

Il1rap Cas9-KO Strategy

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Project Overview



Project Name

Il1rap

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Illrap* gene has 7 transcripts. According to the structure of *Illrap* gene, exon3-exon4 of *Illrap-202* (ENSMUST00000096129.8) transcript is recommended as the knockout region. The region contains 473bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Illrap* gene. The brief process is as follows: gRNA was transcribed in vitro. Cas9 and gRNA 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 a knock-out allele are viable, fertile and grossly normal but show no biological response to IL-1.
- Transcript *Il1rap*-204&207 may not be affected.
- The *Il1rap* gene is located on the Chr16. 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)

Il1rap interleukin 1 receptor accessory protein [Mus musculus (house mouse)]

Gene ID: 16180, updated on 31-Jan-2019

Summary



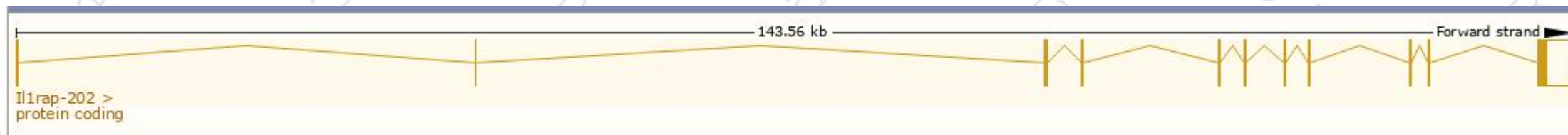
Official Symbol	Il1rap provided by MGI
Official Full Name	interleukin 1 receptor accessory protein provided by MGI
Primary source	MGI:MGI:104975
See related	Ensembl:ENSMUSG00000022514
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	6430709H04Rik, AI255955, AV239853, IL-1RAcP
Expression	Broad expression in liver adult (RPKM 5.5), cortex adult (RPKM 2.6) and 18 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

