

Il18 Cas9-CKO Strategy

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Project Overview

Project Name

Il18

Project type

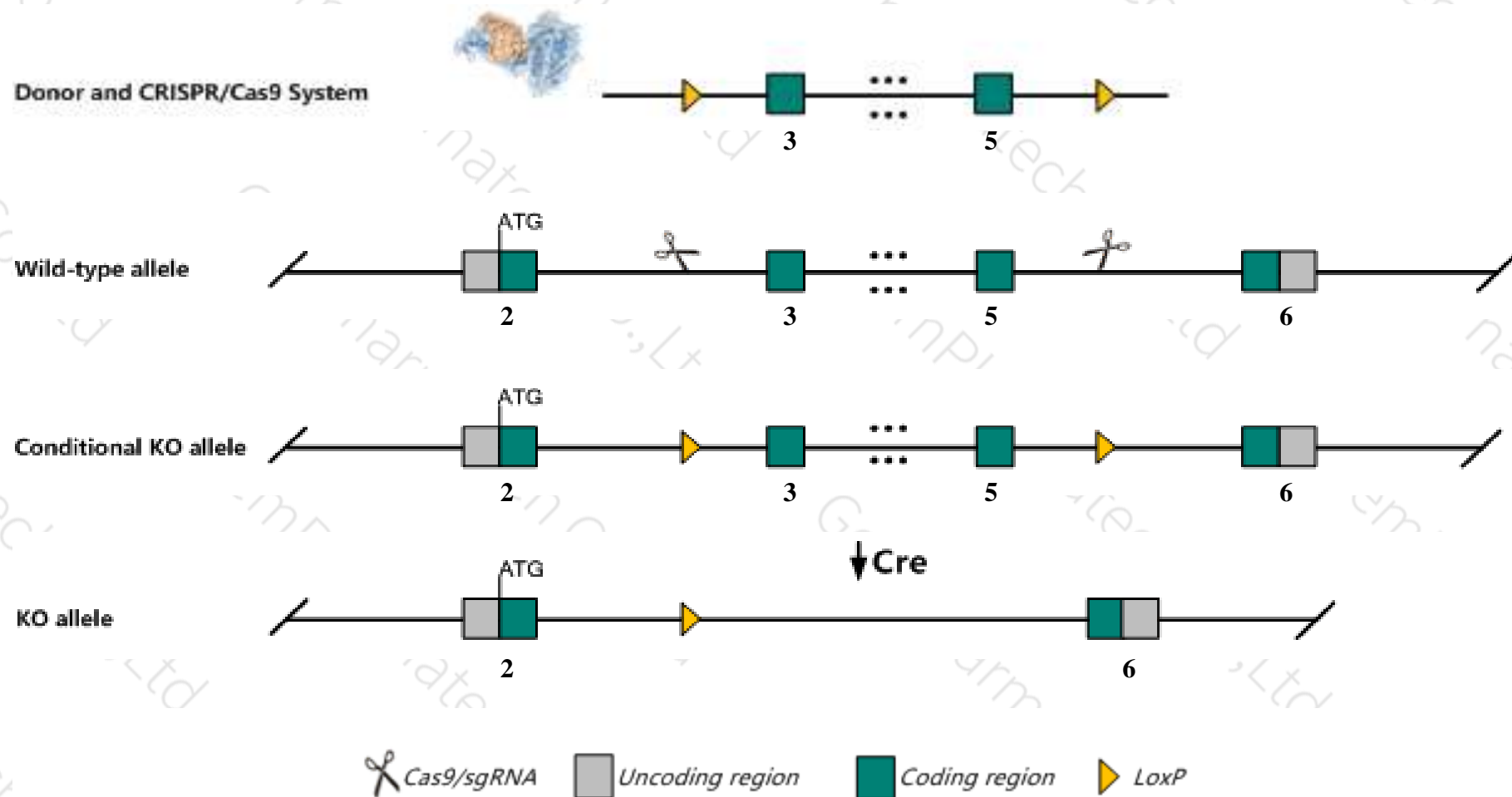
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Il18* gene. The schematic diagram is as follows:



- The *Il18* gene has 4 transcripts. According to the structure of *Il18* gene, exon3-exon5 of *Il18*-204 (ENSMUST00000214117.1) transcript is recommended as the knockout region. The region contains 278bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Il18* 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 and cell types.

