

Il18bp Cas9-KO Strategy

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Project Overview

Project Name

Il18bp

Project type

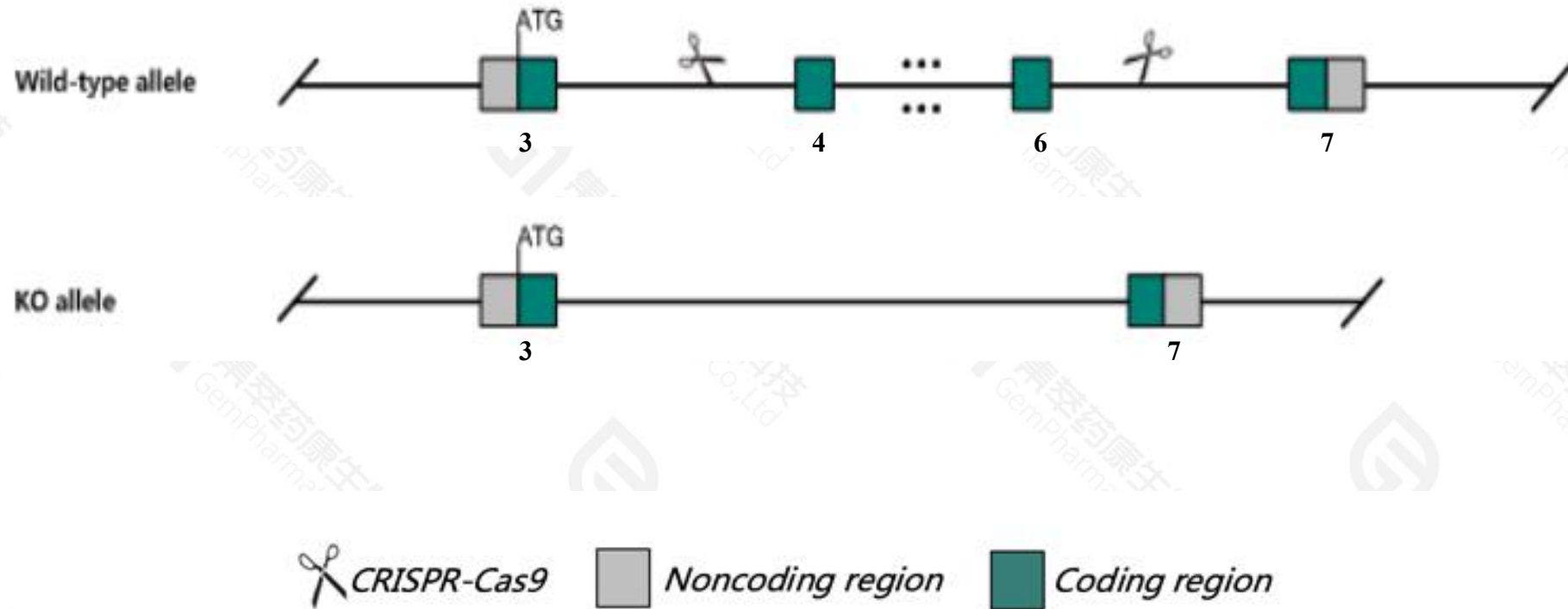
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR-Cas9 technology to edit the *Il18bp* gene. The schematic diagram is as follows:



- The *Il18bp* gene has 4 transcripts. According to the structure of *Il18bp* gene, exon4-exon6 of *Il18bp*-203(ENSMUST00000209844.2) transcript is recommended as the knockout region. The region contains 464bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR-Cas9 technology to modify *Il18bp* gene. The brief process is as follows: CRISPR-Cas9 system 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, homozygous knockout affects NK cell differentiation and function, with an increase in immature cells and a decrease in mature cells.
- The *Il18bp* gene is located on the Chr7. 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)

Il18bp interleukin 18 binding protein [Mus musculus (house mouse)]

Gene ID: 16068, updated on 13-Mar-2020

Summary

Official Symbol Il18bp provided by [MGI](#)

Official Full Name interleukin 18 binding protein provided by [MGI](#)

Primary source [MGI:MGI:1333800](#)

See related [Ensembl:ENSMUSG00000070427](#)

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 IL-18BP, Igfbp, MC54L

Expression Ubiquitous expression in thymus adult (RPKM 16.5), liver E18 (RPKM 14.8) and 28 other tissues [See more](#)

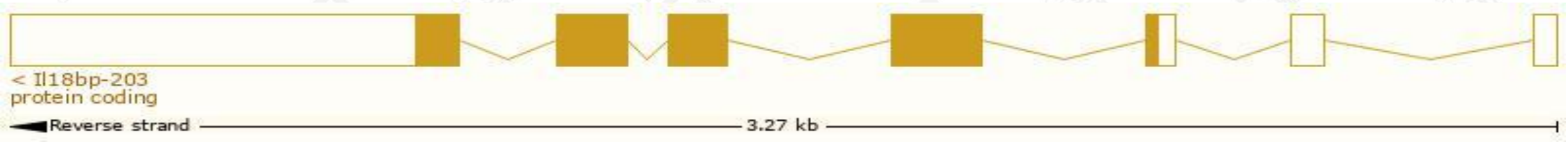
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

