

Irak3 Cas9-KO Strategy

Designer:

Daohua Xu

Reviewer:

Huimin Su

Design Date:

2019-11-26

Project Overview

Project Name

Irak3

Project type

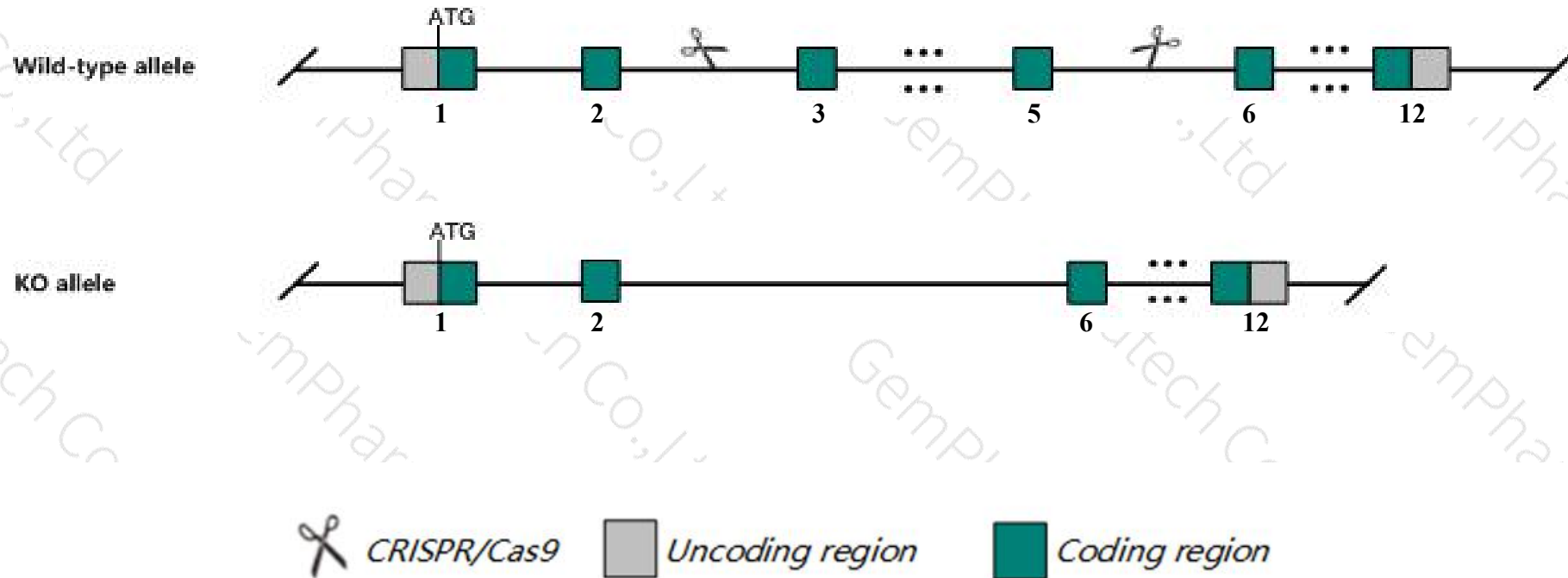
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Irak3* gene. The schematic diagram is as follows:



- The *Irak3* gene has 5 transcripts. According to the structure of *Irak3* gene, exon3-exon5 of *Irak3-201* (ENSMUST00000020448.10) transcript is recommended as the knockout region. The region contains 311bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Irak3* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for disruptions in this gene display abnormal inflammatory responses to bacterial infections and loose bone mass with age.
- The *Irak3* gene is located on the Chr10. 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 gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Irak3 interleukin-1 receptor-associated kinase 3 [Mus musculus (house mouse)]