- According to the existing MGI data, Mice homozygous for null alleles are deficient in producing IFN-gamma in response to infectious agents and have other impairments of the immune system.
- The *Il18* gene is located on the Chr9. 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)

Il18 interleukin 18 [Mus musculus (house mouse)]

Gene ID: 16173, updated on 9-Apr-2019

Summary



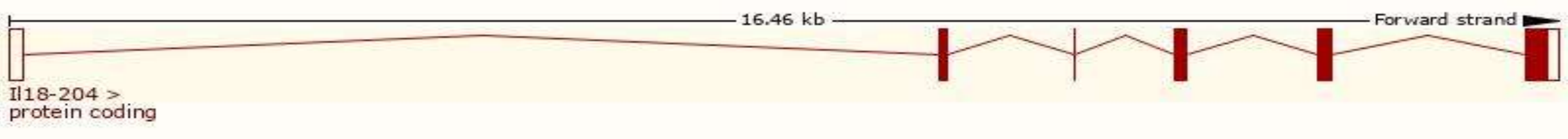
Official Symbol	Il18 provided by MGI
Official Full Name	interleukin 18 provided by MGI
Primary source	MGI:MGI:107936
See related	Ensembl:ENSMUSG00000039217
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Ig1f, Il-18
Expression	Ubiquitous expression in colon adult (RPKM 9.4), cortex adult (RPKM 6.9) and 25 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