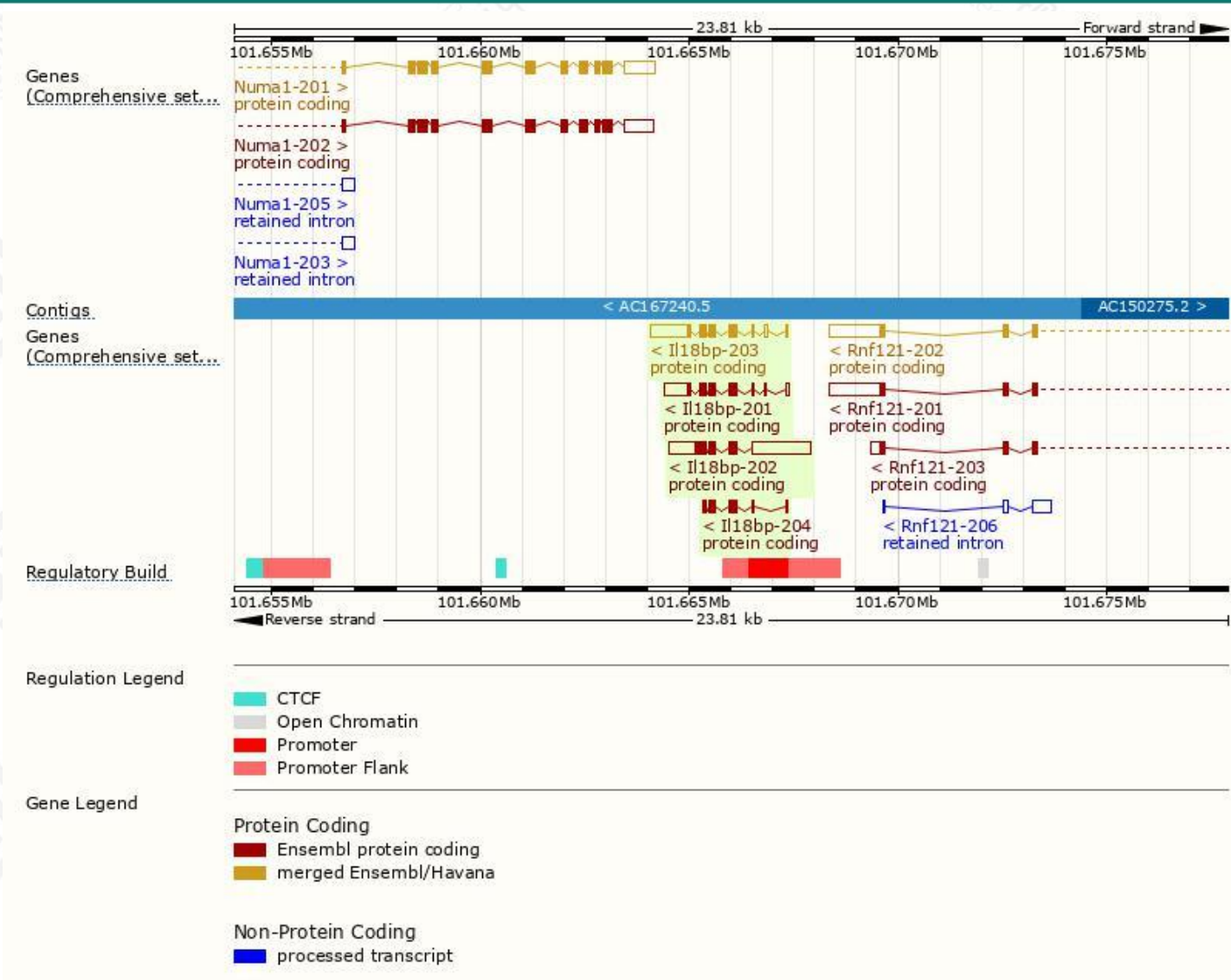
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Il18bp-203	ENSMUST00000209844.1	1594	193aa	Protein coding	CCDS21522	Q9Z0M9	TSL:1 GENCODE basic APPRIS is a system to annotate alternatively spliced transcripts based on a range of computational methods to identify the most functionally important transcript(s) of a gene. APPRIS P2
Il18bp-201	ENSMUST00000094134.4	1311	193aa	Protein coding	CCDS21522	Q9Z0M9	TSL:1 GENCODE basic APPRIS is a system to annotate alternatively spliced transcripts based on a range of computational methods to identify the most functionally important transcript(s) of a gene. APPRIS P2
Il18bp-202	ENSMUST00000209368.1	2596	194aa	Protein coding	-	A0A1B0GT50	TSL:1 GENCODE basic APPRIS is a system to annotate alternatively spliced transcripts based on a range of computational methods to identify the most functionally important transcript(s) of a gene. APPRIS ALT2
Il18bp-204	ENSMUST00000211502.1	498	137aa	Protein coding	-	A0A1B0GSF2	CDS 3' incomplete TSL:3

