Myoz1 Cas9-KO Strategy

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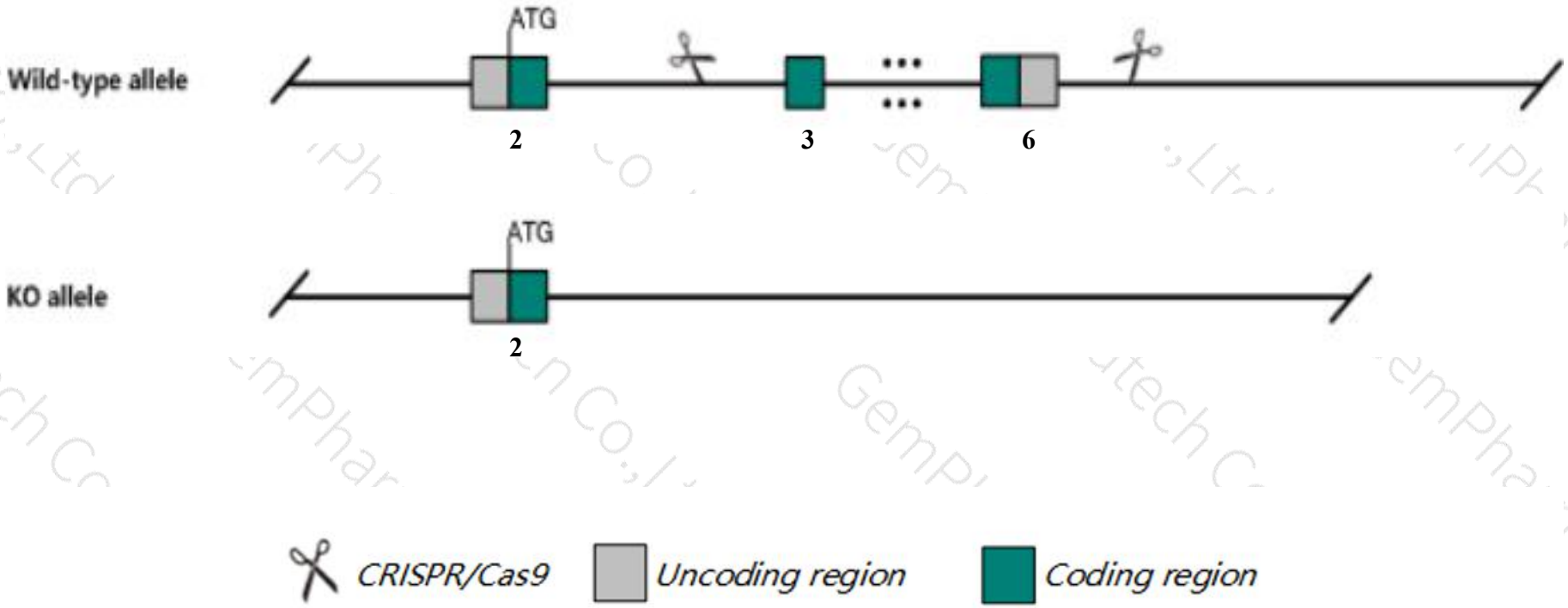
Project Overview

Project Name	***Myoz1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Myoz1* gene. The schematic diagram is as follows:



Technical routes

➢ The *Myoz1* gene has 4 transcripts. According to the structure of *Myoz1* gene, exon3-exon6 of *Myoz1-201* (ENSMUST00000090469.7) 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 *Myoz1* gene. The brief process is as follows: CRISPR/Cas9 system wer

Notice

➢ According to the existing MGI data,Mice homozygous for a knock-out allele show reduced body weight and fast-twitch muscle mass, a fiber type shift toward more oxidative fibers, increased exercise capacity and calcineurin activity, and enhanced muscle regeneration after cardiotoxin injury.

➢ The *Myoz1* 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）

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Myoz1 myozenin 1 [*Mus musculus* (house mouse)]

Gene ID: 59011, updated on 12-Aug-2019

Summary

Official Symbol	Myoz1 provided by MGI
Official Full Name	myozenin 1 provided by MGI
Primary source	MGI:MGI:1929471
See related	Ensembl:ENSMUSG00000068697
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	FATZ; Myoz; AV090278; 2310001N11Rik
Expression	Biased expression in mammary gland adult (RPKM 65.7) and lung adult (RPKM 3.9) See more
Orthologs	human all