Gene ID: 73914, updated on 26-Feb-2019

Summary



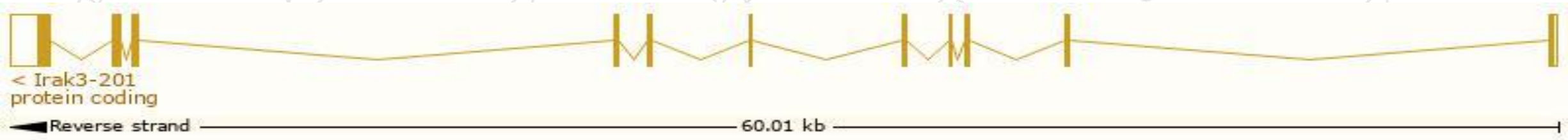
Official Symbol	Irak3 provided by MGI
Official Full Name	interleukin-1 receptor-associated kinase 3 provided by MGI
Primary source	MGI:MGI:1921164
See related	Ensembl:ENSMUSG00000020227
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	4833428C18Rik, AI563835, IRAK-M
Expression	Broad expression in testis adult (RPKM 7.6), mammary gland adult (RPKM 3.2) and 17 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

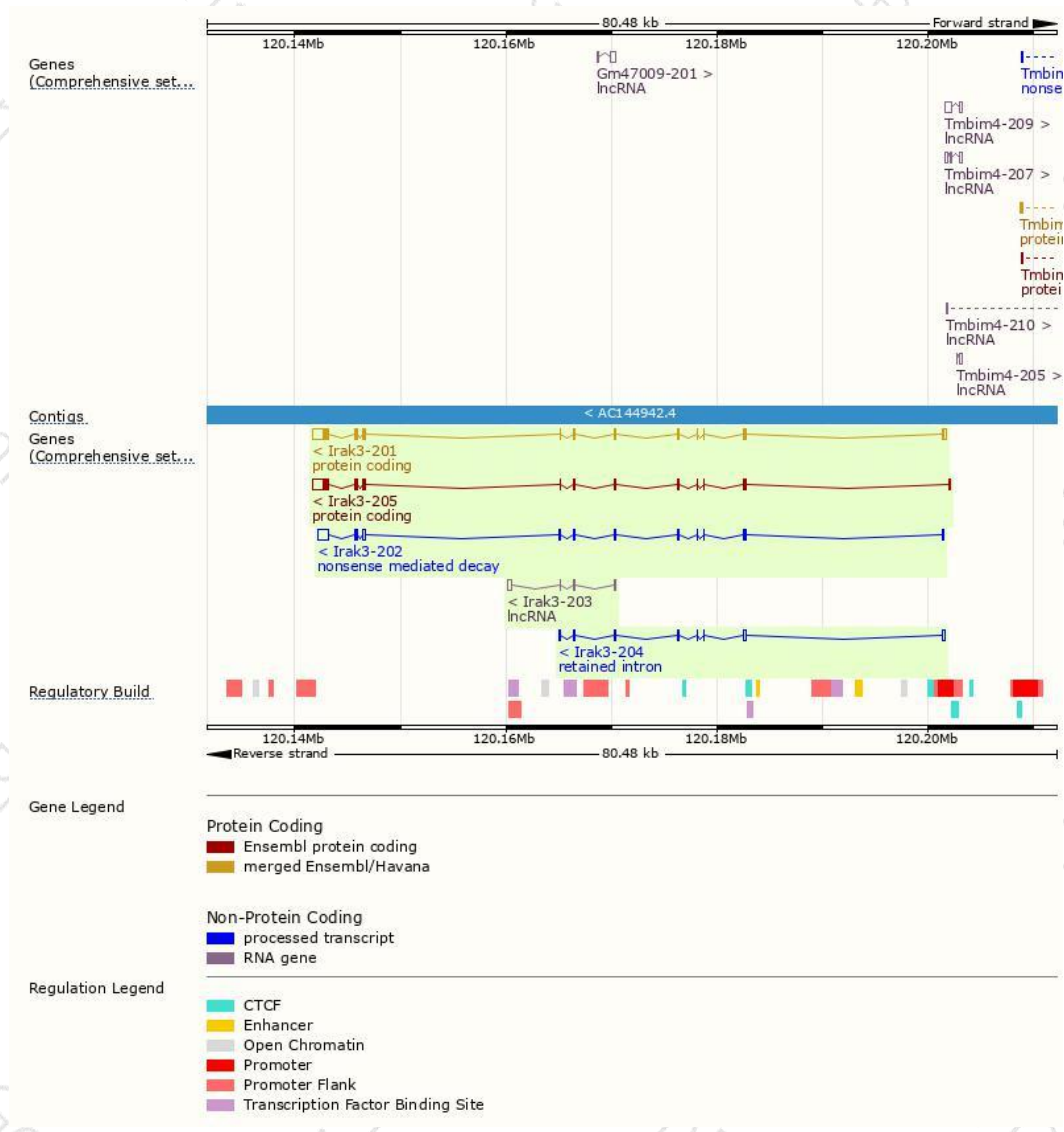
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Irak3-201	ENSMUST00000020448.10	3097	609aa	Protein coding	CCDS24204	Q0VB14 Q8K4B2	TSL:1 GENCODE basic APPRIS P1
Irak3-205	ENSMUST00000145665.7	2869	517aa	Protein coding	-	D3Z007	TSL:1 GENCODE basic
Irak3-202	ENSMUST00000135106.1	2473	309aa	Nonsense mediated decay	-	D6RCU1	TSL:1
Irak3-204	ENSMUST00000143100.1	1171	No protein	Retained intron	-	-	TSL:1
Irak3-203	ENSMUST00000140237.7	635	No protein	lncRNA	-	-	TSL:3

