Il17f Cas9-KO Strategy

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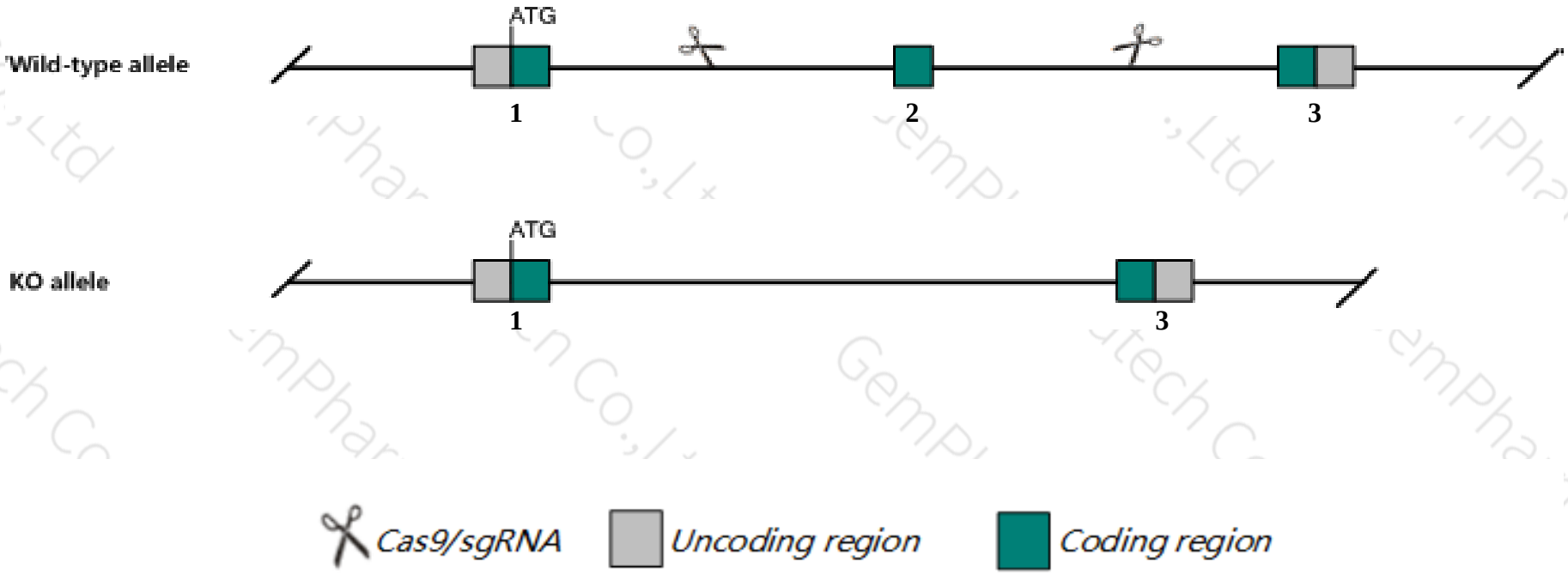
Design Date: 2018-6-22

Project Overview

Project Name	***Il17f***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Il17f* gene. The schematic diagram is as follows:



Technical routes

➢ The *Il17f* gene has 4 transcripts. According to the structure of *Il17f* gene, exon2 of *Il17f-201* (ENSMUST00000039046.9) transcript is recommended as the knockout region.The region contains 221bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Il17f* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9 and sgRNA 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.

Notice

- According to the existing MGI data,Mice homozygous for one null allele exhibit increased susceptibility to oral bacterial infection while mice homozygous for another null allele exhibit decreased susceptibility to experimental models of colitis and CNS inflammation but have enhanced inflammatory responses to a chronic asthma model.

- Transcript *Il17f-203* may not be affected.

- The *Il17f* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information（NCBI）

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Il17f interleukin 17F [*Mus musculus* (house mouse)]

Gene ID: 257630, updated on 12-Aug-2019

Summary

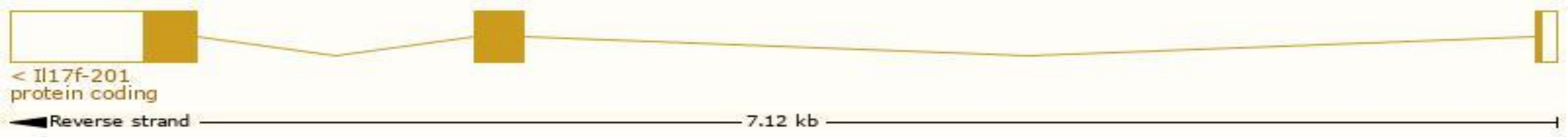
Official Symbol	Il17f provided by MGI
Official Full Name	interleukin 17F provided by MGI
Primary source	MGI:MGI:2676631
See related	Ensembl:ENSMUSG00000041872
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	C87042; IL-17F
Expression	Low expression observed in reference dataset See more
Orthologs	human all

