

# ***Igfbp5 Cas9-KO Strategy***

**Designer:**

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# Project Overview



**Project Name**

***Igfbp5***

**Project type**

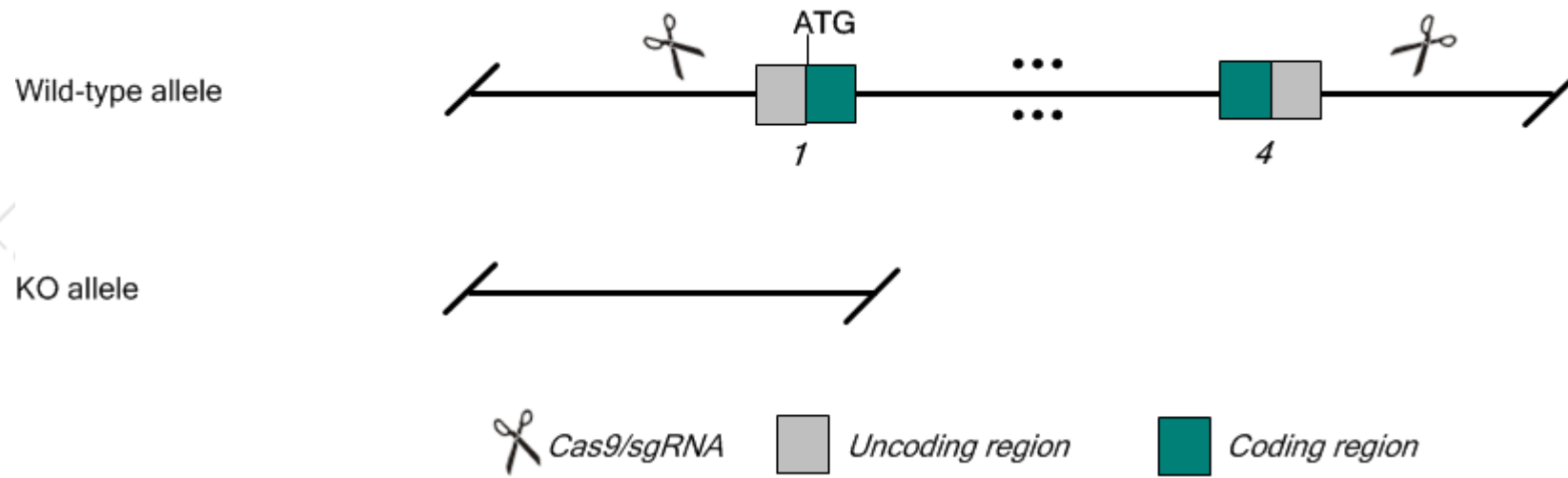
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

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



# Technical routes

- 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. Cas9 and sgRNA 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.

- 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

<b>Official Symbol</b>	Igfbp5 provided by <a href="#">MGI</a>
<b>Official Full Name</b>	insulin-like growth factor binding protein 5 provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:96440</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000026185</a>
<b>Gene type</b>	protein coding
<b>RefSeq status</b>	VALIDATED
<b>Organism</b>	<a href="#">Mus musculus</a>
<b>Lineage</b>	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
<b>Also known as</b>	IGFBP-5; AI256729; AW208790; IGFBP-5P
<b>Expression</b>	Broad expression in limb E14.5 (RPKM 121.4), kidney adult (RPKM 105.9) and 20 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

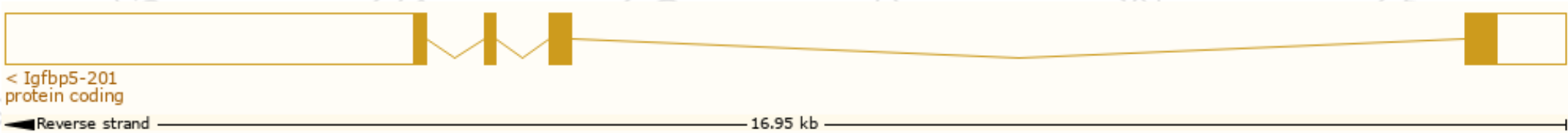
# Transcript information (Ensembl)



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

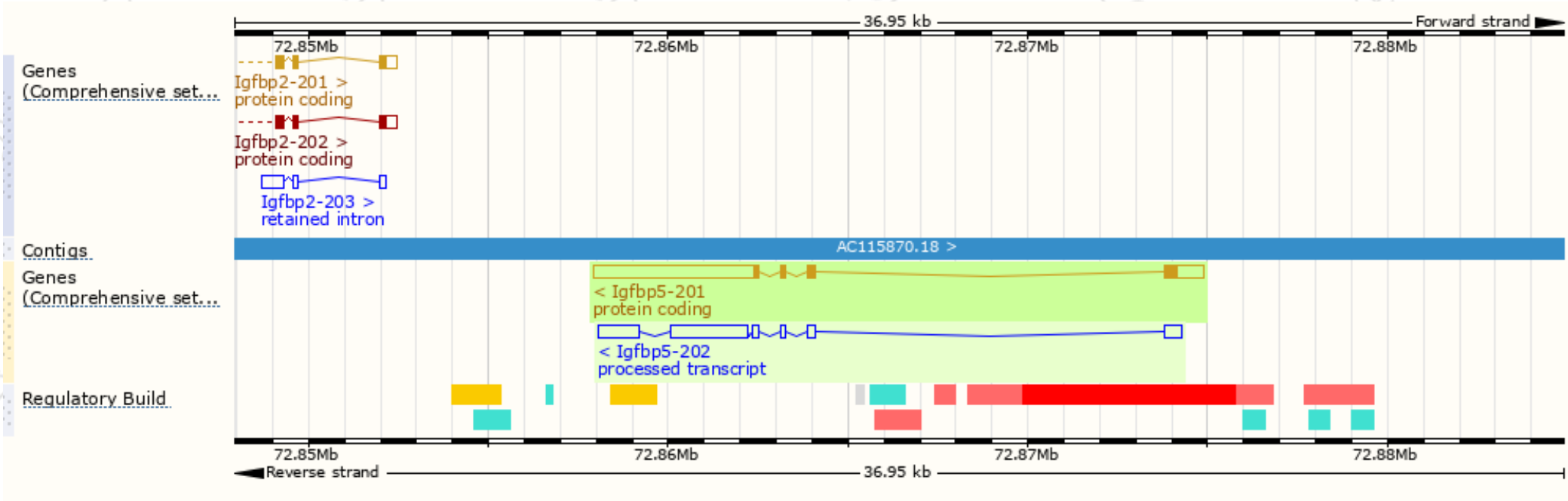
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags
Igfbp5-201	<a href="#">ENSMUST00000027377.8</a>	6006	<a href="#">271aa</a>	Protein coding	<a href="#">CCDS15037</a>	<a href="#">Q07079</a> <a href="#">Q3UQV0</a>	<a href="#">NM_010518</a> <a href="#">NP_034648</a>	TSL:1 Gencode basic APPRIS P1
Igfbp5-202	<a href="#">ENSMUST00000137339.1</a>	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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