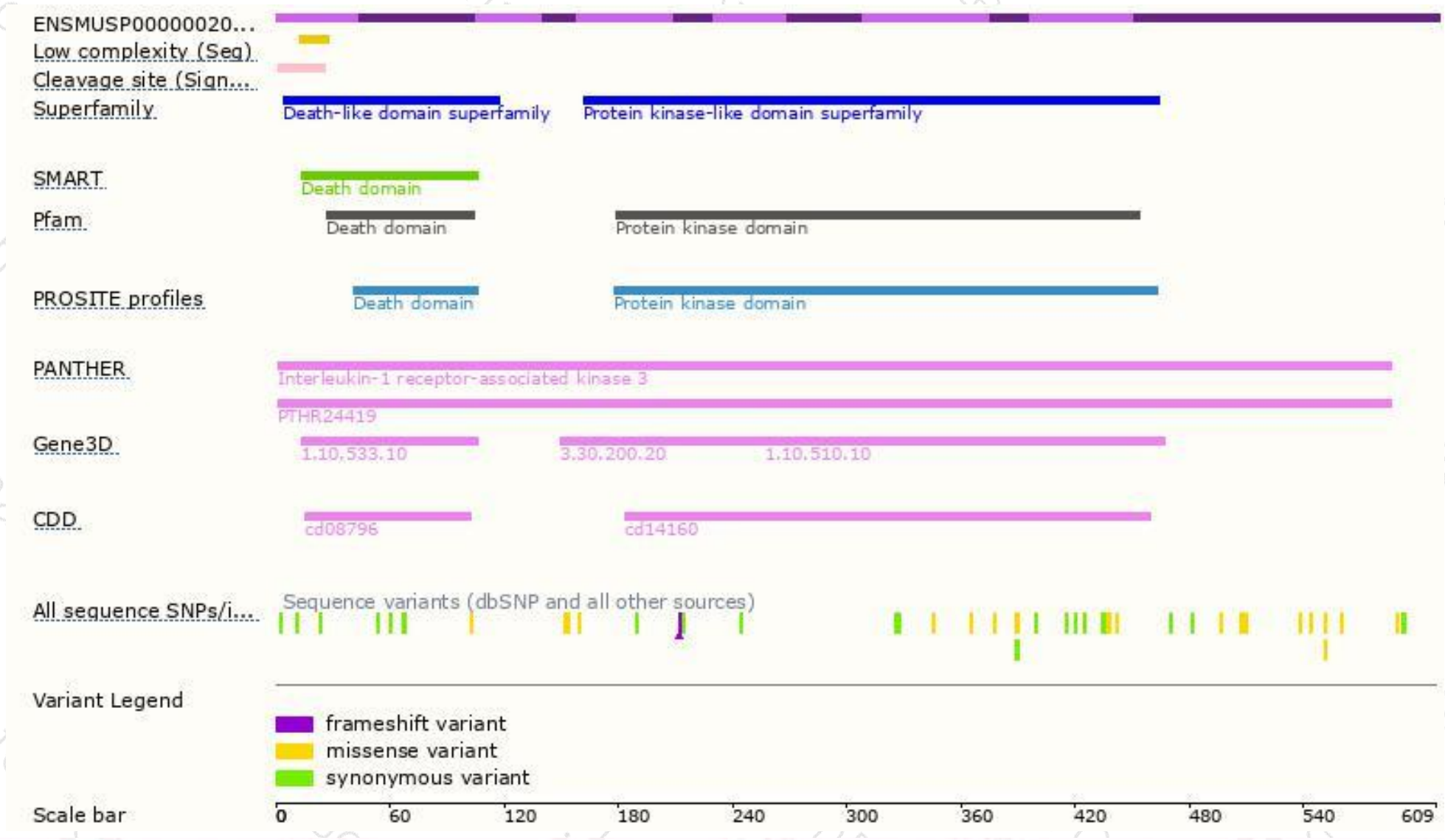
The strategy is based on the design of *Irak3-201* transcript,The transcription is shown below



