Myog Cas9-KO Strategy

Designer:Fengjuan Wang

Reviewer:Shilei Zhu

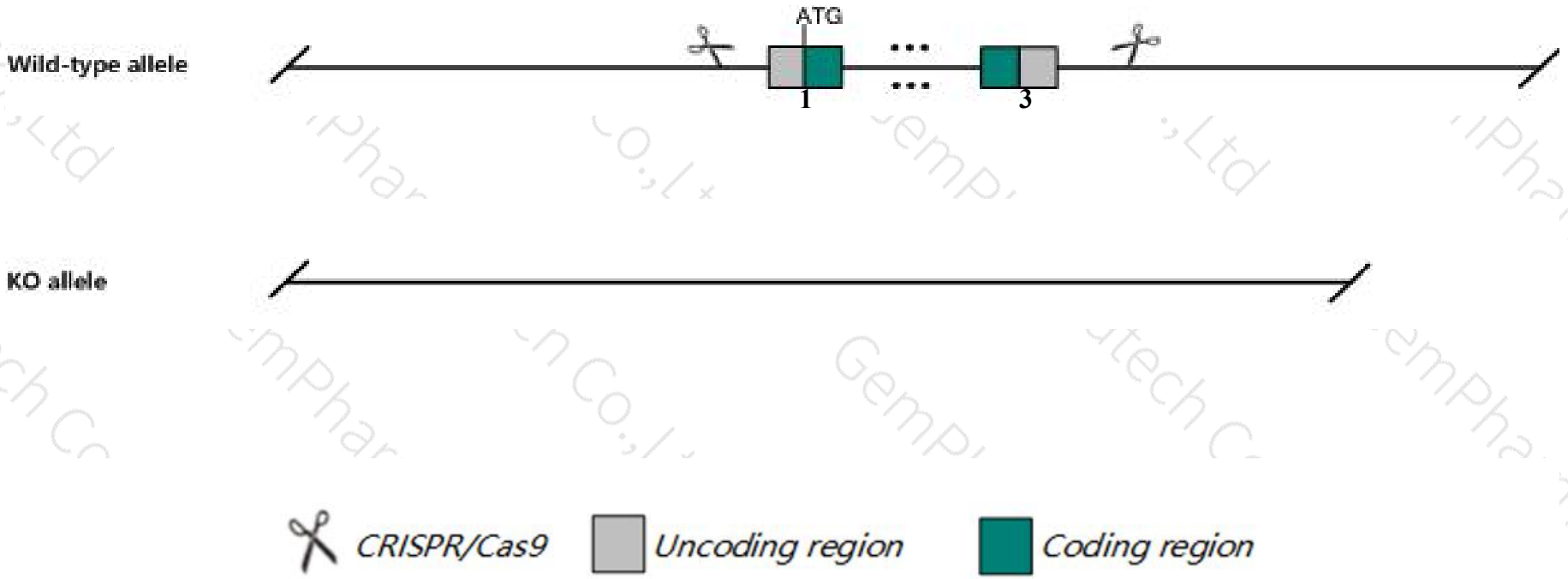
Design Date:2020-2-27

Project Overview

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

Knockout strategy

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



Technical routes

➢ The *Myog* gene has 1 transcript. According to the structure of *Myog* gene, exon1-exon3 of *Myog-201* (ENSMUST00000027730.5) 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 *Myog* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

- According to the existing MGI data,Homozygotes for targeted null mutations exhibit a severe reduction in muscle mass associated with delayed primary myogenesis and very little secondary myofiber formation, defects of the thoracic skeleton, and perinatal death.

- The *Myog* gene is located on the Chr1. 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）

集萃药康 GemPharmatech

Myog myogenin [Mus musculus (house mouse)]

Gene ID: 17928, updated on 9-Apr-2019

Summary

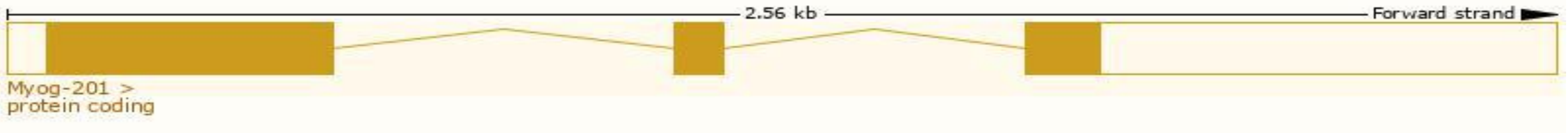
Official Symbol	Myog provided by MGI
Official Full Name	myogenin provided byMGI
Primary source	MGI:MGI:97276
See related	Ensembl:ENSMUSG00000026459
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	MYF4, bHLHc3, myo
Expression	Biased expression in limb E14.5 (RPKM 55.9), CNS E11.5 (RPKM 6.5) and 1 other tissueSee more
Orthologs	human all