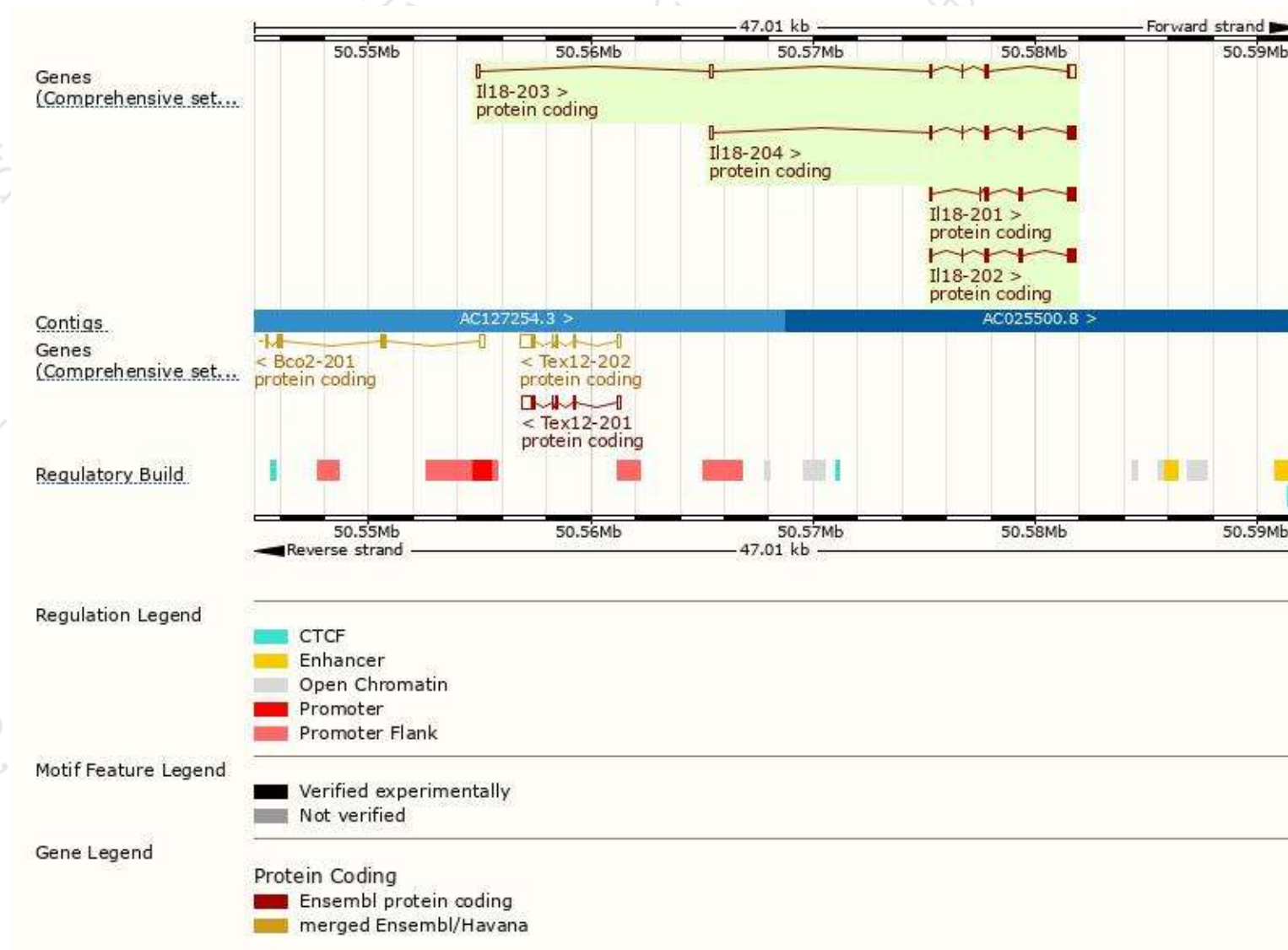
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
II18-204	ENSMUST00000214117.1	860	192aa	Protein coding	CCDS40622	P70380 Q2PMY2	TSL:1 GENCODE basic APPRIS P2
II18-202	ENSMUST00000180021.1	702	192aa	Protein coding	CCDS40622	P70380 Q2PMY2	TSL:1 GENCODE basic APPRIS P2
II18-203	ENSMUST00000213916.1	885	78aa	Protein coding	-	A0A1L1STF5	TSL:1 GENCODE basic
II18-201	ENSMUST00000059081.12	702	192aa	Protein coding	-	K3W4N2	TSL:5 GENCODE basic APPRIS ALT2

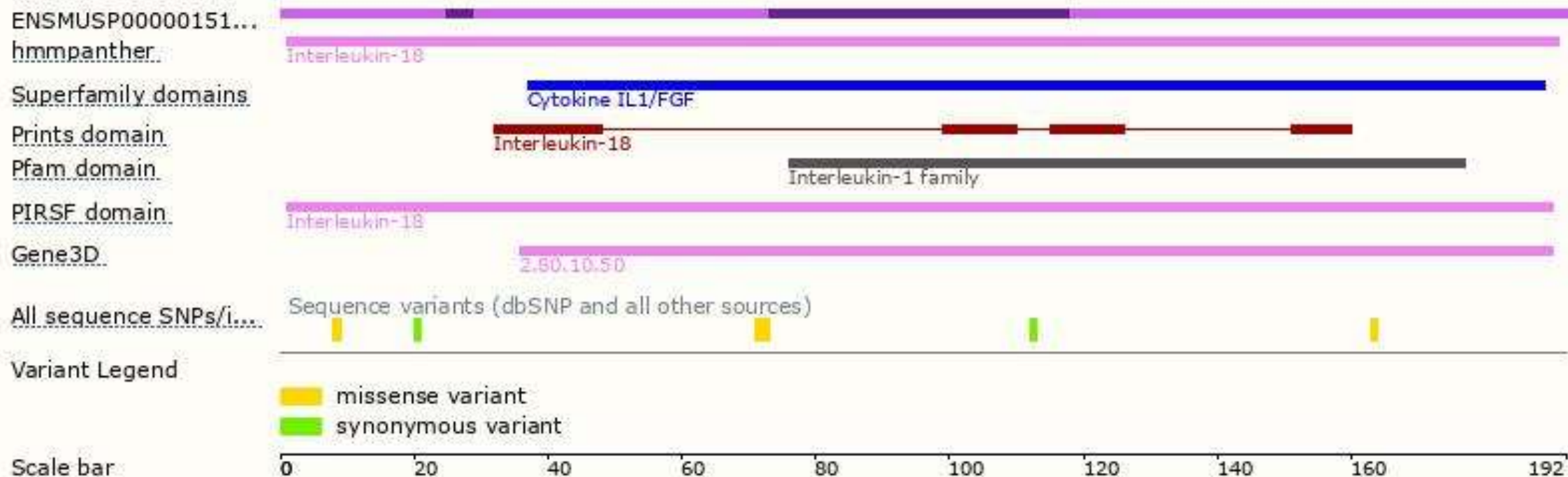
The strategy is based on the design of *II18-204* transcript,The transcription is shown below