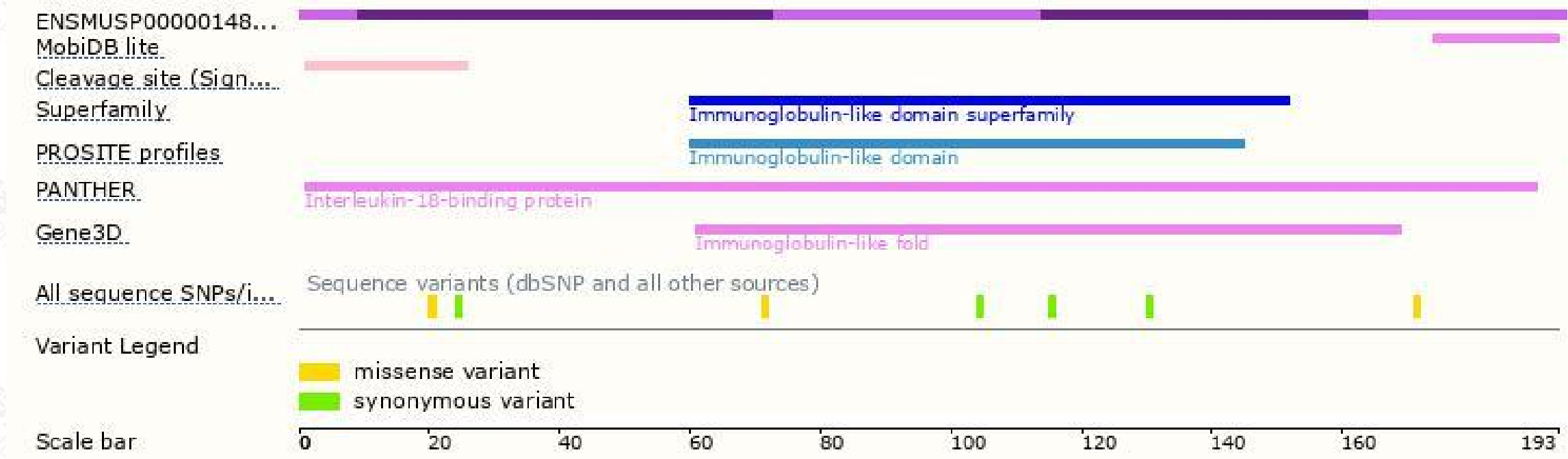
The strategy is based on the design of *Il18bp-203* transcript,the transcription is shown below:



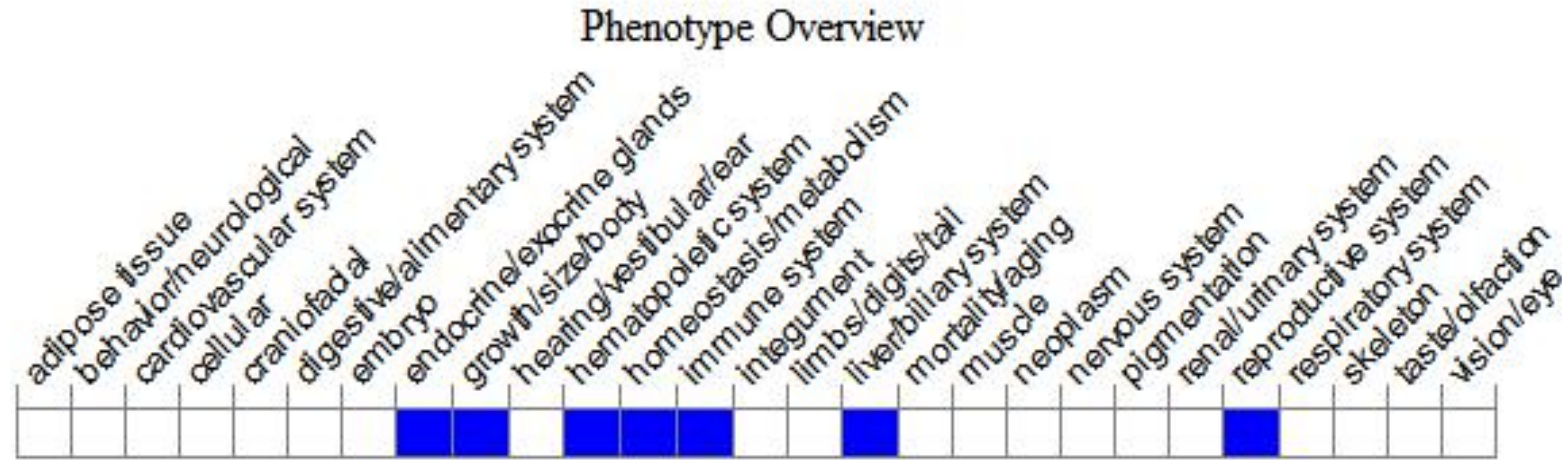
Genomic location distribution



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, homozygous knockout affects NK cell differentiation and function, with an increase in immature cells and a decrease in mature cells.

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