Transcript information（Ensembl）

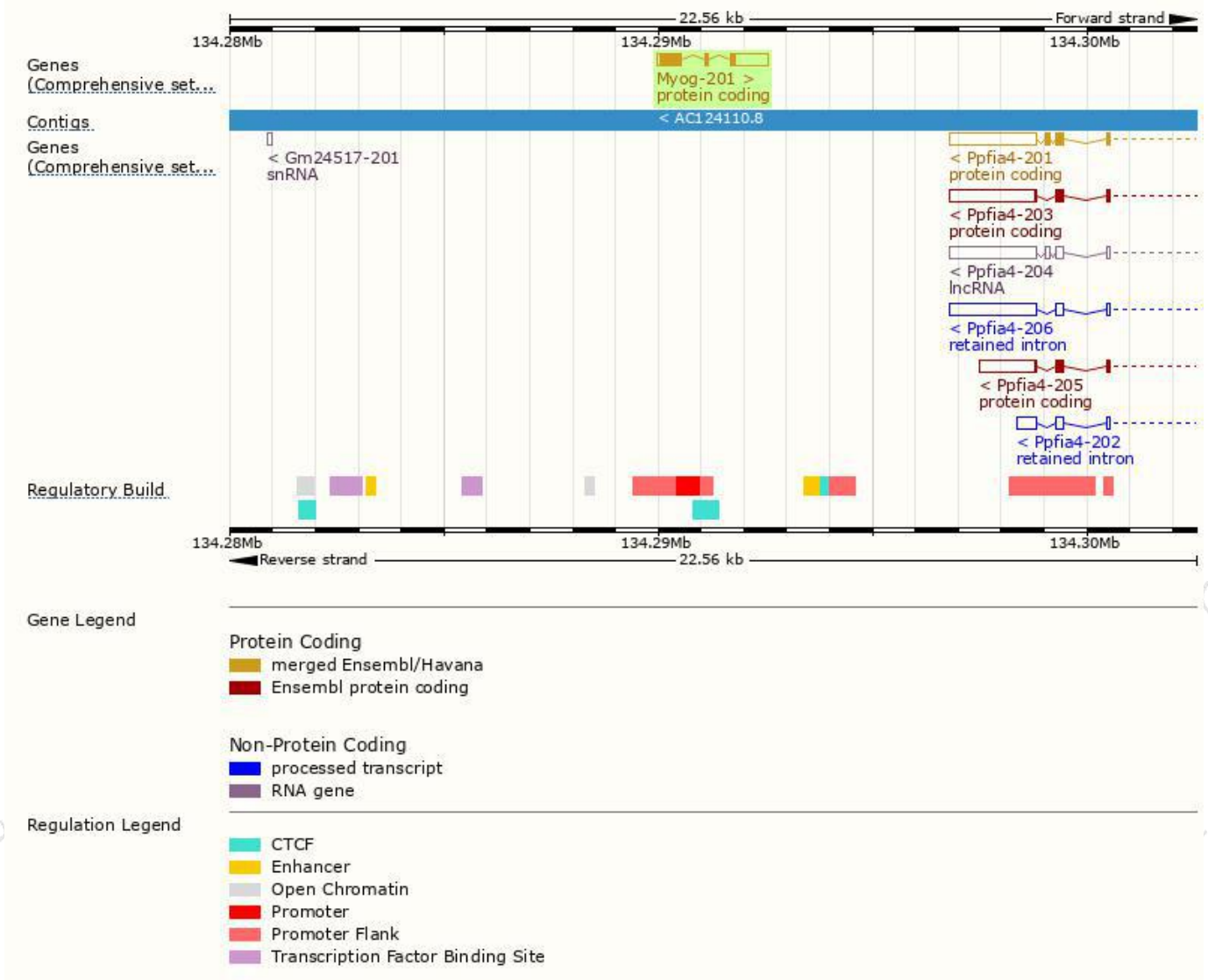
The gene has 1 transcript,and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Myog-201	ENSMUST00000027730.5	1495	224aa	Protein coding	CCDS15306	P12979	TSL:1 GENCODE basic APPRIS P1

