

Igfbp7 Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Igfbp7

Project type

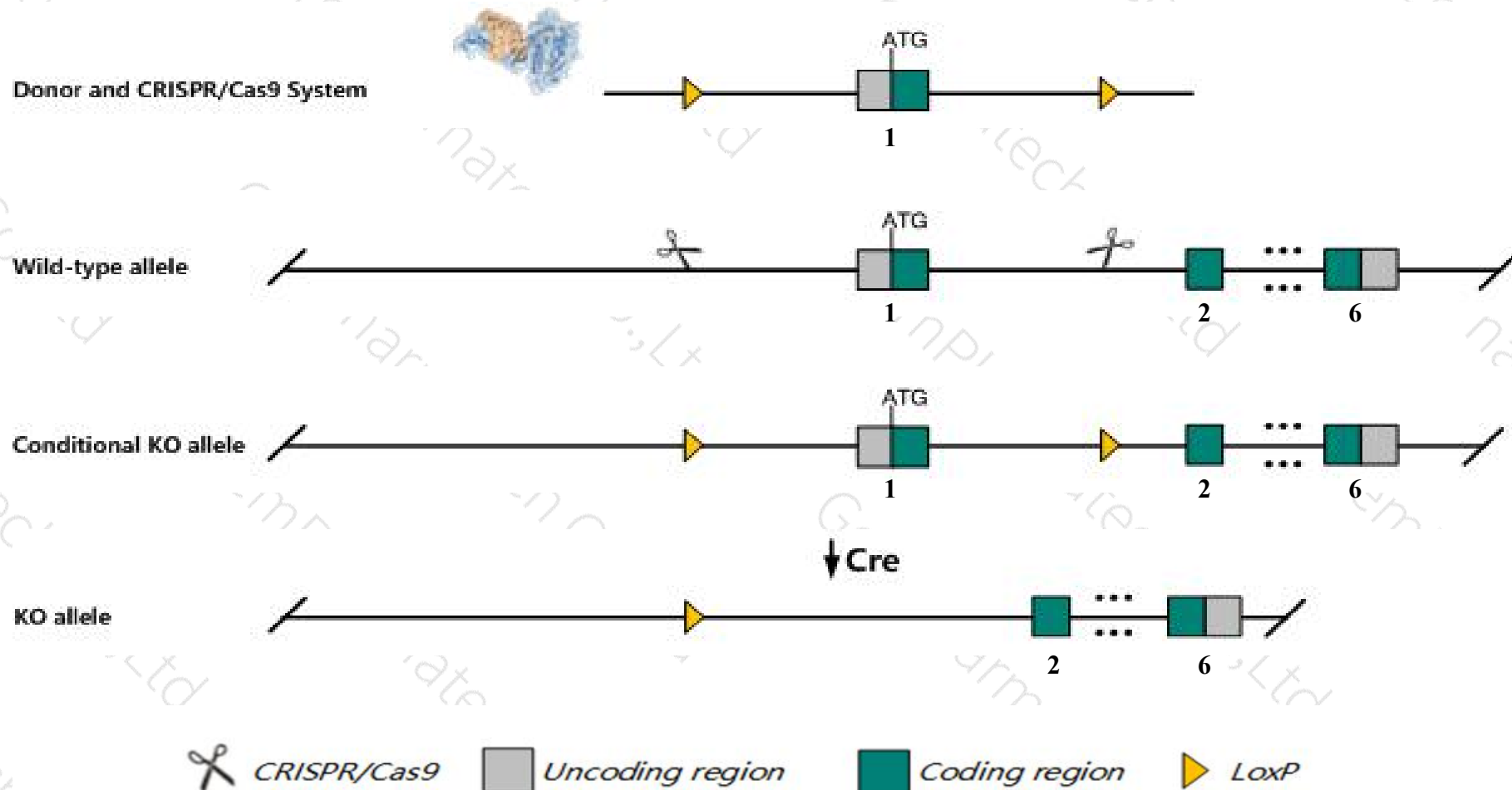
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Igfbp7* gene. The schematic diagram is as follows:



- The *Igfbp7* gene has 2 transcripts. According to the structure of *Igfbp7* gene, exon1 of *Igfbp7-202* (ENSMUST00000163898.5) 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 *Igfbp7* 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 will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