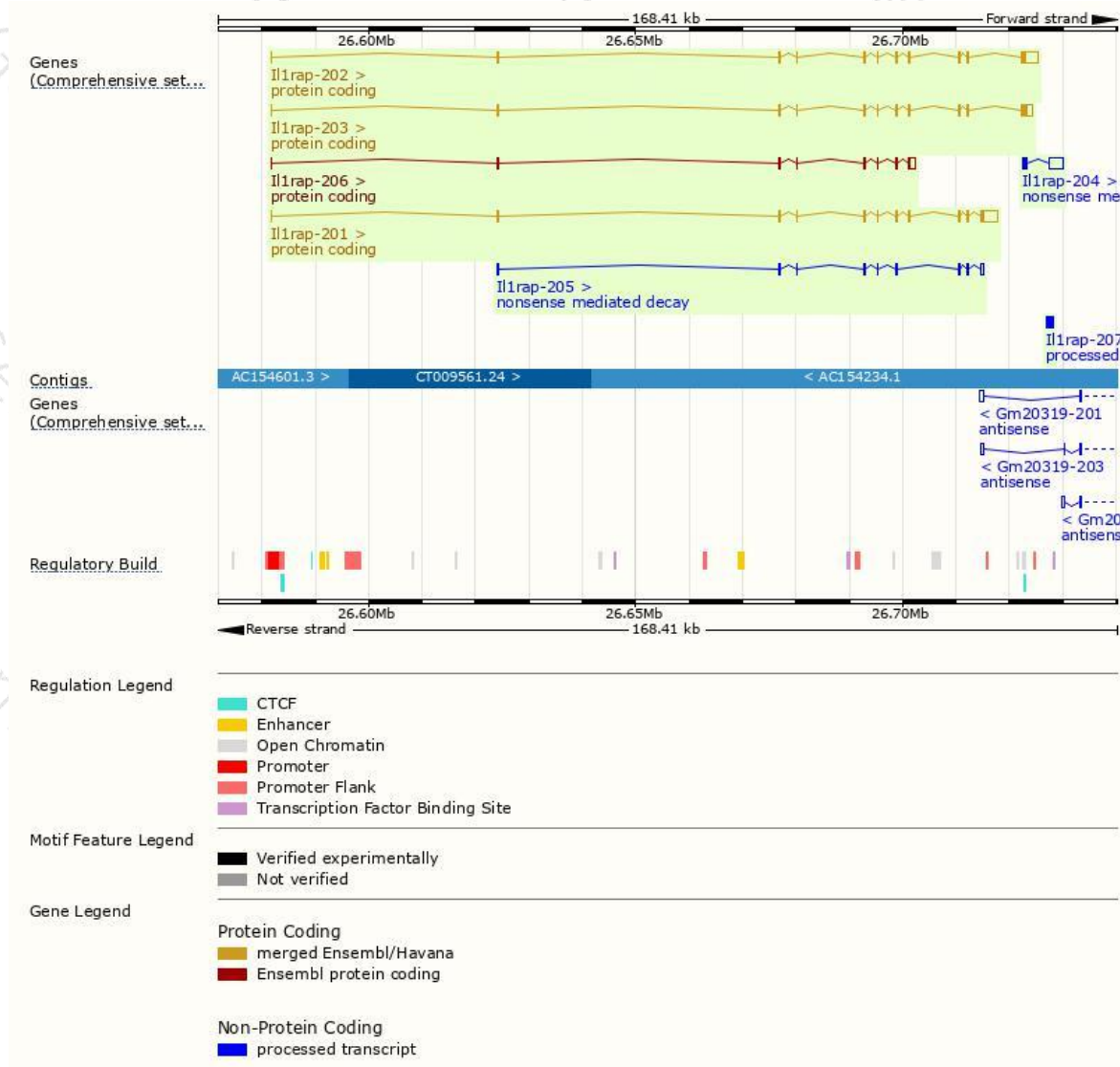
The gene has 7 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Il1rap-201	ENSMUST00000023156.12	4520	570aa	Protein coding	CCDS28089	Q61730	TSL:1 GENCODE basic APPRIS P3
Il1rap-202	ENSMUST00000096129.8	4438	685aa	Protein coding	CCDS49815	Q61730	TSL:1 GENCODE basic APPRIS ALT 1
Il1rap-203	ENSMUST00000166294.8	3200	640aa	Protein coding	CCDS49814	E9Q6I2	TSL:1 GENCODE basic
Il1rap-206	ENSMUST00000174202.7	2306	360aa	Protein coding	CCDS57023	Q3UEL3 Q61730	TSL:1 GENCODE basic
Il1rap-204	ENSMUST00000173136.1	3186	166aa	Nonsense mediated decay	-	G3XA78	CDS 5' incomplete TSL:1
Il1rap-205	ENSMUST00000174171.1	1564	346aa	Nonsense mediated decay	-	G3UY13	TSL:5
Il1rap-207	ENSMUST00000174644.1	583	No protein	Processed transcript	-	-	TSL:3

