

Ikzf2 Cas9-CKO Strategy

Designer: Yanhua Shen

Reviewer: Xueting Zhang

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Project Overview

Project Name

Ikzf2

Project type

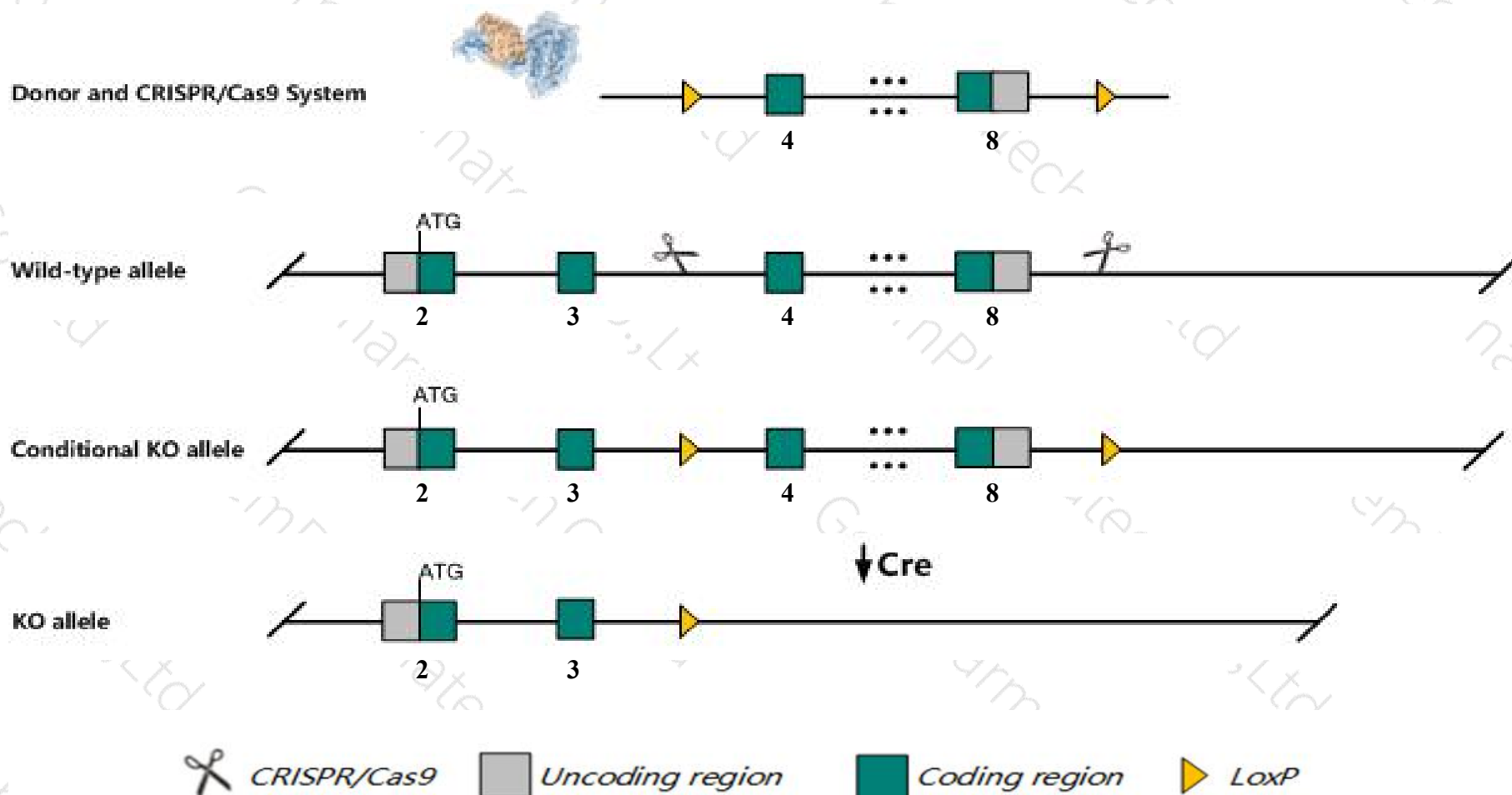
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ikzf2* gene. The schematic diagram is as follows:



- The *Ikzf2* gene has 9 transcripts. According to the structure of *Ikzf2* gene, exon4-exon8 of *Ikzf2*-201 (ENSMUST00000027146.8) transcript is recommended as the knockout region. The region contains most of coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ikzf2* 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, Homozygous null mice exhibit postnatal lethality for unknown reasons. Survivors have decreased body weight. Postnatal lethality has complete penetrance on the C57BL/6 strain.
- Transcripts 203,205 may not be affected.
- *Gm29114-201* gene will be destroyed.
- The *Ikzf2* gene is located on 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Ikzf2 IKAROS family zinc finger 2 [*Mus musculus* (house mouse)]

