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Myoz2-201	ENSMUST00000029761.13	1181	264aa	Protein coding	CCDS17816	Q9JJW5	TSL:1 GENCODE basic APPRIS P1
Myoz2-203	ENSMUST00000141588.7	871	37aa	Nonsense mediated decay	-	D6RGM5	TSL:5
Myoz2-202	ENSMUST00000140231.2	2412	No protein	Retained intron	-	-	TSL:1
Myoz2-204	ENSMUST00000143464.5	824	No protein	lncRNA	-	-	TSL:5
Myoz2-205	ENSMUST00000200514.4	434	No protein	lncRNA	-	-	TSL:3

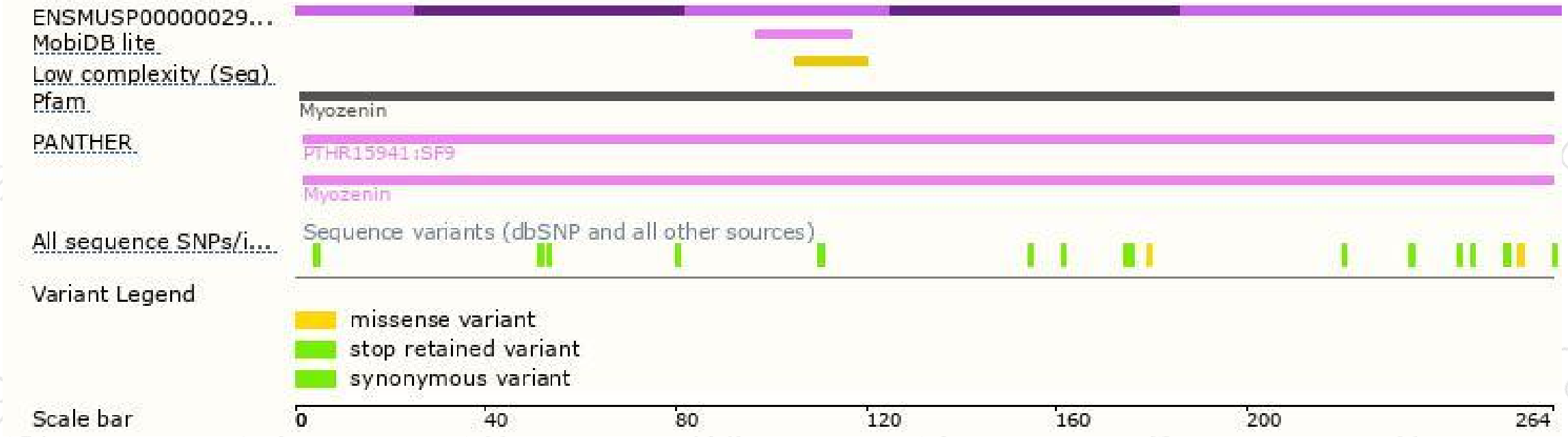
The strategy is based on the design of *Myoz2-201* transcript,The transcription is shown below



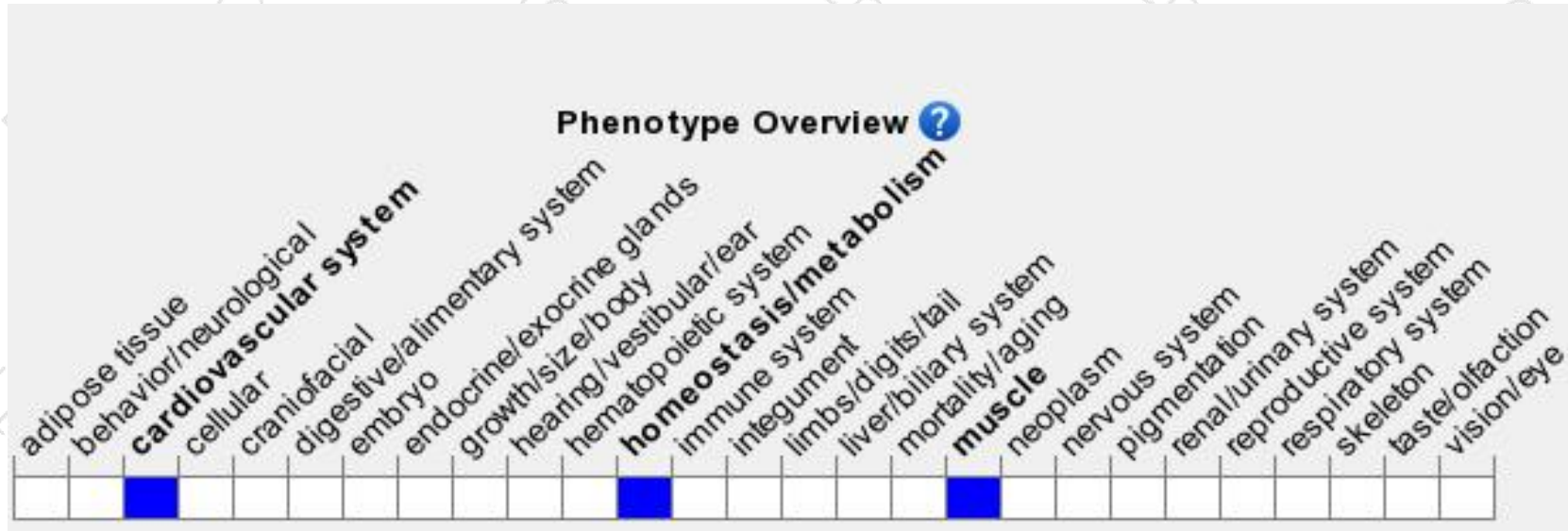
Genomic location distribution



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 mutants show an excess of skeletal muscle fibers and chronically activated hypertrophic gene program despite the absence of hypertrophy. However, stressed null mutants do form cardiac hypertrophy.

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

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