

Igfbp4 Cas9-CKO Strategy

Designer:

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Project Overview

Project Name

Igfbp4

Project type

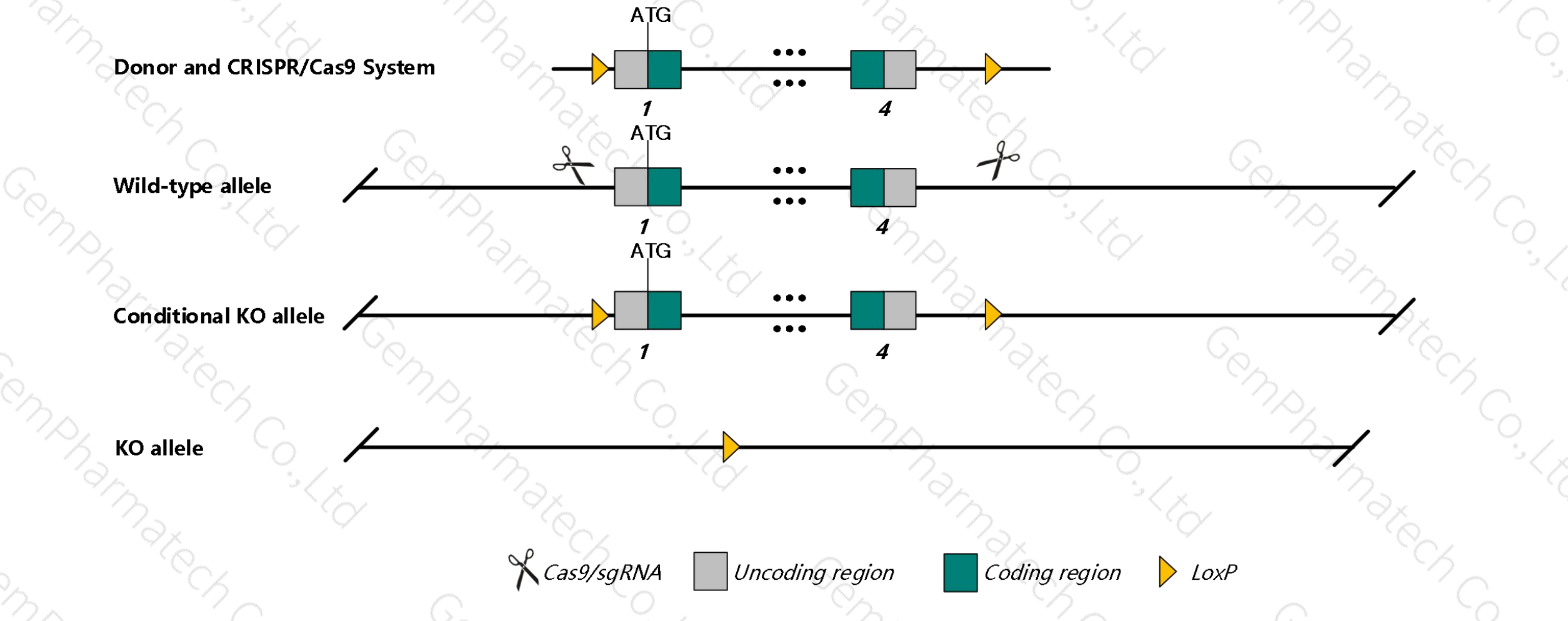
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Igfbp4* gene. The schematic diagram is as follows:



- The *Igfbp4* gene has 6 transcripts. According to the structure of *Igfbp4* gene, exon1-exon4 of *Igfbp4*-201 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 *Igfbp4* gene. The brief process is as follows: CRISPR/Cas9 system and Donor were microinjected into the fertilized eggs of C57BL/6JGpt mice. Fertilized eggs were transplanted to obtain positive F0 mice which were confirmed by PCR and sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.
- The flox mice was knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues or cell types.

- The *Igfbp4* 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 gene transcription and translation processes, all risks cannot be predicted under existing information.