Gene ID: 22779, updated on 5-Feb-2020

Summary

Official Symbol	Ikzf2 provided by MGI
Official Full Name	IKAROS family zinc finger 2 provided by MGI
Primary source	MGI:MGI:1342541
See related	Ensembl:ENSMUSG00000025997
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	Helios; Zfpn1a2; Znfn1a2; A730095J18Rik
Expression	Broad expression in bladder adult (RPKM 4.1), thymus adult (RPKM 2.6) and 16 other tissues See more
Orthologs	human all

Genomic context

Location: 1; 1 C3

Exon count: 12

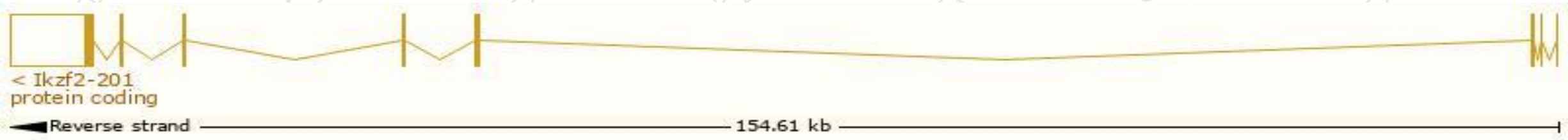
See Ikzf2 in [Genome Data Viewer](#)

Transcript information (Ensembl)

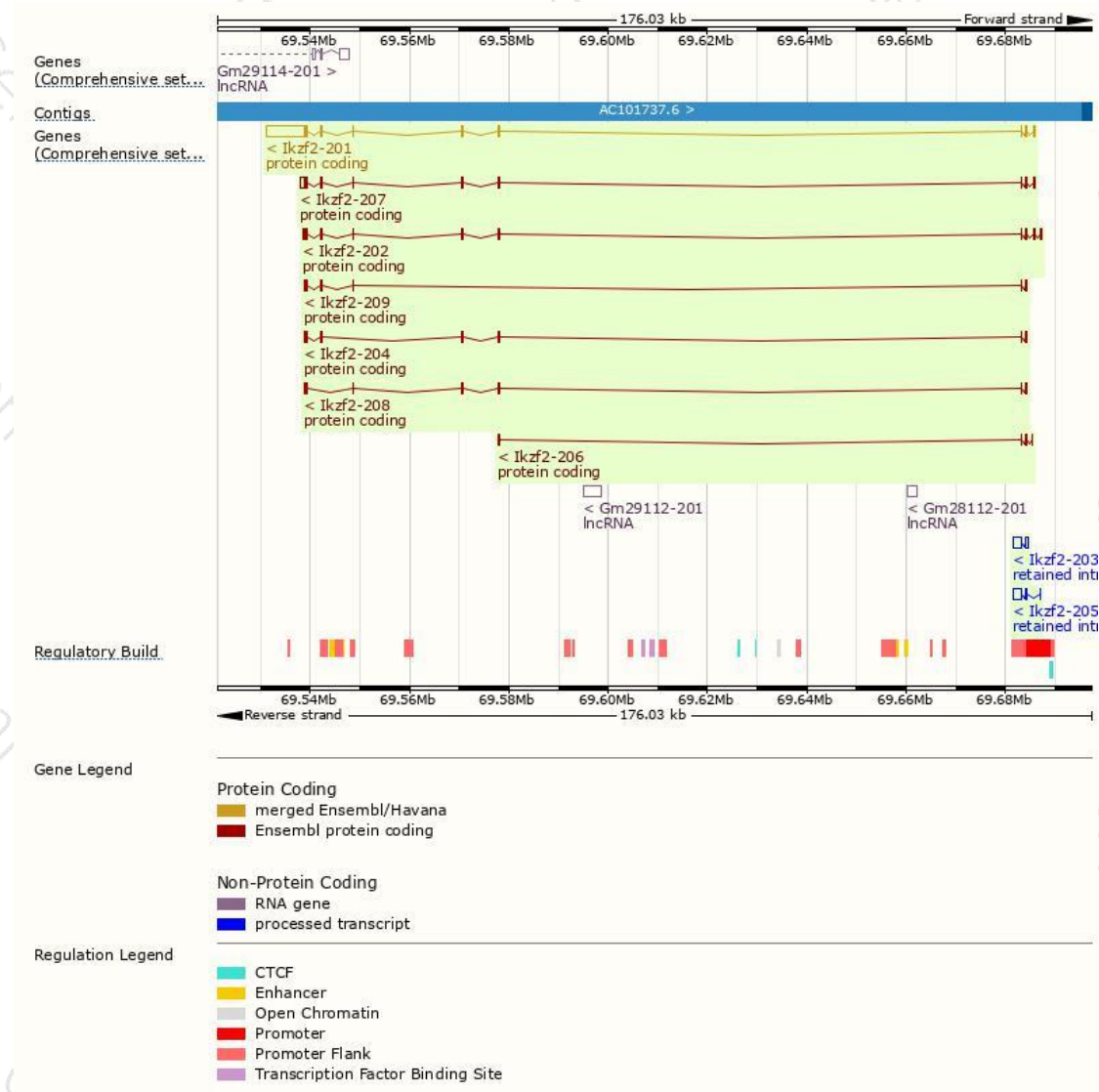
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ikzf2-201	ENSMUST00000027146.8	9278	526aa	Protein coding	CCDS15026	P81183	TSL:1 GENCODE basic APPRIS P2
Ikzf2-207	ENSMUST00000190771.6	2483	532aa	Protein coding	-	A0A087WNY4	TSL:5 GENCODE basic APPRIS ALT 1
Ikzf2-202	ENSMUST00000187184.6	2013	500aa	Protein coding	-	P81183	TSL:5 GENCODE basic
Ikzf2-204	ENSMUST00000188110.6	1365	454aa	Protein coding	-	A0A087WQ74	TSL:5 GENCODE basic
Ikzf2-208	ENSMUST00000190855.6	1359	452aa	Protein coding	-	A0A087WQ51	TSL:5 GENCODE basic
Ikzf2-209	ENSMUST00000191262.6	1146	381aa	Protein coding	-	A0A087WNX1	TSL:5 GENCODE basic
Ikzf2-206	ENSMUST00000190016.1	361	99aa	Protein coding	-	A0A087WQX2	CDS 3' incomplete TSL:3
Ikzf2-203	ENSMUST00000187870.1	2170	No protein	Retained intron	-	-	TSL:2
Ikzf2-205	ENSMUST00000188919.1	1905	No protein	Retained intron	-	-	TSL:2

