

Il18r1 Cas9-CKO Strategy

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Project Overview

Project Name

Il18r1

Project type

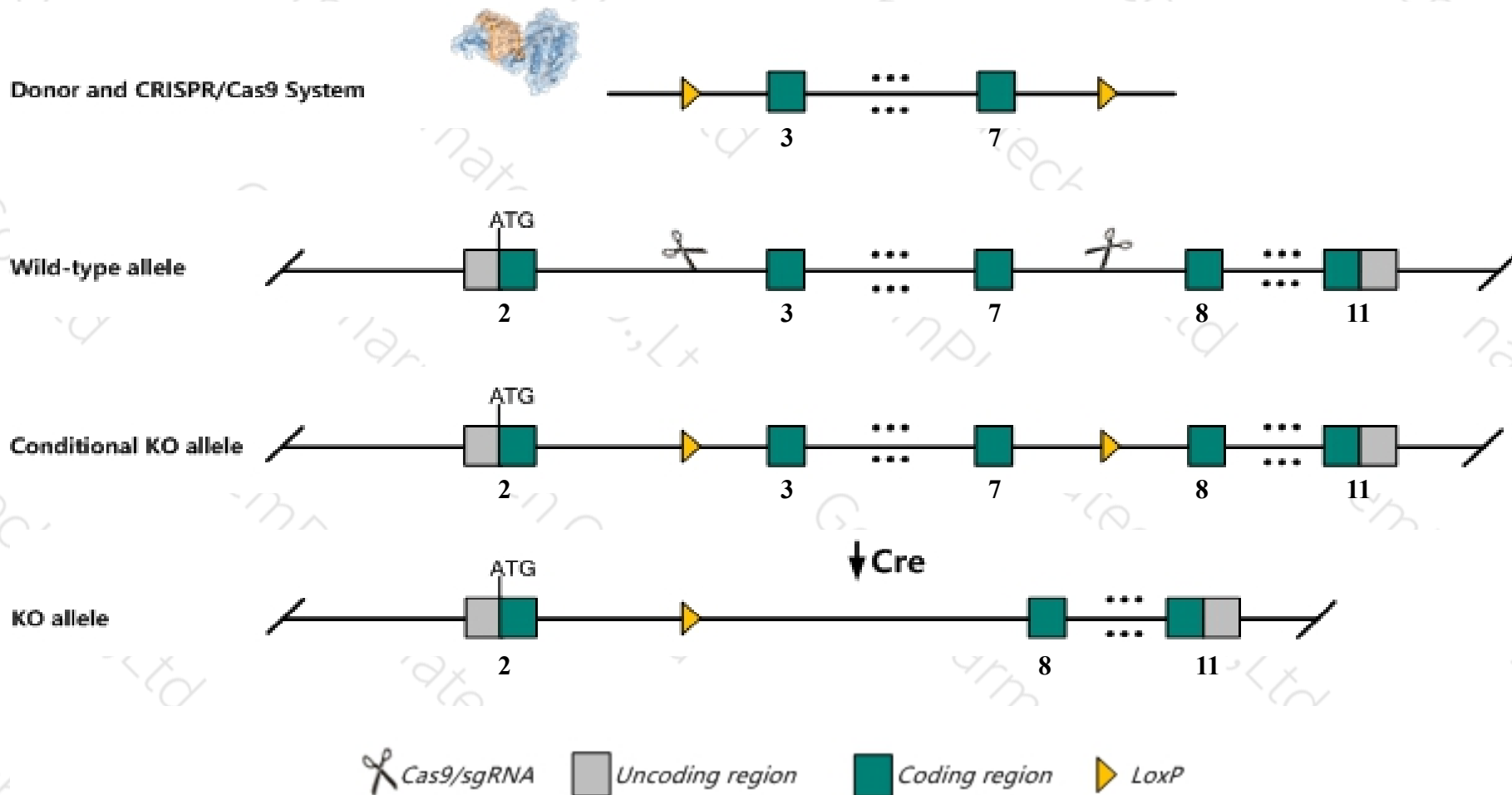
Cas9-CKO

Strain background

C57BL/6J

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Il18r1* gene. The schematic diagram is as follows:



- The *Il18r1* gene has 6 transcripts. According to the structure of *Il18r1* gene, exon3-exon7 of *Il18r1*-202 (ENSMUST00000108044.3) transcript is recommended as the knockout region. The region contains 745bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Il18r1* 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/6J 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/6J 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 and cell types.

