

Mafa Cas9-KO Strategy

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Reviewer:

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Project Overview

Project Name

Mafa

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Mafa* gene has 1 transcript. According to the structure of *Mafa* gene, exon1 of *Mafa-201* (ENSMUST00000062002.5) 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 *Mafa* gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, Homozygous mutant mice exhibit glucose intolerance and develop diabetes mellitus. Glucose-stimulated insulin secretion is severely impaired and mutant mice display pancreatic islet abnormalities as they age.
- The *Mafa* gene is located on the Chr15. 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)

Mafa v-maf musculoaponeurotic fibrosarcoma oncogene family, protein A (avian) [Mus musculus (house mouse)]

Gene ID: 378435, updated on 16-Feb-2019

Summary



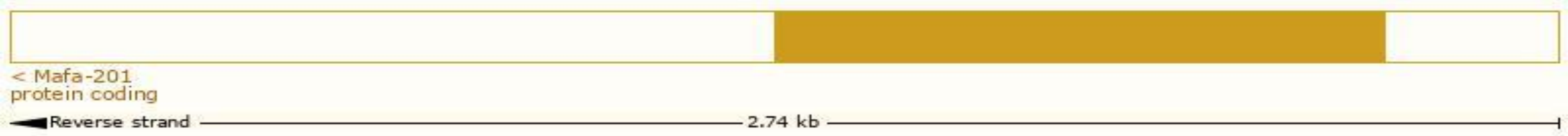
Official Symbol	Mafa provided by MGI
Official Full Name	v-maf musculoaponeurotic fibrosarcoma oncogene family, protein A (avian) provided by MGI
Primary source	MGI:MGI:2673307
See related	Ensembl:ENSMUSG000000047591
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	RIPE3b1
Orthologs	human all

Transcript information (Ensembl)

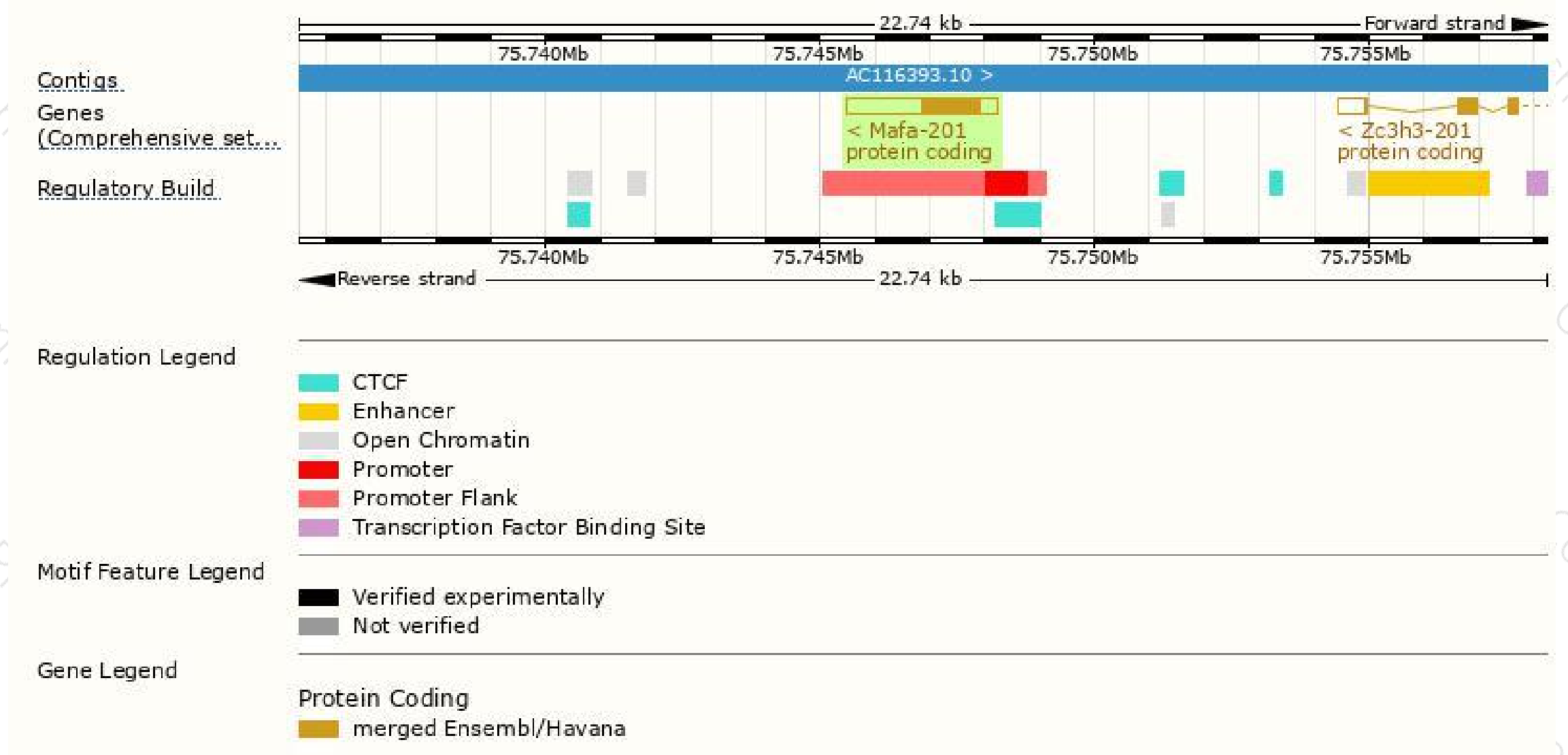
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mafa-201	ENSMUST00000062002.5	2739	359aa	Protein coding	CCDS27549	Q8CF90	TSL:NA GENCODE basic APPRIS P1

