

Igfbp1 Cas9-KO Strategy

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Reviewer:

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Design Date:

2019-10-31

Project Overview

Project Name

Igfbp1

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Igfbp1* gene. The schematic diagram is as follows:



- The *Igfbp1* gene has 1 transcript. According to the structure of *Igfbp1* gene, exon1-exon3 of *Igfbp1-201* (ENSMUST00000020704.7) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Igfbp1* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for disruptions in this gene display a grossly normal phenotype but are more susceptible to liver injury.
- The *Igfbp1* gene is located on the Chr11. 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.

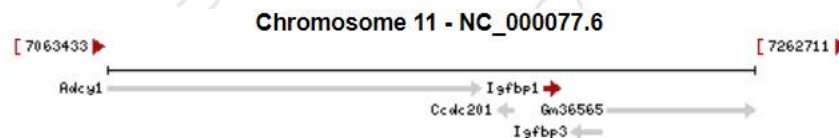
Gene information (NCBI)

Igfbp1 insulin-like growth factor binding protein 1 [*Mus musculus* (house mouse)]

Gene ID: 16006, updated on 1-Oct-2019

Summary

Official Symbol Igfbp1 provided by MGI
Official Full Name insulin-like growth factor binding protein 1 provided by MGI
Primary source [MGI:MGI:96436](#)
See related [Ensembl:ENSMUSG00000020429](#)
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
Expression Restricted expression toward liver E18 (RPKM 581.5) [See more](#)
Orthologs [human](#) [all](#)

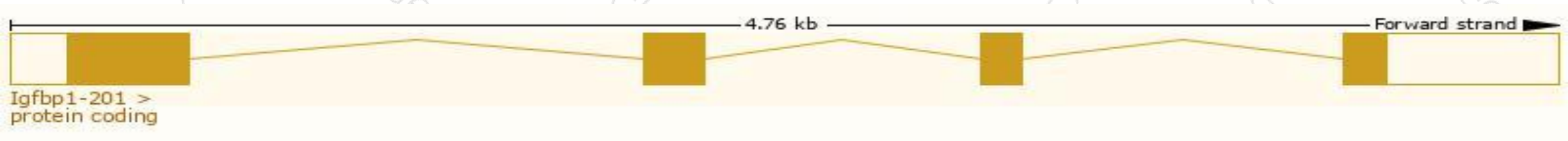


Transcript information (Ensembl)

