

Ifih1 Cas9-CKO Strategy

Designer:

Qiong Zhou

Project Overview

Project Name

Ifih1

Project type

Cas9-CKO

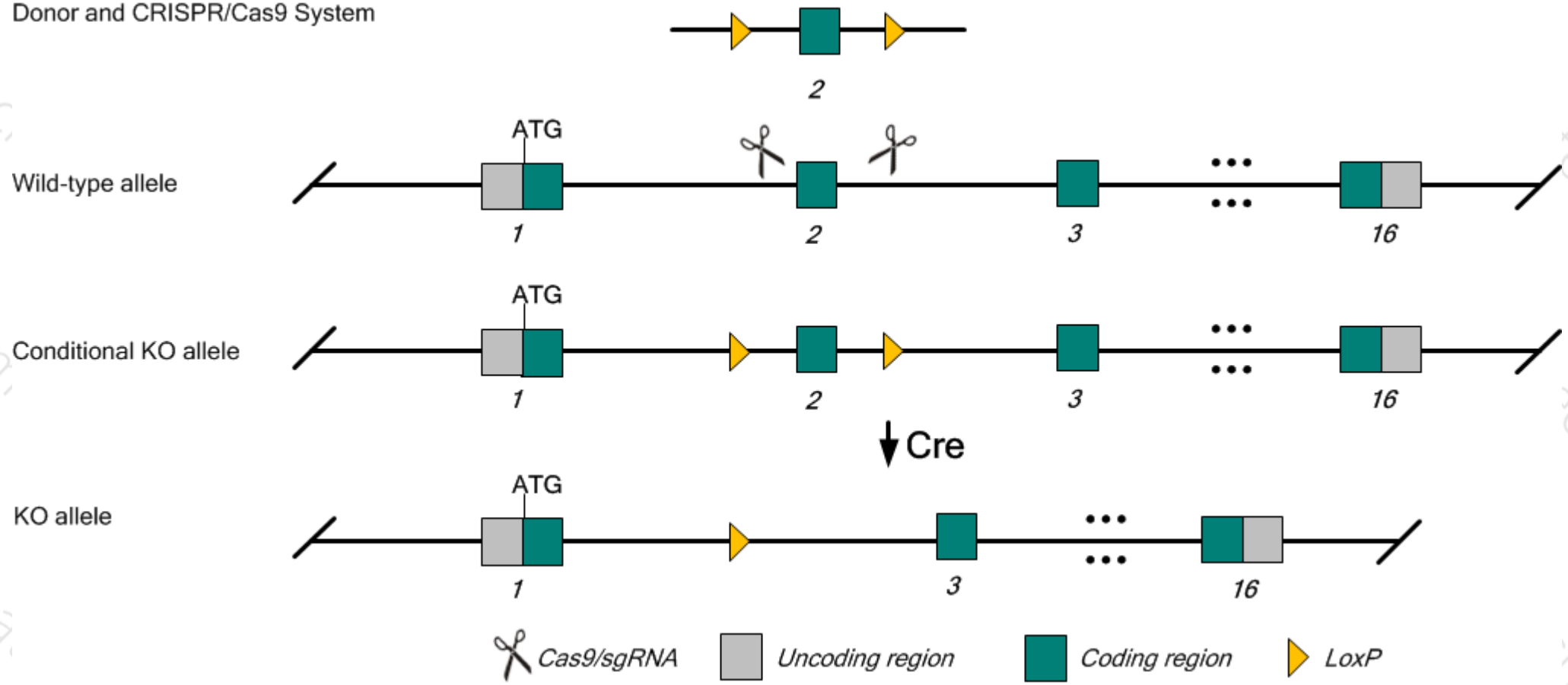
Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ifih1* gene. The schematic diagram is as follows:

Donor and CRISPR/Cas9 System



- The *Ifih1* gene has 5 transcripts, According to the structure of *Ifih1* gene, exon2 of *Ifih1-201* transcript is recommended as the knockout region. The region contains the 169bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ifih1* 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 a null allele have increased virus-associated morbidity and mortality, and decreased cytokine response to several viral infection.
- The *Ifih1* gene is located in the Chr2. 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)

Ifih1 interferon induced with helicase C domain 1 [*Mus musculus* (house mouse)]

Gene ID: 71586, updated on 5-Feb-2019

Summary

Official Symbol	Ifih1 provided by MGI
Official Full Name	interferon induced with helicase C domain 1 provided by MGI
Primary source	MGI:MGI:1918836
See related	Ensembl:ENSMUSG00000026896
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	HIcd; MDA5; RLR-2; Helicard; 9130009C22Rik
Expression	Ubiquitous expression in adrenal adult (RPKM 4.6), small intestine adult (RPKM 3.8) and 24 other tissues See more
Orthologs	human all