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



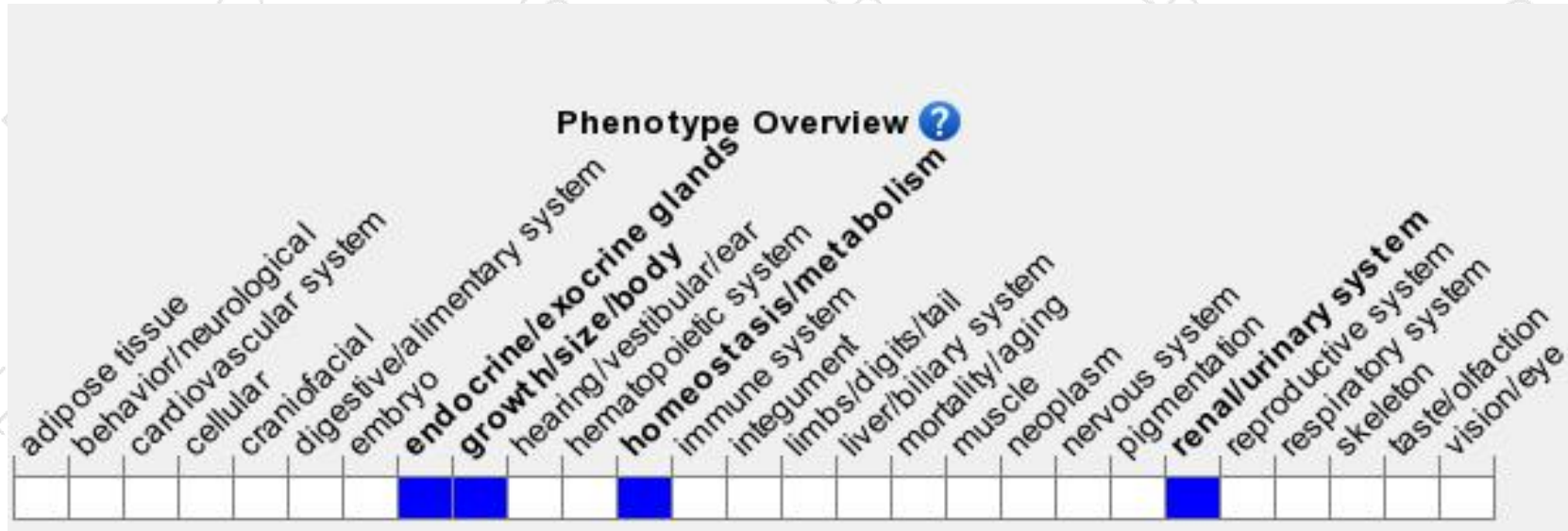
Genomic location distribution



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 mutant mice exhibit glucose intolerance and develop diabetes mellitus.

Glucose-stimulated insulin secretion is severely impaired and mutant mice display pancreatic islet abnormalities as they age.

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

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