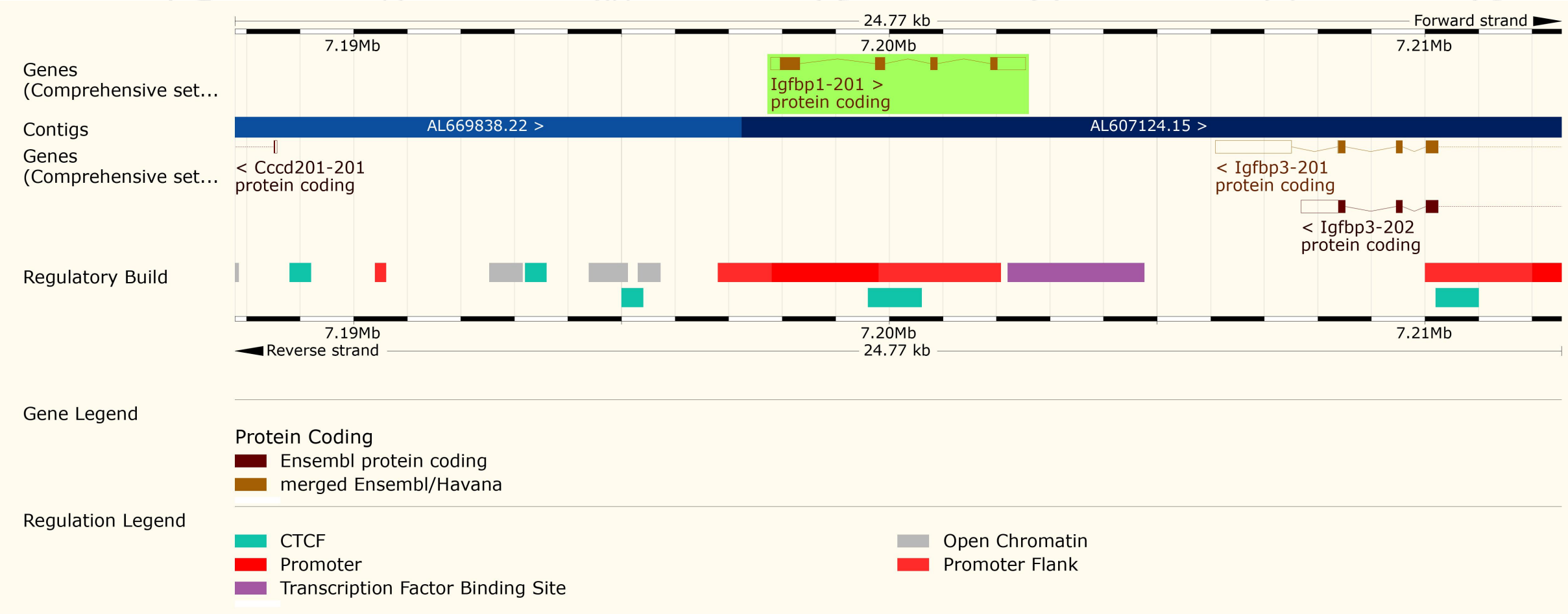
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Igfbp1-201	ENSMUST00000020704.7	1525	272aa	ENSMUSP00000020704.7	Protein coding	CCDS24427	P47876	TSL:1 GENCODE basic APPRIS P1

The strategy is based on the design of *Igfbp1-201* transcript, The transcription is shown below



Genomic location distribution

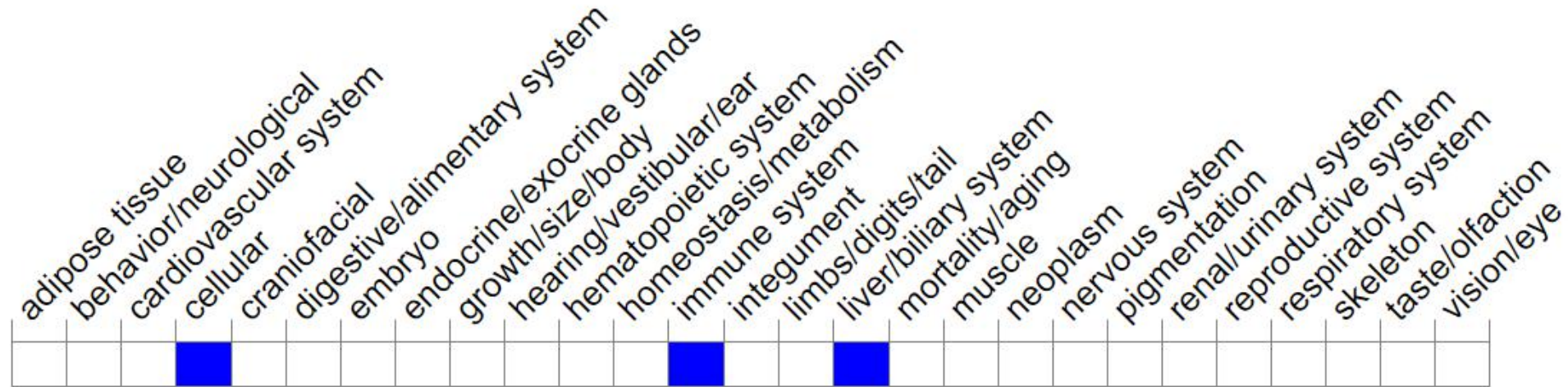


Protein domain



Mouse phenotype description(MGI)

Phenotype Overview ?



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, Mice homozygous for disruptions in this gene display a grossly normal phenotype but are more susceptible to liver injury.

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

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