Mef2b Cas9-KO Strategy

Designer: Xueting Zhang
Design Date: 2019-7-29

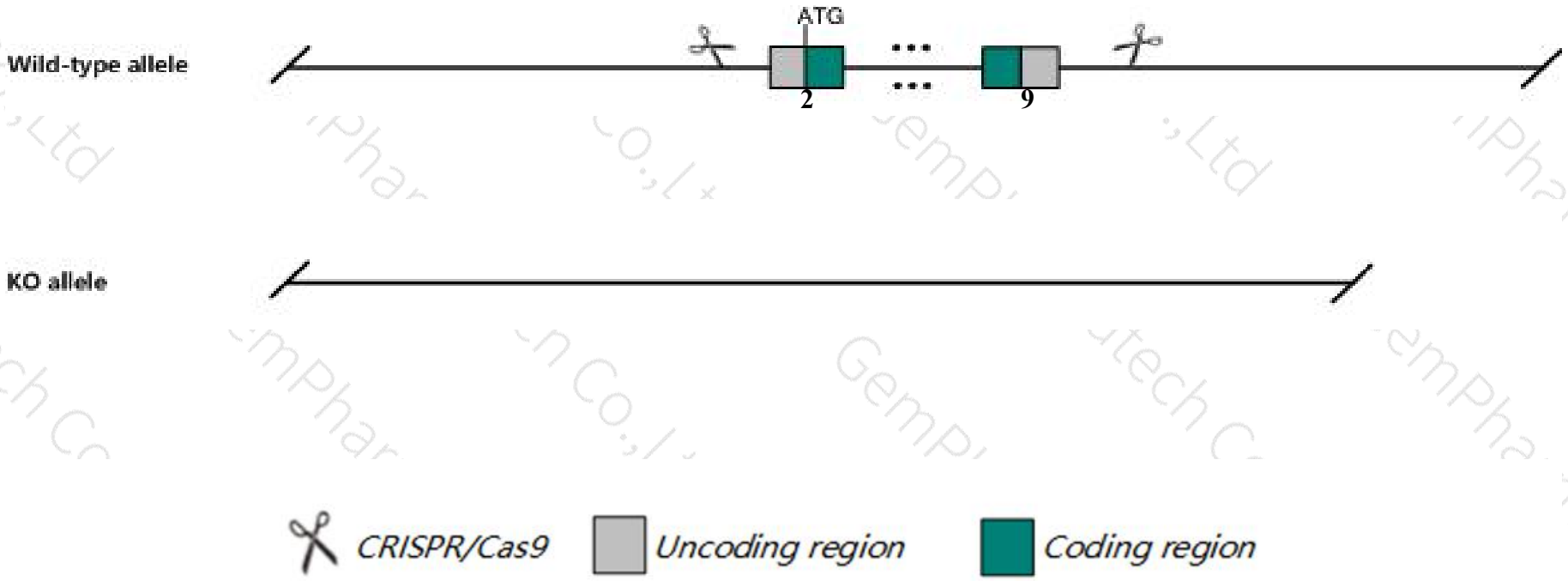
集萃药康 GemPharmatech

Project Overview

Project Name	***Mef2b***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Mef2b* gene. The schematic diagram is as follows:



Technical routes

集萃药康 GemPharmatech

- The *Mef2b* gene has 5 transcripts. According to the structure of *Mef2b* gene, exon2-exon9 of *Mef2b-204* (ENSMUST00000110146.8) 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 *Mef2b* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

- The knockout region is near to the N-terminal of *Tmem161a* gene,this strategy may influence the regulatory function of the N-terminal of *Tmem161a* gene.

- The *Mef2b* gene is located on the Chr8. 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

Mef2b myocyte enhancer factor 2B [Mus musculus (house mouse)]

Gene ID: 17259, updated on 31-Jan-2019

Summary

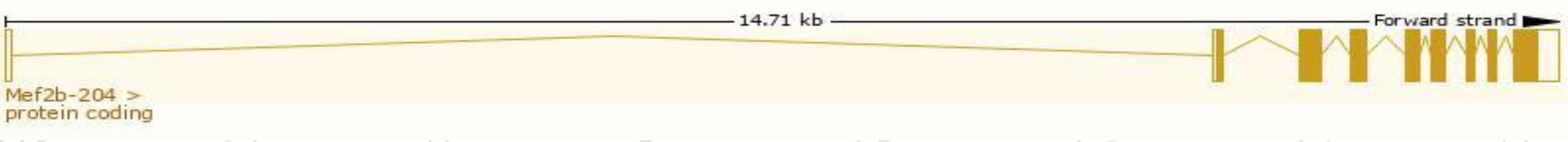
Official Symbol	Mef2b provided by MGI
Official Full Name	myocyte enhancer factor 2B provided byMGI
Primary source	MGI:MGI:104526
See related	Ensembl:ENSMUSG00000079033
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI451606
Expression	Broad expression in large intestine adult (RPKM 1.9), spleen adult (RPKM 1.7) and 20 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