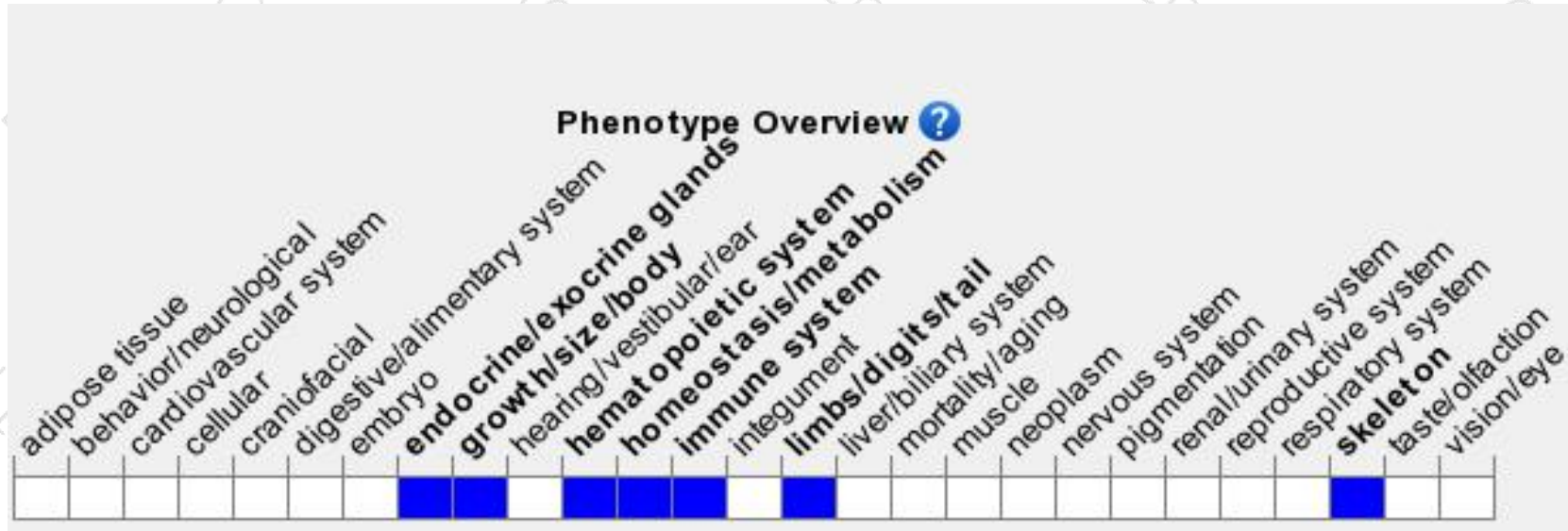
Genomic location distribution



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/>).

According to the existing MGI data, Mice homozygous for disruptions in this gene display abnormal inflammatory responses to bacterial infections and loose bone mass with age.

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

Tel: 400-9660890