Igfbp4 insulin-like growth factor binding protein 4 [*Mus musculus* (house mouse)]

Gene ID: 16010, updated on 30-Apr-2019

Summary

Official Symbol

Igfbp4 provided by MGI

Official Full Name

insulin-like growth factor binding protein 4 provided by MGI

Primary source

[MGI:MGI:96439](#)

See related

[Ensembl:ENSMUSG00000017493](#)

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

Deb2; IBP-4; IGFBP-4; AI875747

Expression

Broad expression in liver adult (RPKM 884.2), subcutaneous fat pad adult (RPKM 473.1) and 22 other tissues [See more](#)

Orthologs

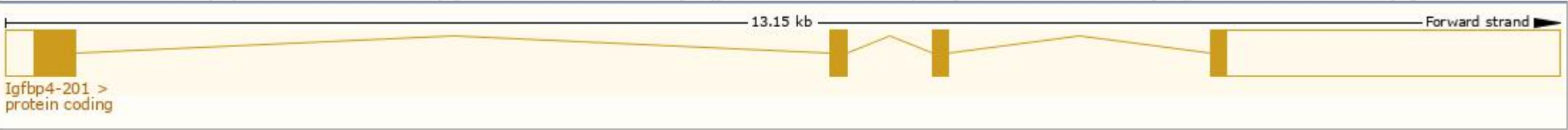
[human](#) [all](#)

Transcript information (Ensembl)

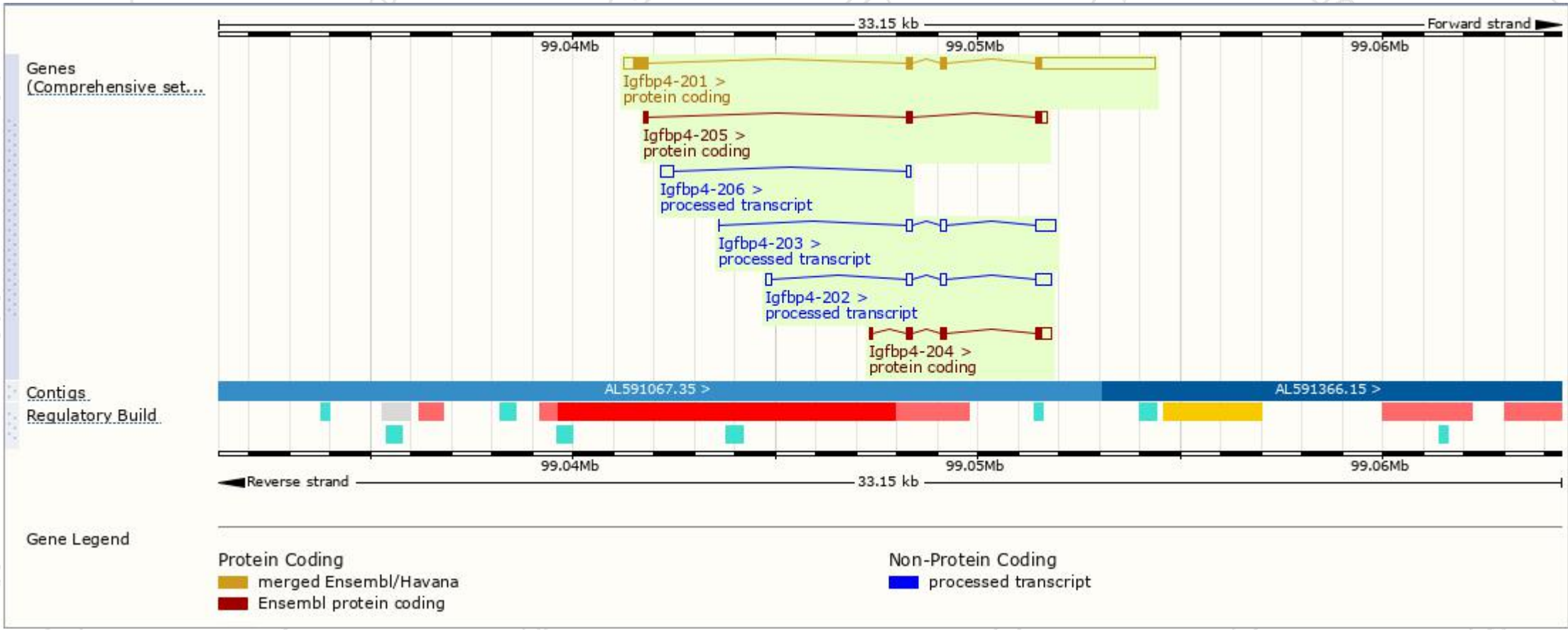
The gene has 6 transcripts, and all transcripts are shown below :