- According to the existing MGI data, Mice homozygous for disruptions in this gene exhibit impaired Th1 cell development and defective NK cell physiology.
- The *Il18r1* 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)

Il18r1 interleukin 18 receptor 1 [Mus musculus (house mouse)]

Gene ID: 16182, updated on 12-Mar-2019

Summary



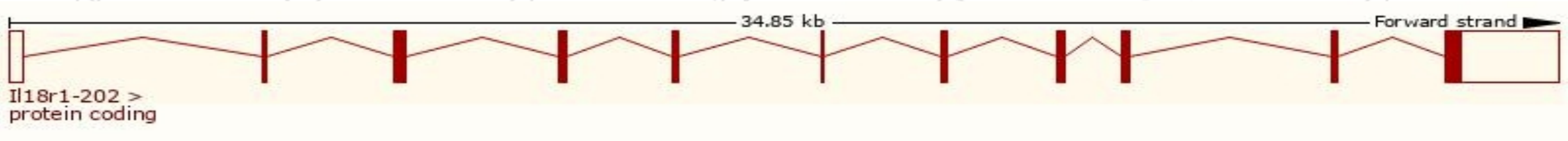
Official Symbol	Il18r1 provided by MGI
Official Full Name	interleukin 18 receptor 1 provided by MGI
Primary source	MGI:MGI:105383
See related	Ensembl:ENSMUSG00000026070
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Il18ralpha, Il1rrp
Expression	Biased expression in lung adult (RPKM 4.7), bladder adult (RPKM 0.7) and 3 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

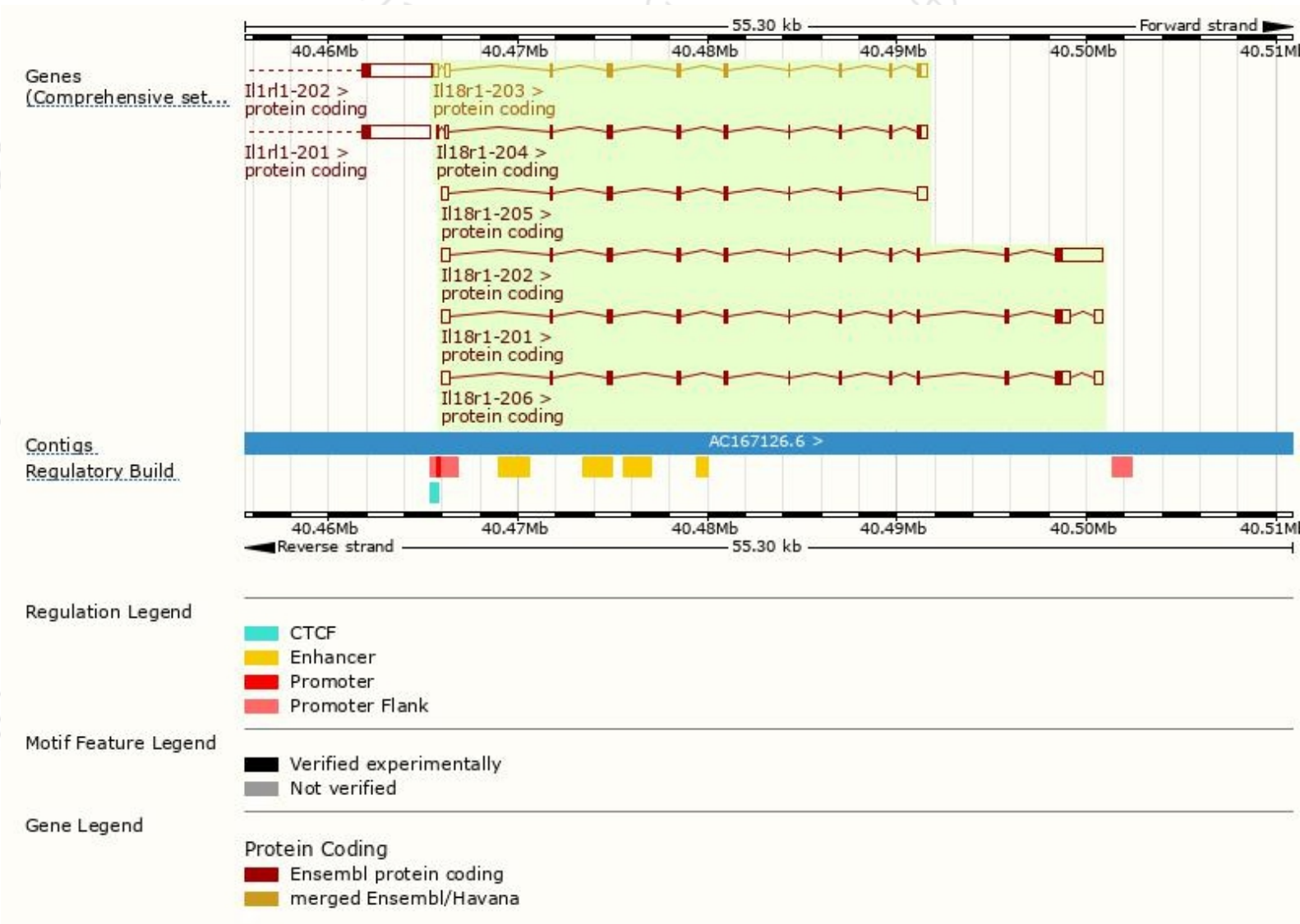
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
II18r1-202	ENSMUST00000108044.3	4158	537aa	Protein coding	CCDS35549	Q61098	TSL:5 GENCODE basic APPRIS P1
II18r1-206	ENSMUST00000195684.5	2850	537aa	Protein coding	CCDS35549	Q61098	TSL:5 GENCODE basic APPRIS P1
II18r1-201	ENSMUST00000087983.7	2826	537aa	Protein coding	CCDS35549	Q61098	TSL:5 GENCODE basic APPRIS P1
II18r1-203	ENSMUST00000167723.7	1919	372aa	Protein coding	CCDS48247	Q8C257	TSL:1 GENCODE basic
II18r1-204	ENSMUST00000193391.5	1738	372aa	Protein coding	CCDS48247	Q8C257	TSL:1 GENCODE basic
II18r1-205	ENSMUST00000193793.5	1652	267aa	Protein coding	-	A0A0A6YWA3	TSL:1 GENCODE basic