Genomic context

Location: 14; 14 A3

See Myoz1 in Genome Data Viewer

Exon count: 6

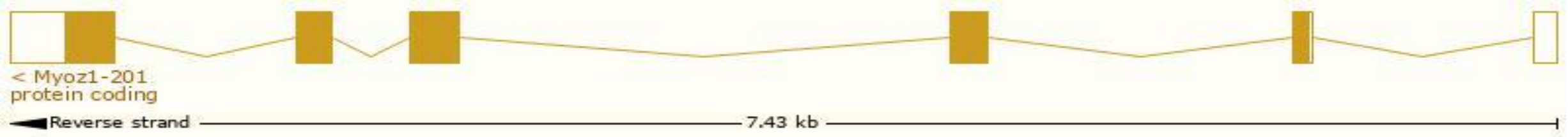
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	14	NC_000080.6 (20649102..20656540, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	14	NC_000080.5 (21468324..21475762, complement)

Transcript information（Ensembl）

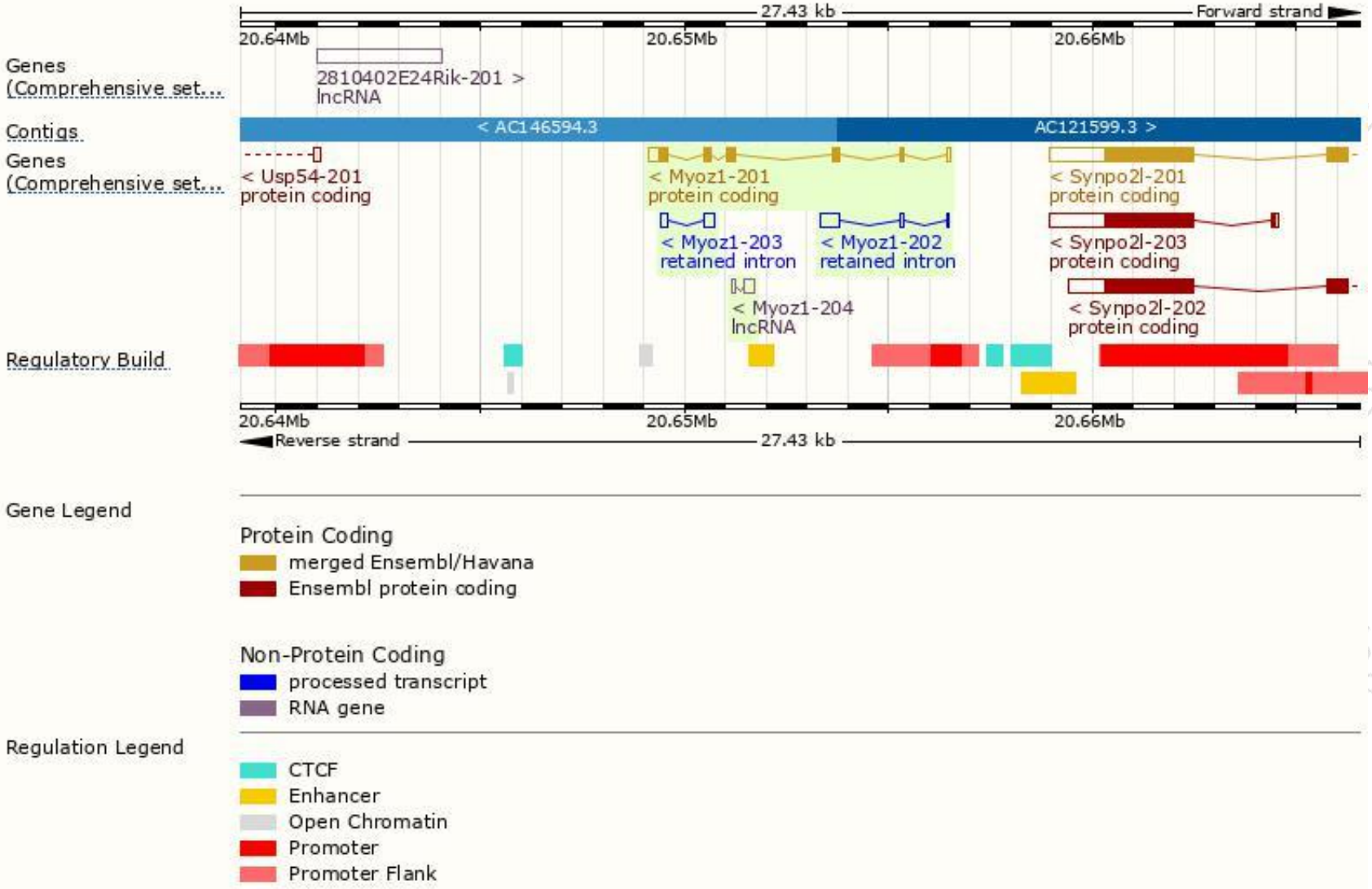
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Myoz1-201	ENSMUST00000090469.7	1289	296aa	Protein coding	CCDS36819	Q9JK37	TSL:1 GENCODE basic APPRIS P1
Myoz1-202	ENSMUST00000224436.1	607	No protein	Retained intron	-	-	
Myoz1-203	ENSMUST00000224472.1	405	No protein	Retained intron	-	-	
Myoz1-204	ENSMUST00000225231.1	346	No protein	lncRNA	-	-	