Show/hide columns (1 hidden)							Filter		
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags		
Igfbp4-201	ENSMUST00000017637.12	3831	254aa	Protein coding	CCDS25371	P47879	TSL:1	GENCODE basic	APPRIS P1
Igfbp4-204	ENSMUST00000140772.1	742	161aa	Protein coding	-	H3BLB7	TSL:2	GENCODE basic	
Igfbp4-205	ENSMUST00000177092.7	489	122aa	Protein coding	-	H3BJT2	CDS 5' incomplete	TSL:3	
Igfbp4-202	ENSMUST00000123946.1	799	No protein	Processed transcript	-	-	TSL:3		
Igfbp4-203	ENSMUST00000130530.7	785	No protein	Processed transcript	-	-	TSL:3		
Igfbp4-206	ENSMUST00000177105.1	452	No protein	Processed transcript	-	-	TSL:5		

The strategy is based on the design of *Igfbp4-201* transcript, The transcription is shown below



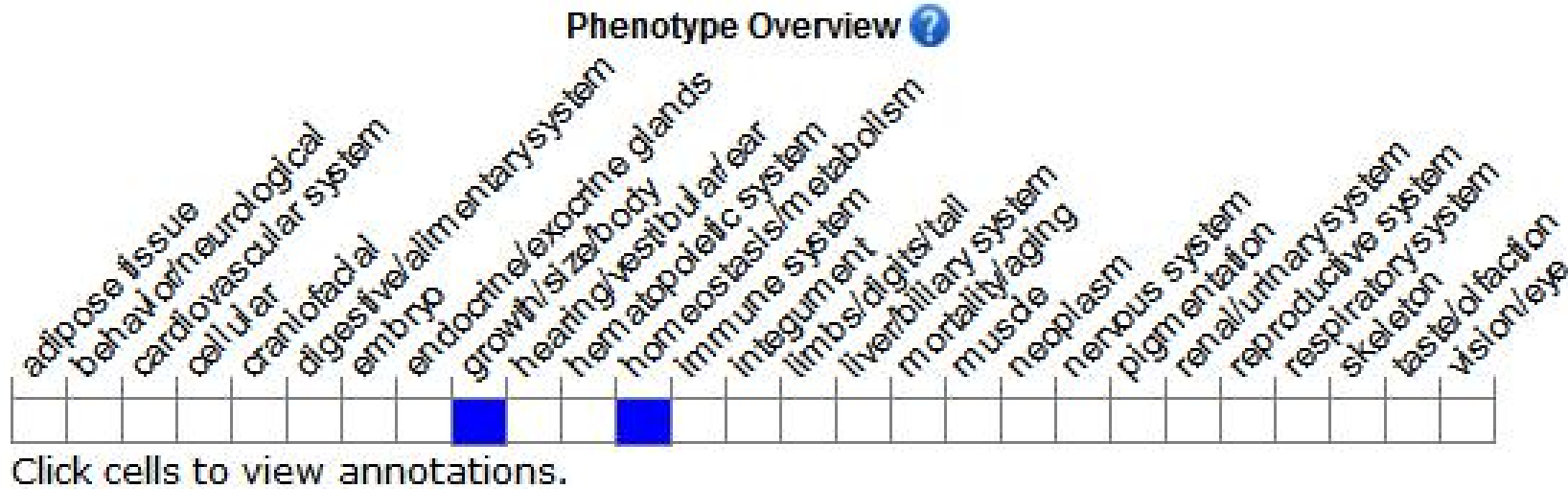
Genomic location distribution



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, Mice homozygous for a knock-out allele exhibit a similar reduction in birth and postnatal body weight, and show impaired glucose homeostasis relative to wild-type controls.

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