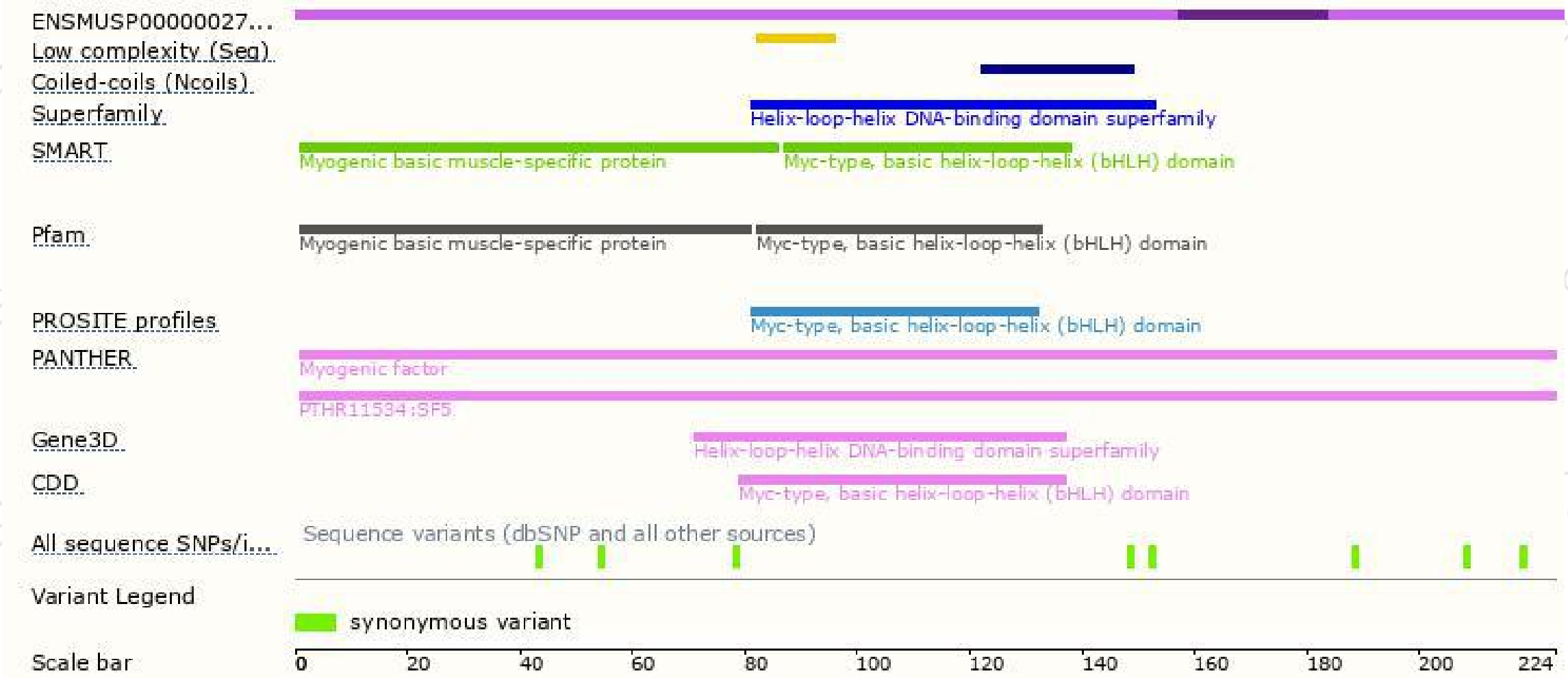
The strategy is based on the design of *Myog-201* transcript,The transcription is shown below



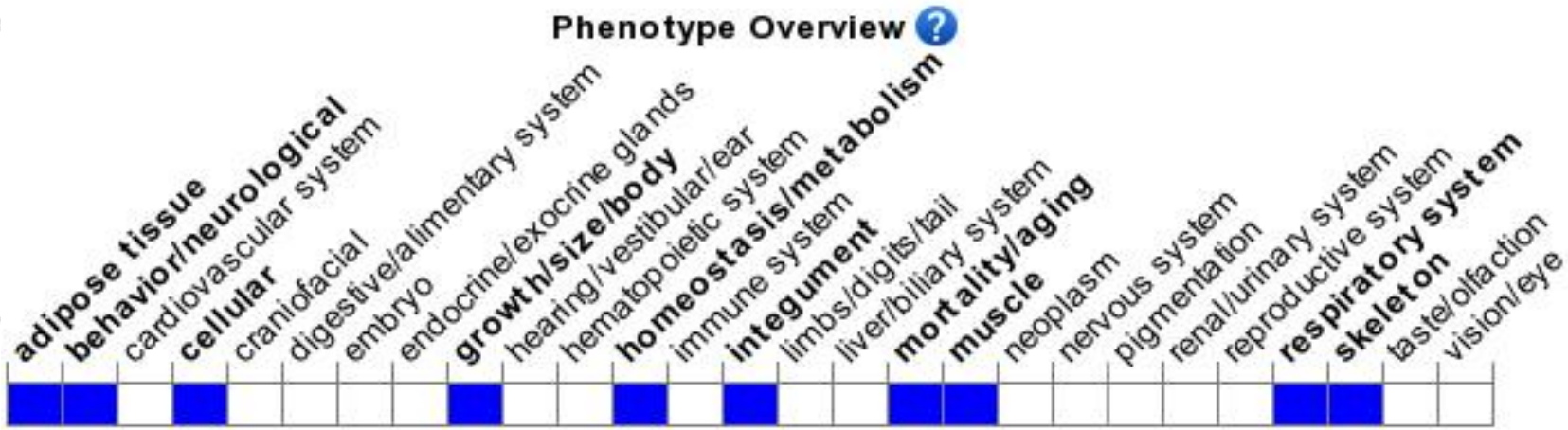
Genomic location distribution



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,Homozygotes for targeted null mutations exhibit a severe reduction in muscle mass associated with delayed primary myogenesis and very little secondary myofiber formation, defects of the thoracic skeleton, and perinatal death.

集萃药康
GemPharmatech

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

Tel: 400-9660890

集萃药康生物科技
GemPharmatech Co.,Ltd