The strategy is based on the design of *Ikzf2-201* transcript,The transcription is shown below



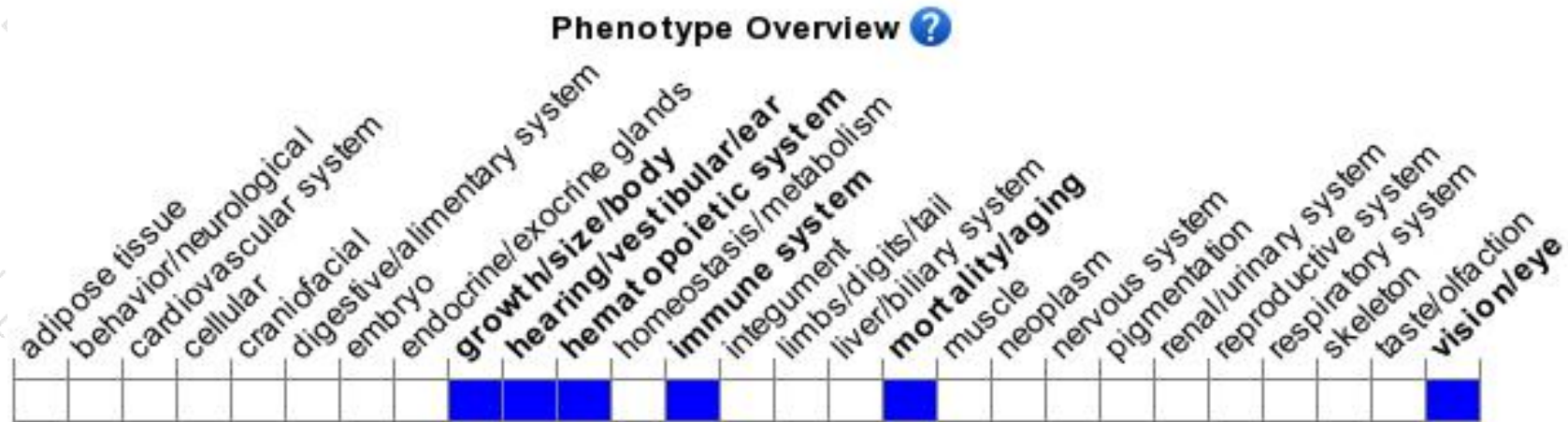
Genomic location distribution



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/>).

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

Tel: 400-9660890