- According to the existing MGI data, Mice homozygous for a null allele exhibit retarded mammary gland developmental in virgin and adult females, reduced mammary gland size and alveolar density during pregnancy, precocious involution in lactating mammary glands, and abnormal milk composition.
- The *Igfbp7* gene is located on the Chr5. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Igfbp7 insulin-like growth factor binding protein 7 [Mus musculus (house mouse)]

Gene ID: 29817, updated on 5-Feb-2019

Summary



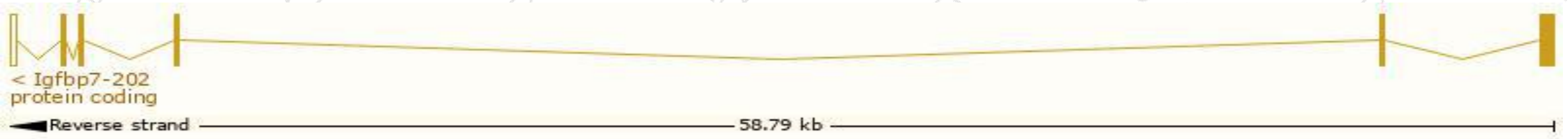
Official Symbol	Igfbp7 provided by MGI
Official Full Name	insulin-like growth factor binding protein 7 provided by MGI
Primary source	MGI:MGI:1352480
See related	Ensembl:ENSMUSG00000036256
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AGM, Fstl2, Mac25
Expression	Biased expression in adrenal adult (RPKM 2884.8), ovary adult (RPKM 2858.2) and 11 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

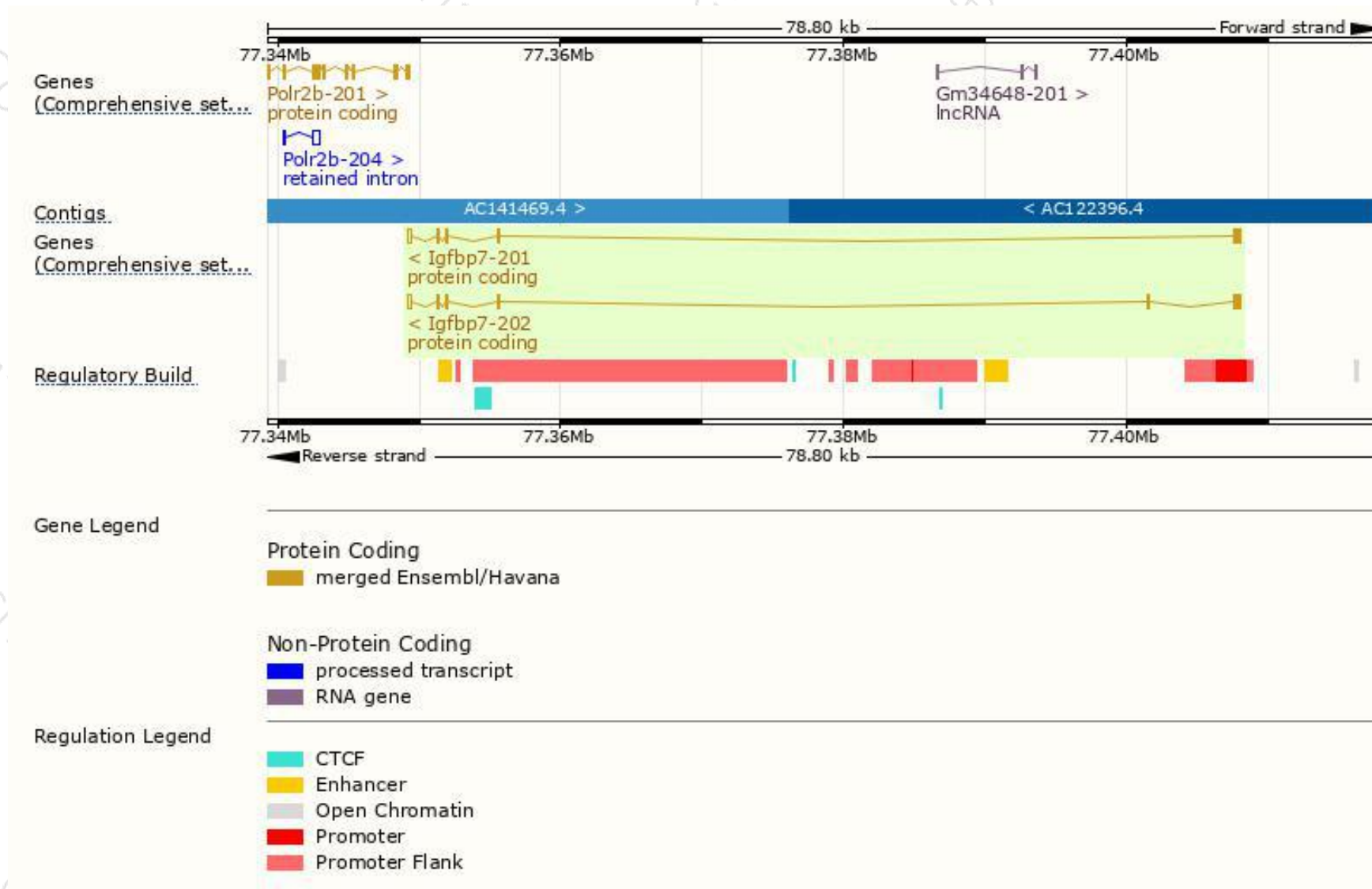
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Igfbp7-202	ENSMUST00000163898.5	1200	313aa	Protein coding	CCDS51530	E9Q5D9	TSL:5 GENCODE basic APPRIS P4
Igfbp7-201	ENSMUST00000046746.9	1116	282aa	Protein coding	CCDS51529	F8WH23	TSL:1 GENCODE basic APPRIS ALT2