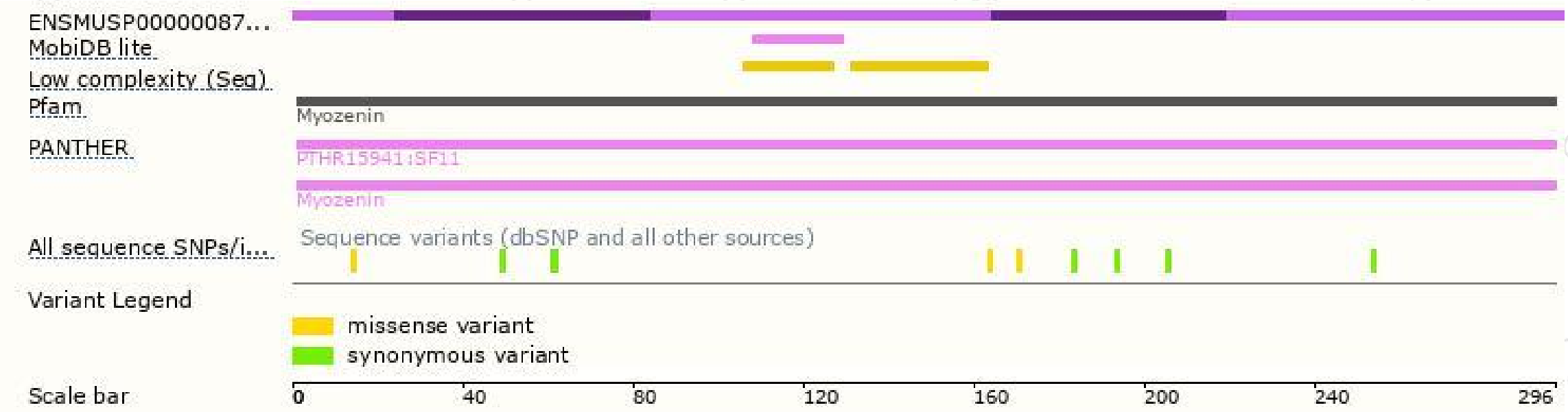
The strategy is based on the design of *Myoz1-201* transcript,The transcription is shown below



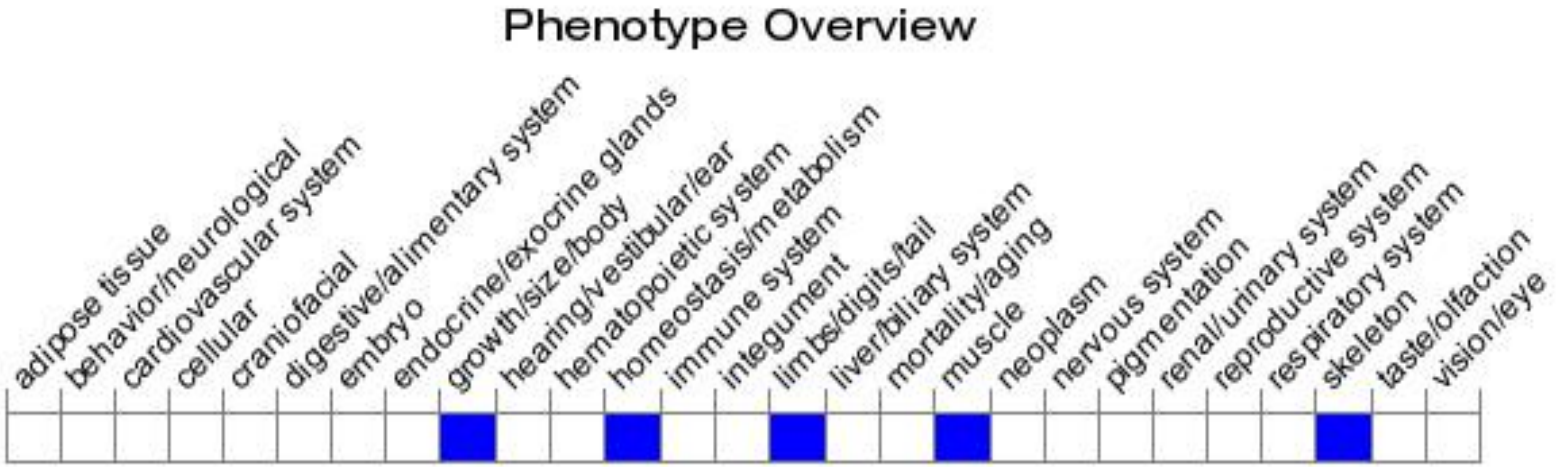
Genomic location distribution



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/).

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

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