

# ***Fabp3* Cas9-KO Strategy**

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# Project Overview

**Project Name**

***Fabp3***

**Project type**

**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fabp3* gene. The schematic diagram is as follows:



- The *Fabp3* gene has 1 transcript. According to the structure of *Fabp3* gene, exon2-exon3 of *Fabp3-201* (ENSMUST00000070532.7) transcript is recommended as the knockout region. The region contains 275bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Fabp3* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Inactivation of this locus results in impaired fatty acid utilization. Homozygous null mice show exercise intolerance and cardiac hypertrophy.
- The knockout region is near the N-terminal of *Gm10570* and C-terminal of *Zcchc17* gene, this strategy may influence the regulatory function of the N-terminal of *Gm10570* and C-terminal of *Zcchc17* gene.
- The *Fabp3* gene is located on the Chr4. 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)

## Fabp3 fatty acid binding protein 3, muscle and heart [ *Mus musculus* (house mouse) ]

Gene ID: 14077, updated on 12-Oct-2019

### Summary

- Official Symbol Fabp3 provided by MGI
- Official Full Name fatty acid binding protein 3, muscle and heart provided by MGI
- Primary source MGI:MGI:95476
- See related Ensembl:ENSMUSG00000028773
- 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 Mdgi; Fabph1; Fabph4; H-FABP; Fabph-1; Fabph-4
- Expression Biased expression in heart adult (RPKM 2334.3) and placenta adult (RPKM 178.9) [See more](#)
- Orthologs human all

### Genomic context

Location: 4 D2.2; 4 63.43 cM [See Fabp3 in Genome Data Viewer](#)

Exon count: 4

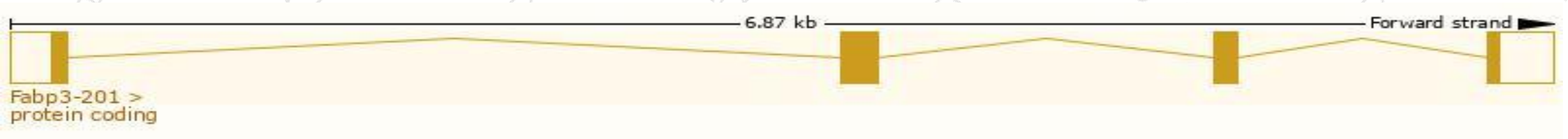
Annotation release	Status	Assembly	Chr	Location
<a href="#">108</a>	current	GRCm38.p6 ( <a href="#">GCF_000001635.26</a> )	4	NC_000070.6 (130308738..130315463)
Build 37.2	previous assembly	MGSCv37 ( <a href="#">GCF_000001635.18</a> )	4	NC_000070.5 (129986022..129992707)

# Transcript information (Ensembl)

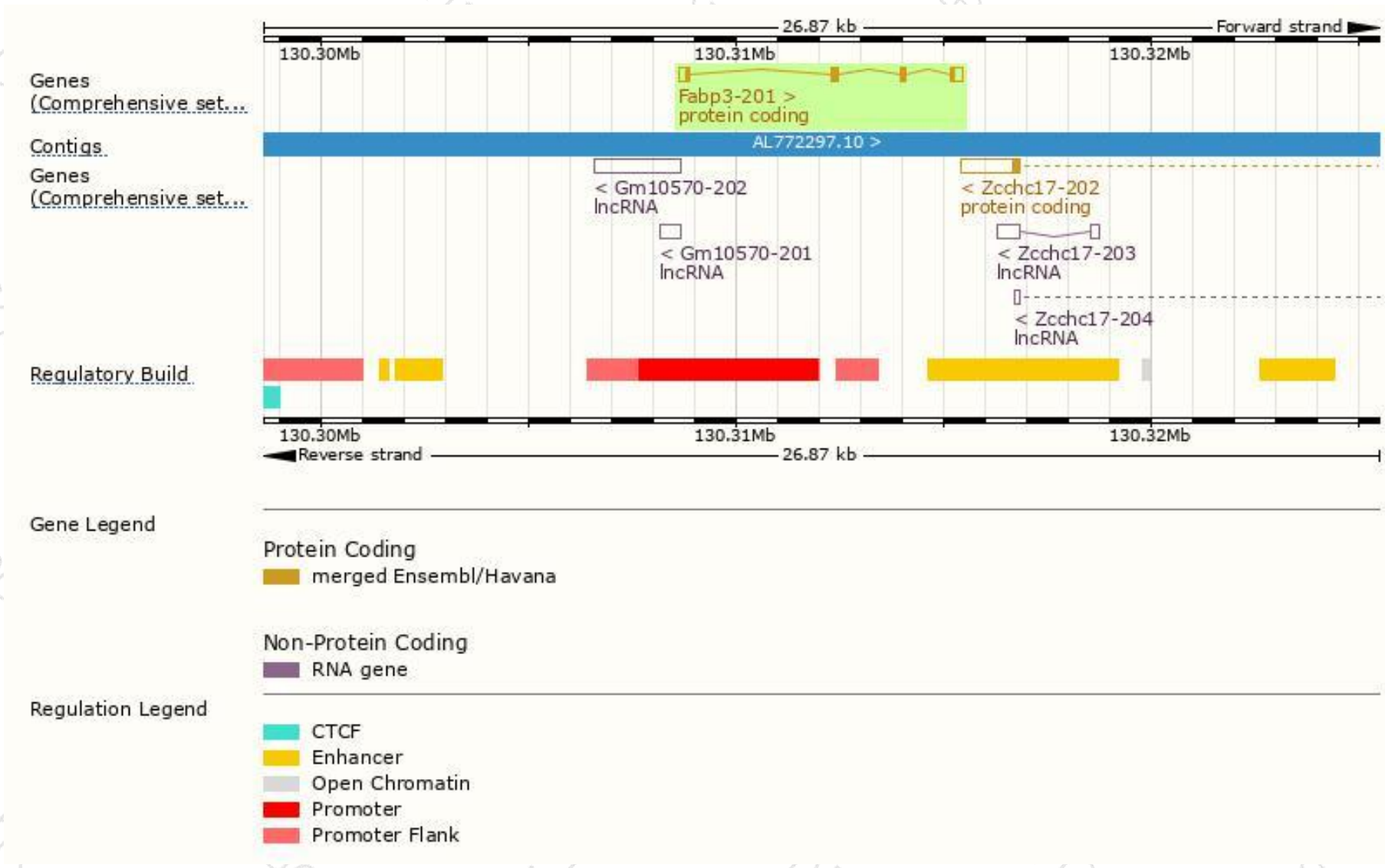
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Fabp3-201	<a href="#">ENSMUST00000070532.7</a>	823	<a href="#">133aa</a>	Protein coding	<a href="#">CCDS18709</a>	<a href="#">P11404</a> <a href="#">Q5EBJ0</a>	TSL:1 GENCODE basic APPRIS P1

The strategy is based on the design of *Fabp3-201* 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, Inactivation of this locus results in impaired fatty acid utilization. Homozygous null mice show exercise intolerance and cardiac hypertrophy.

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

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