The strategy is based on the design of *Igfbp7-202* transcript,The transcription is shown below



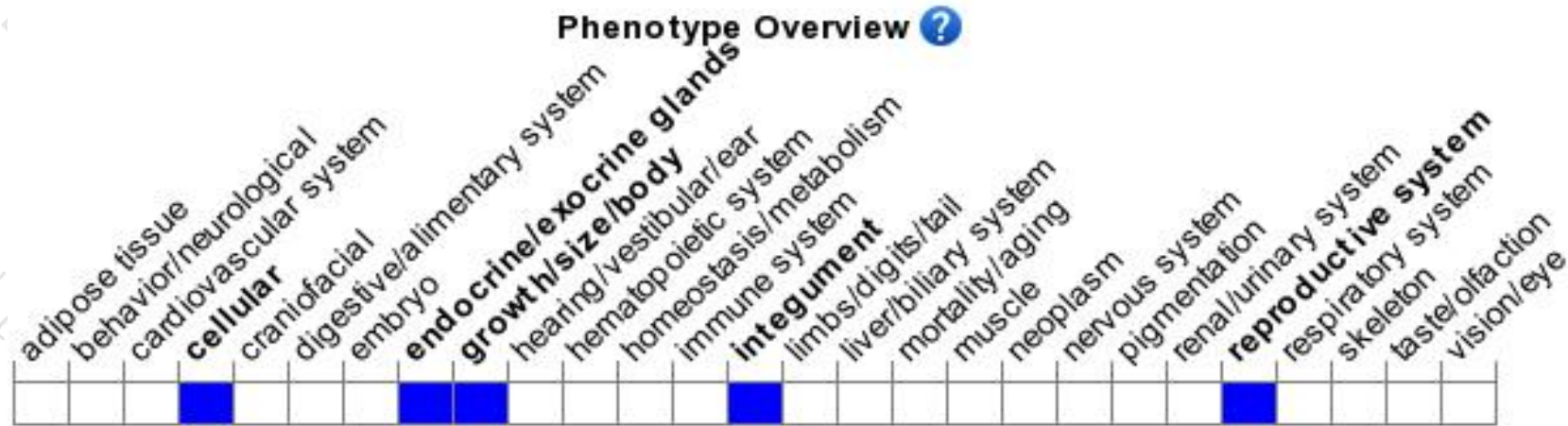
Genomic location distribution



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 null allele exhibit retarded mammary gland developmental in virgin and adult females, reduced mammary gland size and alveolar density during pregnancy, precocious involution in lactating mammary glands, and abnormal milk composition.

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

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