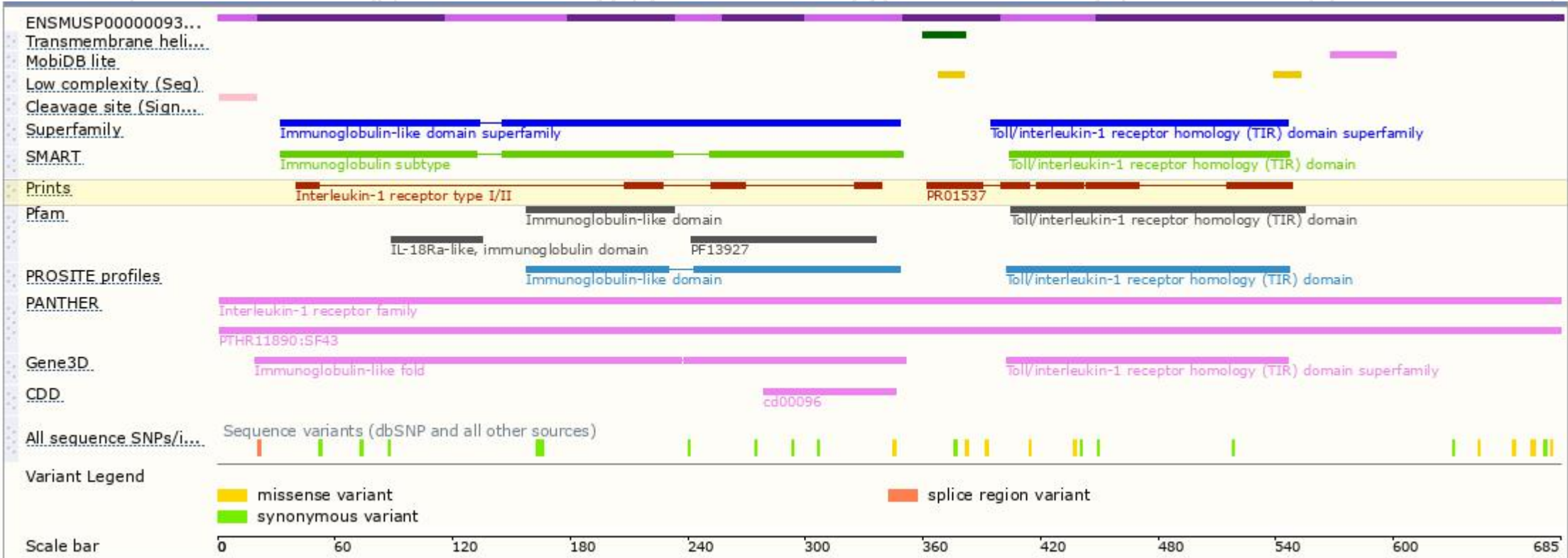
The strategy is based on the design of *Il1rap-202* transcript, The transcription is shown below



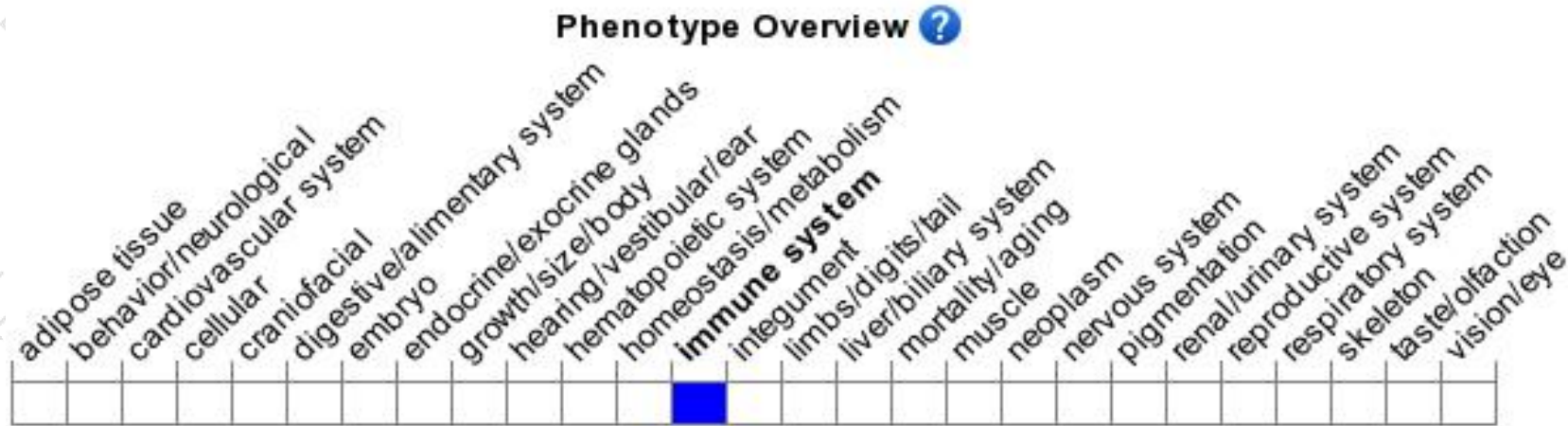
Genomic location distribution



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 knock-out allele are viable, fertile and grossly normal but show no biological response to IL-1.

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

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