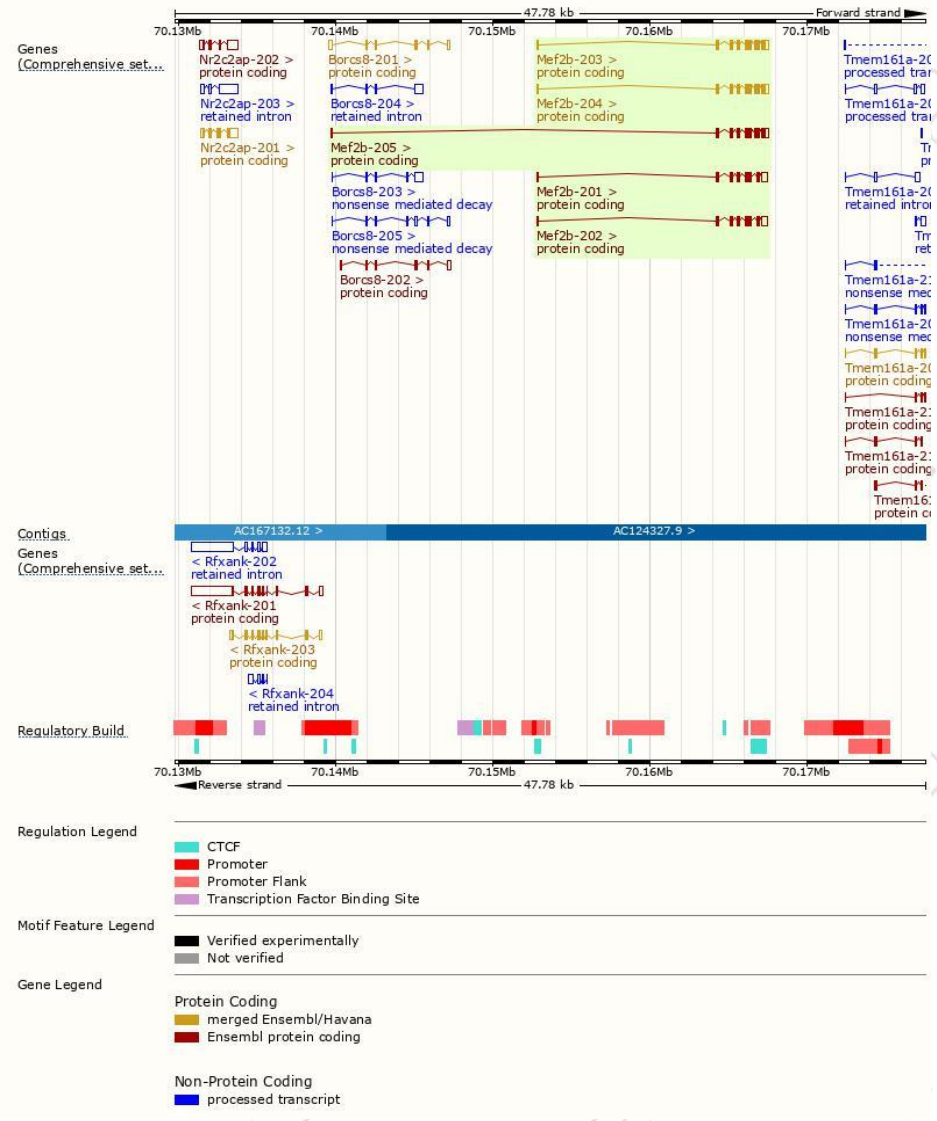
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mef2b-204	ENSMUST00000110146.8	1342	349aa	Protein coding	CCDS22361	K7N7F1	TSL:1 GENCODE basic APPRIS P3
Mef2b-205	ENSMUST00000163756.1	1337	349aa	Protein coding	CCDS22361	K7N7F1	TSL:2 GENCODE basic APPRIS P3
Mef2b-203	ENSMUST00000110143.7	1312	339aa	Protein coding	CCDS40368	Q80VR4	TSL:1 GENCODE basic APPRIS ALT2
Mef2b-202	ENSMUST00000110141.8	1253	242aa	Protein coding	-	E9Q2M6	TSL:1 GENCODE basic APPRIS ALT2
Mef2b-201	ENSMUST00000110140.1	1223	232aa	Protein coding	-	D3Z372	TSL:1 GENCODE basic APPRIS ALT2