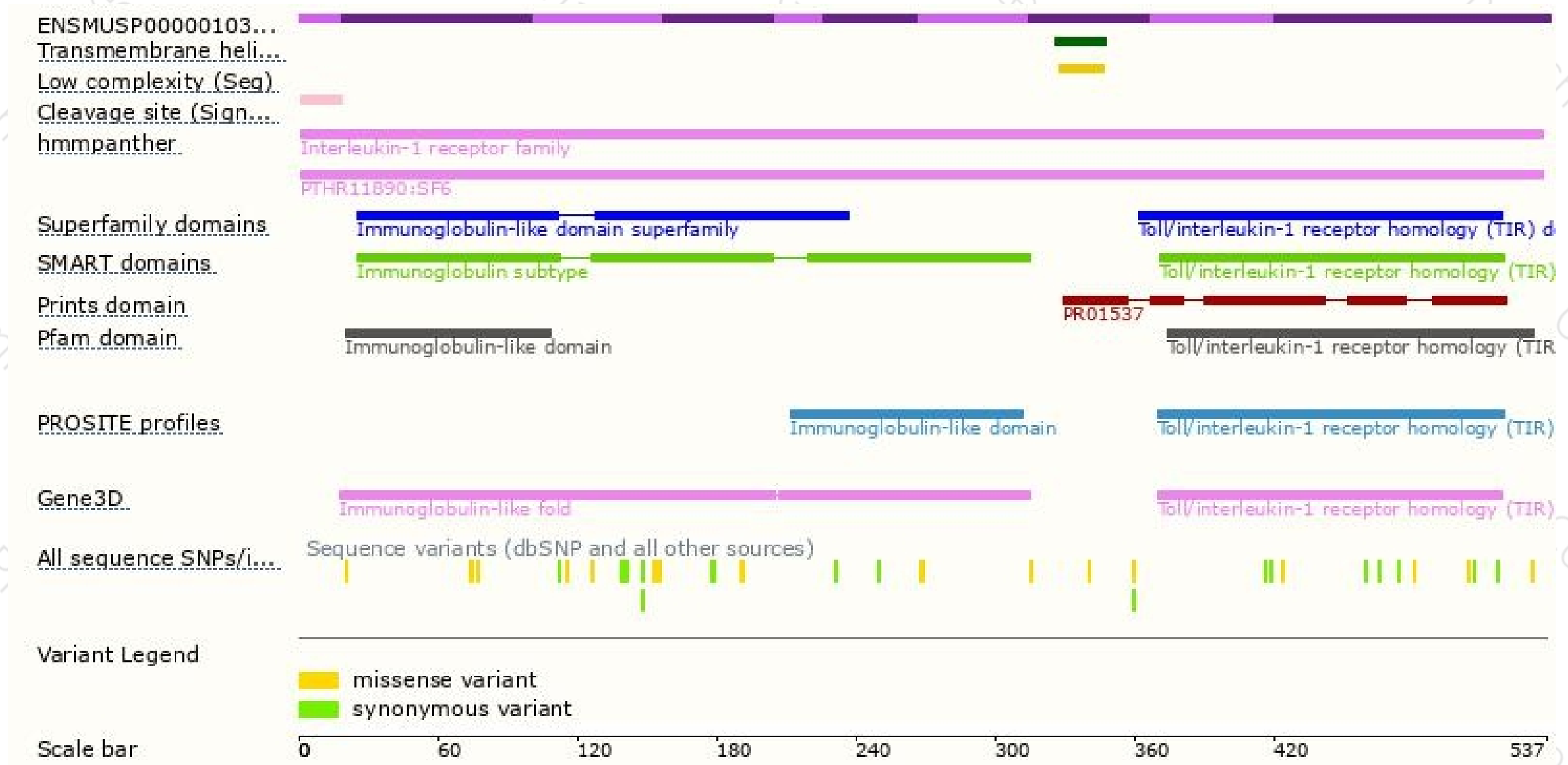
The strategy is based on the design of *Il18r1-202* transcript,The transcription is shown below