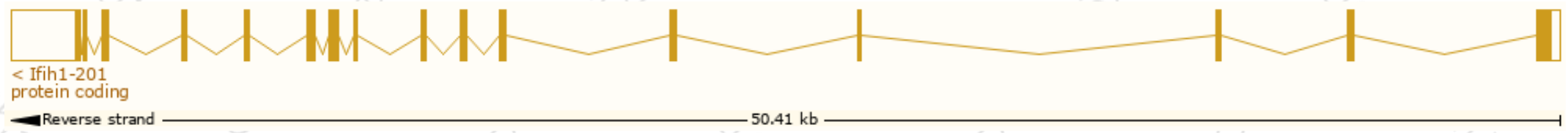
Transcript information (Ensembl)



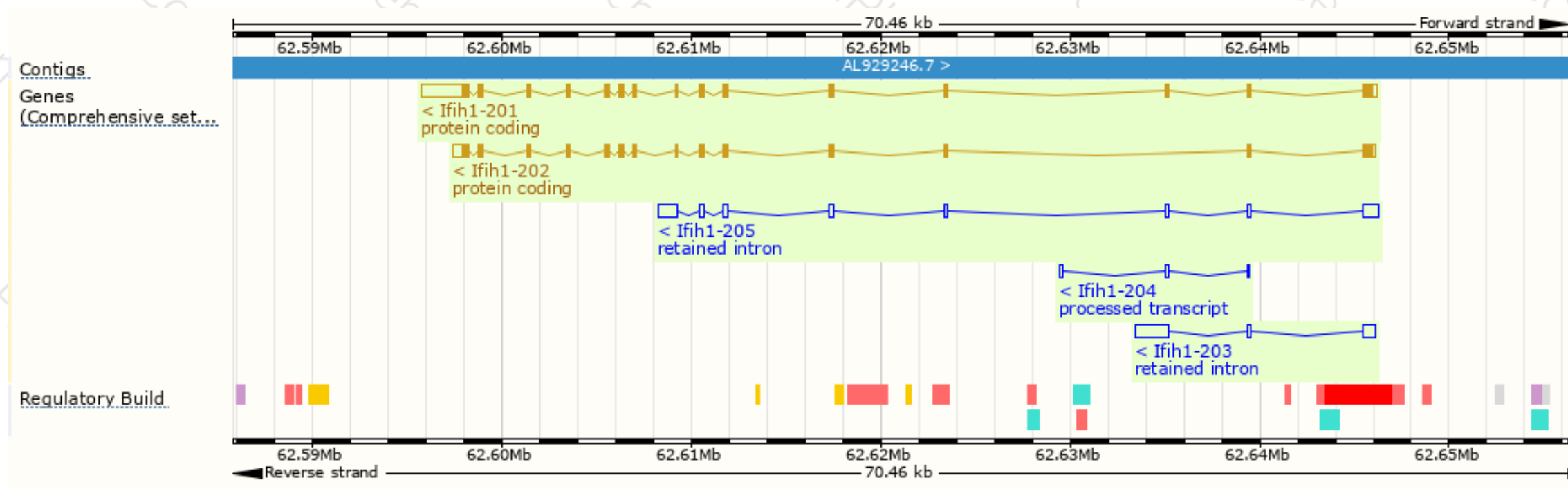
The gene has 5 transcripts, and all transcripts are shown below :

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags
Ifih1-201	ENSMUST00000028259.11	5470	1025aa	Protein coding	CCDS16068	D2CGM4 Q8R5F7	NM_027835 NP_082111	TSL:1 GENCODE basic APPRIS P3
Ifih1-202	ENSMUST00000112459.3	3616	976aa	Protein coding	CCDS50594	Q8R5F7	NM_001164477 NP_001157949	TSL:1 GENCODE basic APPRIS ALT2
Ifih1-204	ENSMUST00000176388.1	439	No protein	Processed transcript	-	-	-	TSL:3
Ifih1-205	ENSMUST00000176431.7	2904	No protein	Retained intron	-	-	-	TSL:2
Ifih1-203	ENSMUST00000175964.1	2565	No protein	Retained intron	-	-	-	TSL:2

The strategy is based on the design of *Ifih1-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



If you have any questions, you are welcome to inquire.
Tel: 025-5864 1534