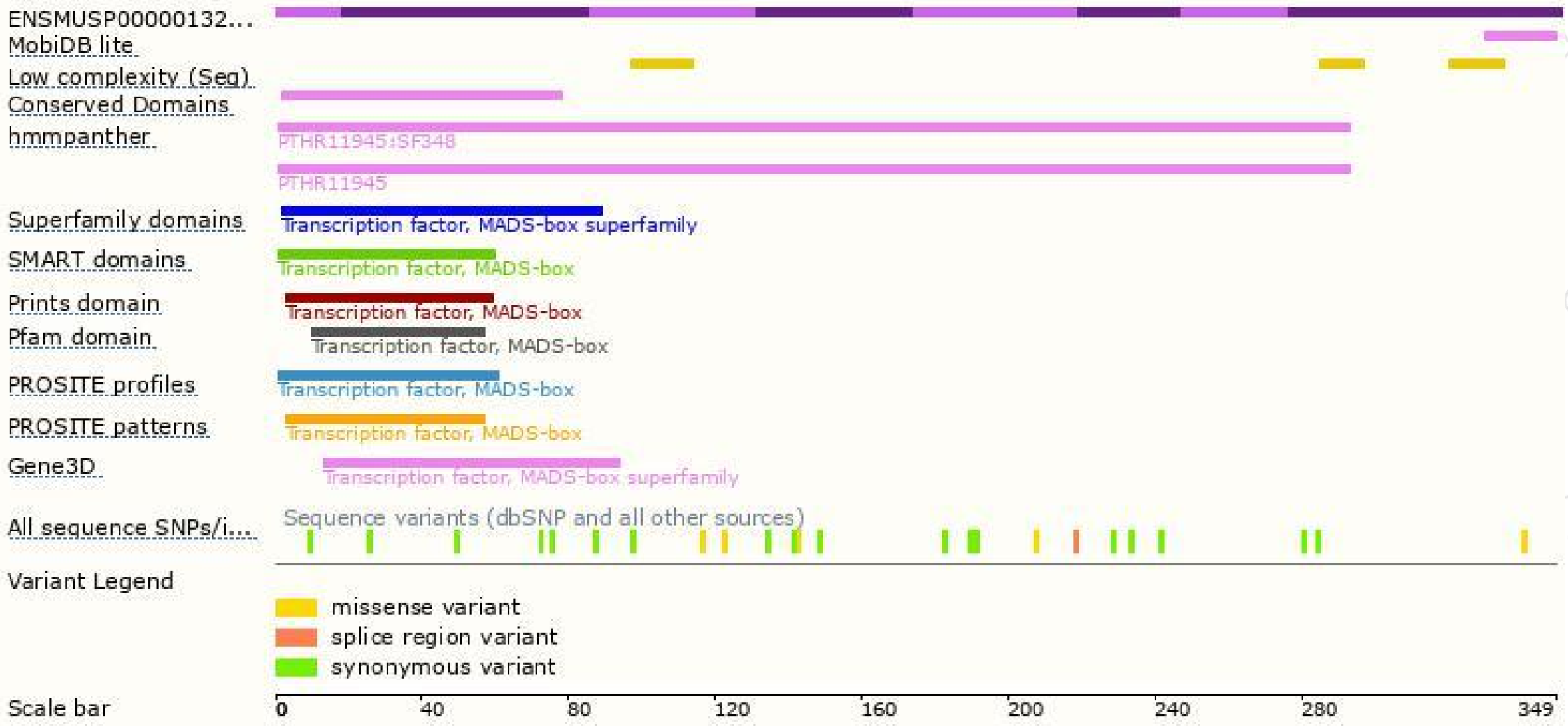
The strategy is based on the design of *Mef2b-204* transcript,The transcription is shown below



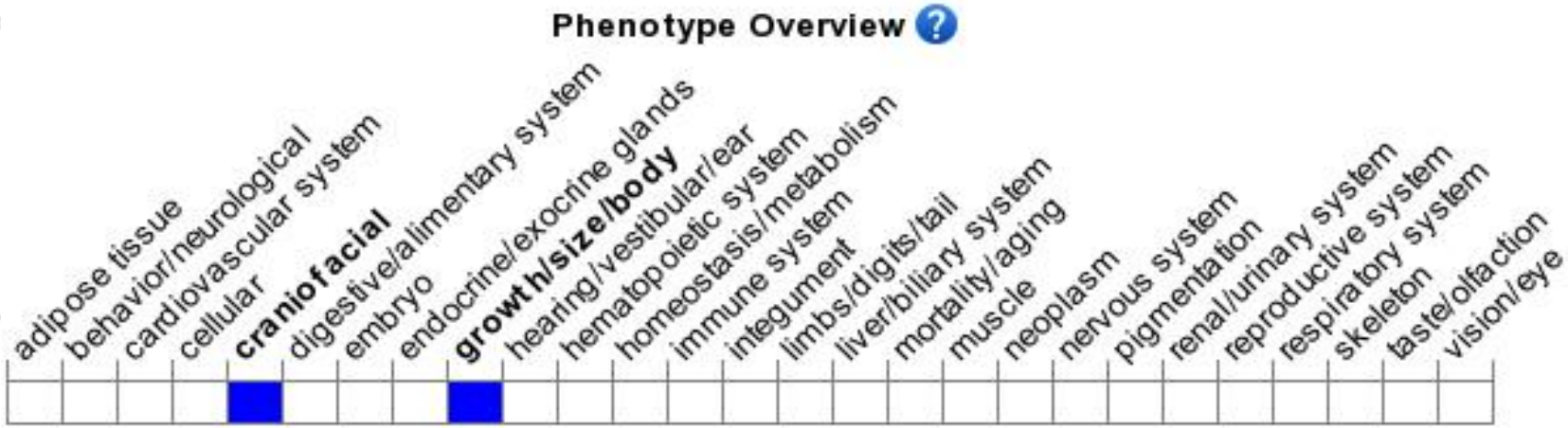
Genomic location distribution



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/).

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