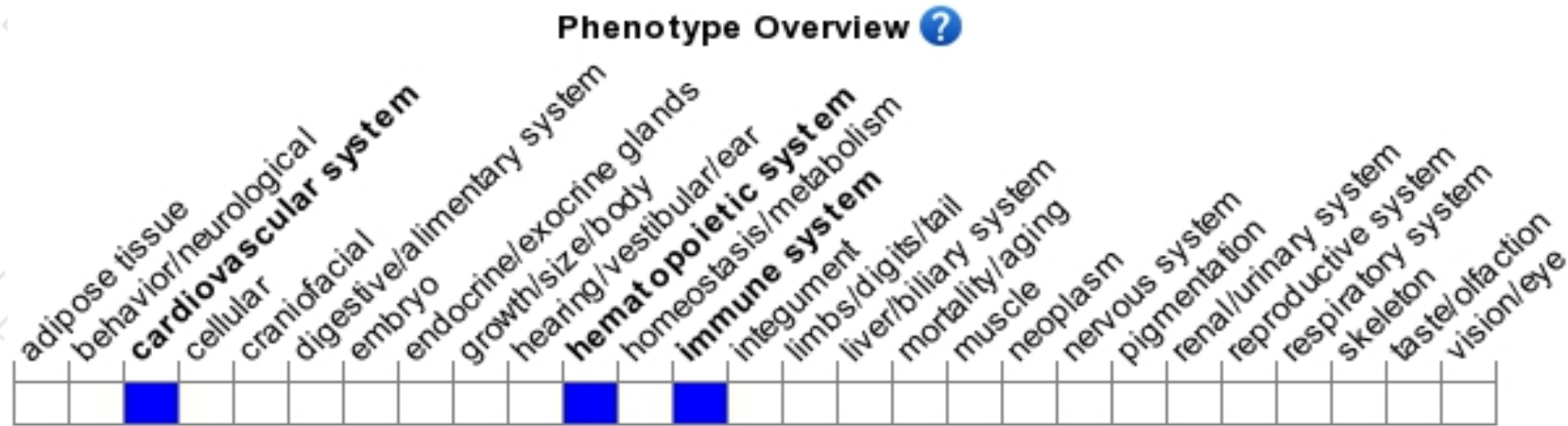
Genomic location distribution



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 disruptions in this gene exhibit impaired Th1 cell development and defective NK cell physiology.

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

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