

Igfbp5 Cas9-CKO Strategy

Designer:

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Project Overview

Project Name

Igfbp5

Project type

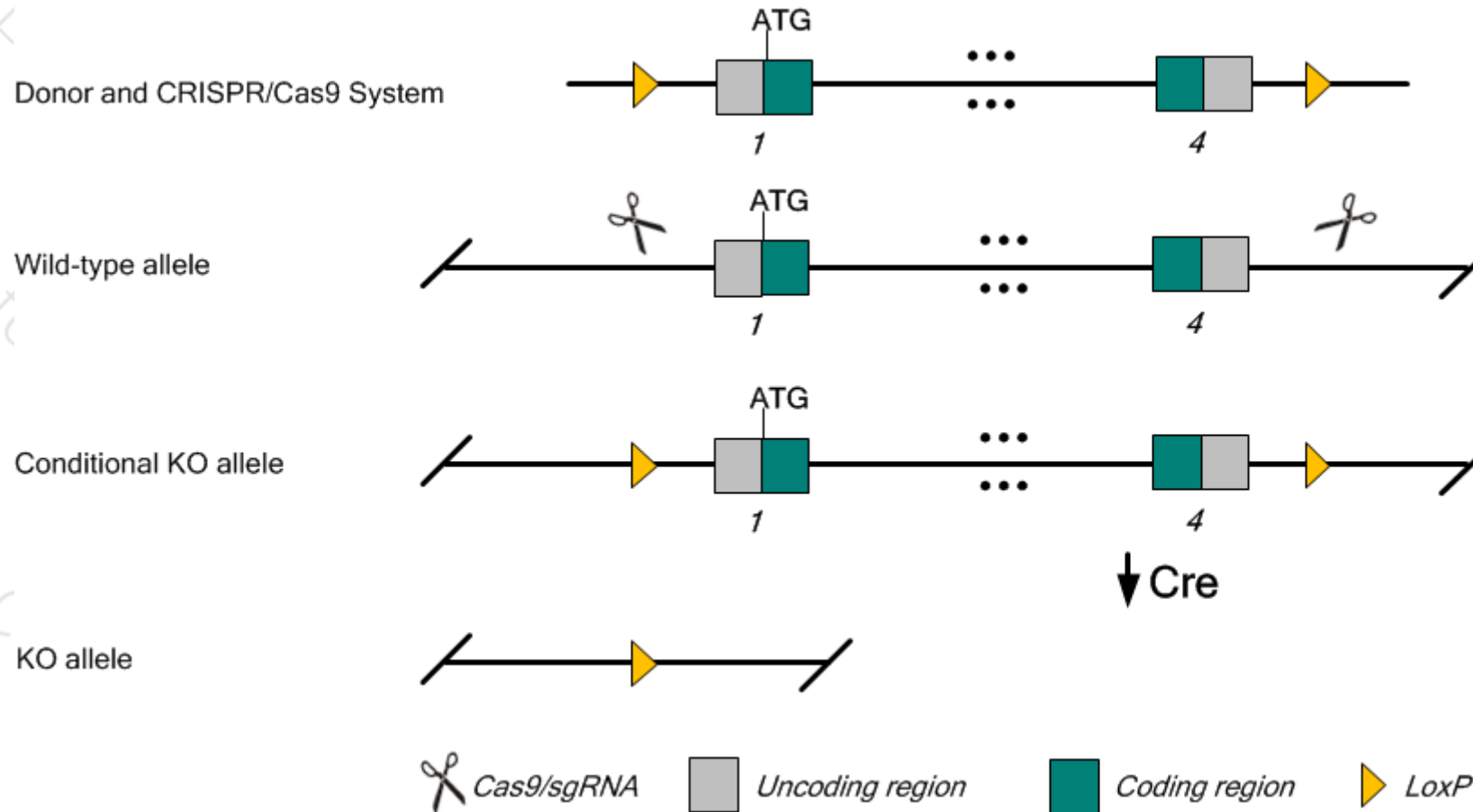
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Igfbp5* gene. The schematic diagram is as follows:



- The *Igfbp5* gene has 2 transcripts, According to the structure of *Igfbp5* gene, exon1-4 of *Igfbp5-201* transcript is recommended as the knockout region. The region contains all coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Igfbp5* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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.