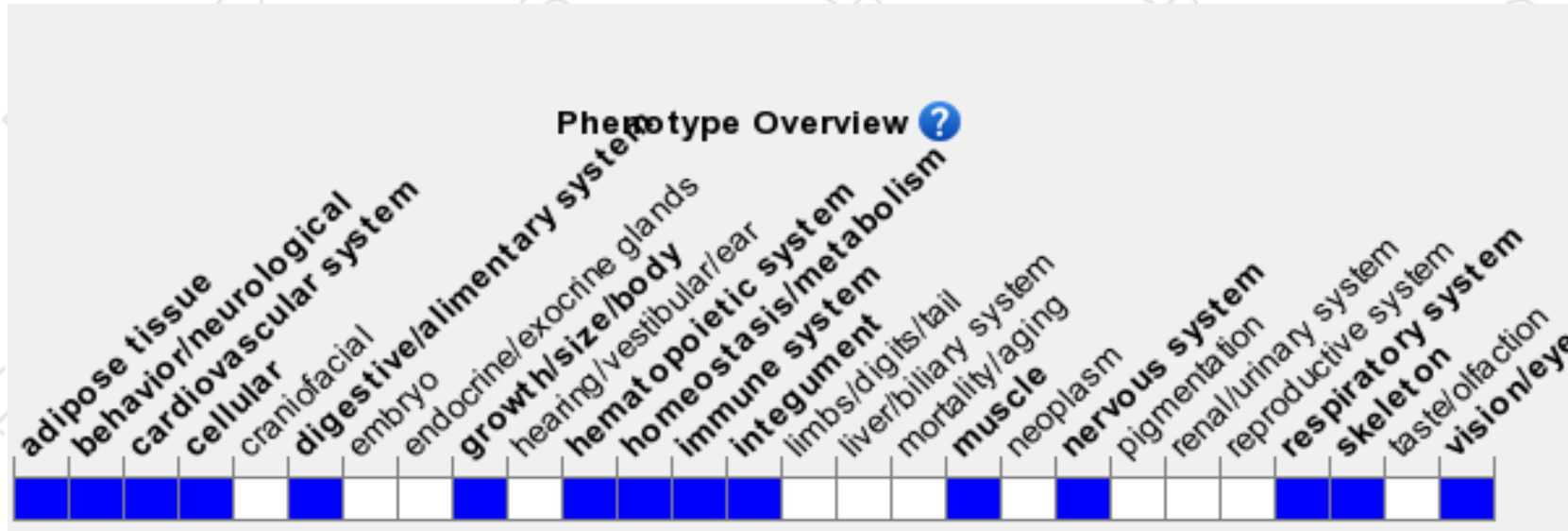
Genomic location distribution



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 null alleles are deficient in producing IFN-gamma in response to infectious agents and have other impairments of the immune system.

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

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