- According to the existing MGI data , Mice homozygous for one knock-out allele exhibit normal body weight and normal glucose homeostasis relative to wild-type controls.
- The *Igfbp5* gene is located in the Chr1. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Igfbp5 insulin-like growth factor binding protein 5 [*Mus musculus* (house mouse)]

Gene ID: 16011, updated on 31-Jan-2019

Summary

Official Symbol	Igfbp5 provided by MGI
Official Full Name	insulin-like growth factor binding protein 5 provided by MGI
Primary source	MGI:MGI:96440
See related	Ensembl:ENSMUSG00000026185
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	IGFBP-5; AI256729; AW208790; IGFBP-5P
Expression	Broad expression in limb E14.5 (RPKM 121.4), kidney adult (RPKM 105.9) and 20 other tissues See more
Orthologs	human all

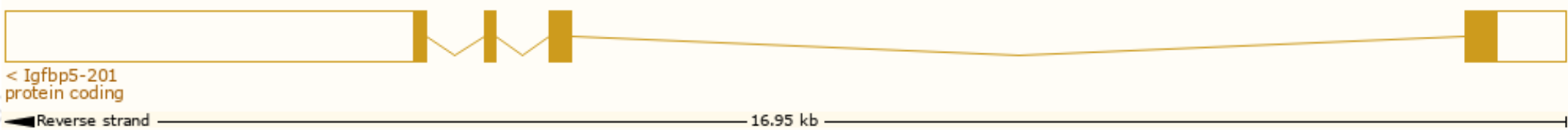
Transcript information (Ensembl)



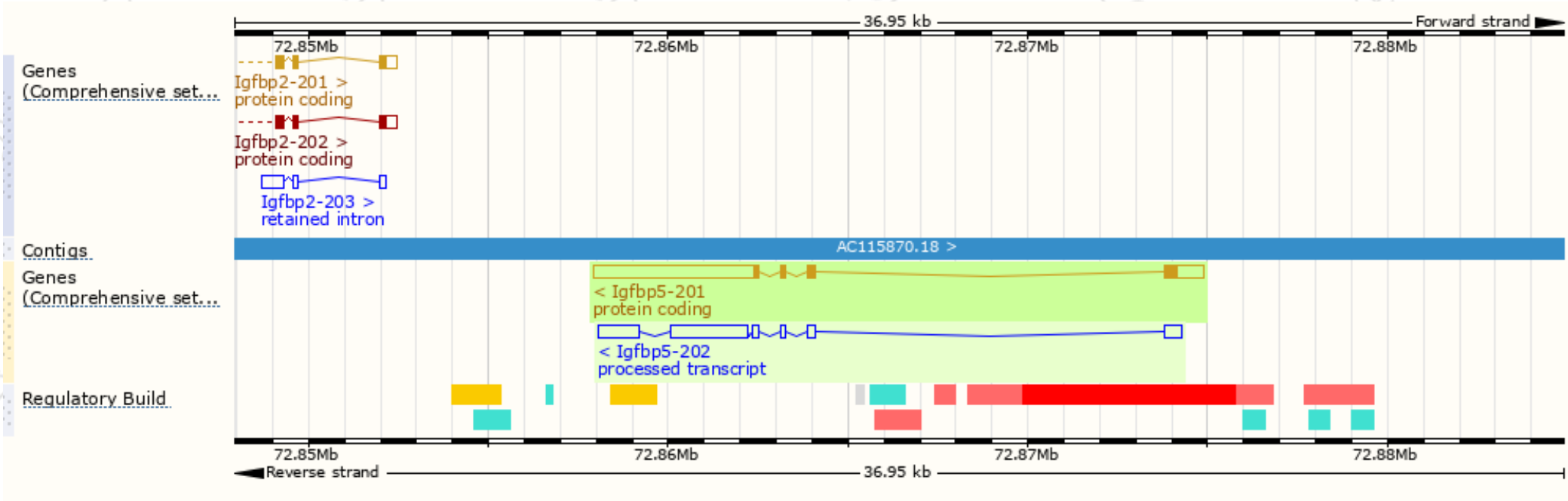
The gene has 2 transcripts, and all transcripts are shown below :

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags
Igfbp5-201	ENSMUST00000027377.8	6006	271aa	Protein coding	CCDS15037	Q07079 Q3UQV0	NM_010518 NP_034648	TSL:1 GENCODE basic APPRIS P1
Igfbp5-202	ENSMUST00000137339.1	4281	No protein	Processed transcript	-	-	-	TSL:5

The strategy is based on the design of *Igfbp5-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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