Transcript information（Ensembl）

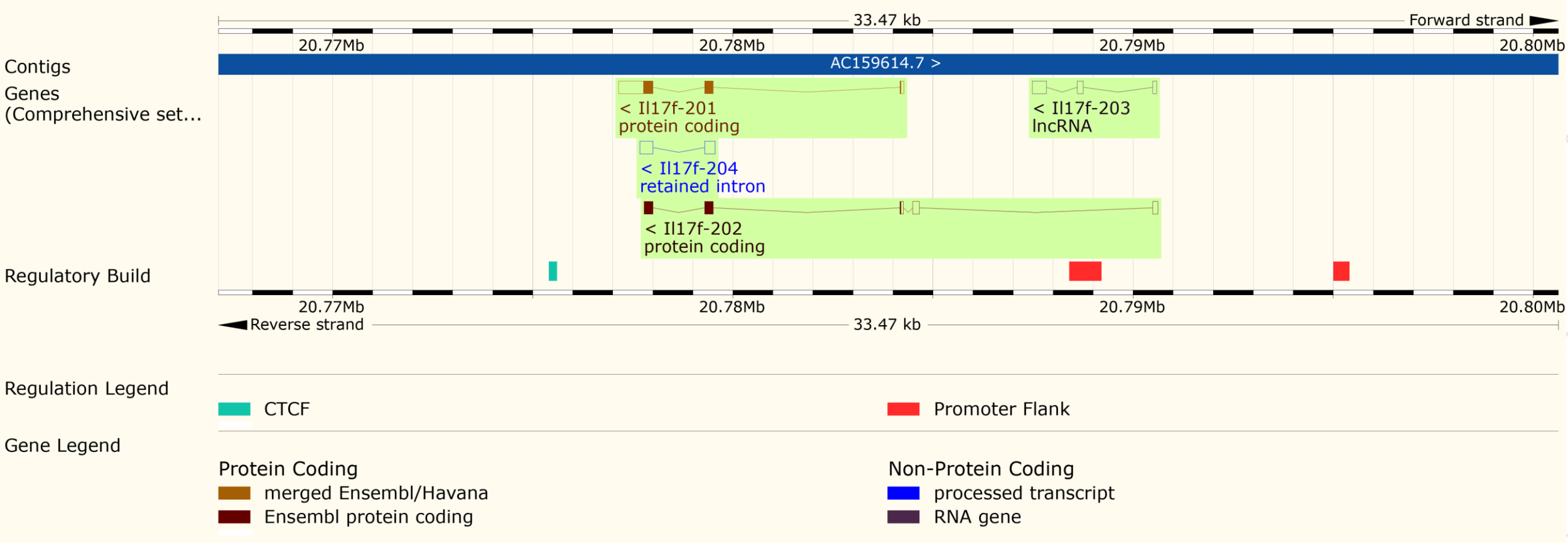
The gene has 4 transcripts,all transcripts are shown below:

Name ▲	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Il17f-201	ENSMUST00000039046.9	1178	161aa	ENSMUSP00000046960.3	Protein coding	CCDS35522	Q7TNI7	TSL:1 GENCODE basic APPRIS P1
Il17f-202	ENSMUST00000189301.1	825	156aa	ENSMUSP00000140122.1	Protein coding	-	A0A087WQB4	CDS 3' incomplete TSL:3
Il17f-203	ENSMUST00000190692.1	604	No protein	-	lncRNA	-	-	TSL:2
Il17f-204	ENSMUST00000191111.1	590	No protein	-	Retained intron	-	-	TSL:1

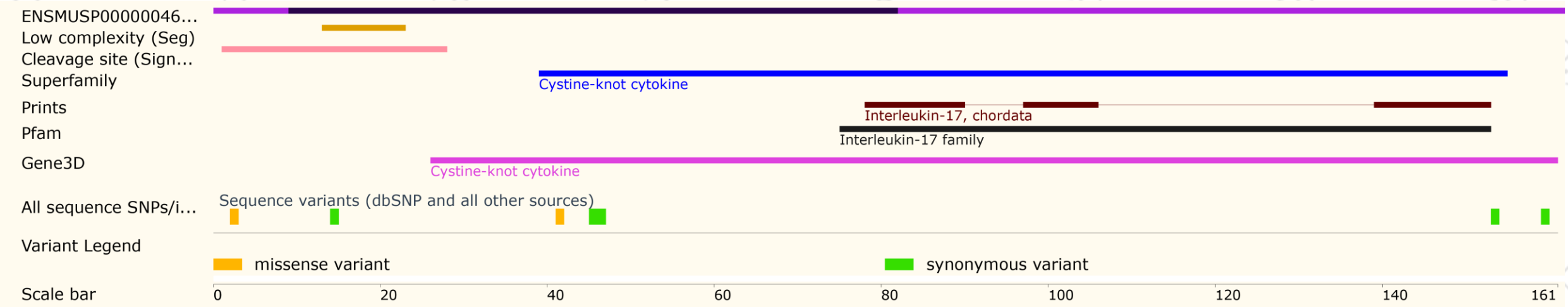
The strategy is based on the design of *Il17f-201* transcript,The transcription is shown below



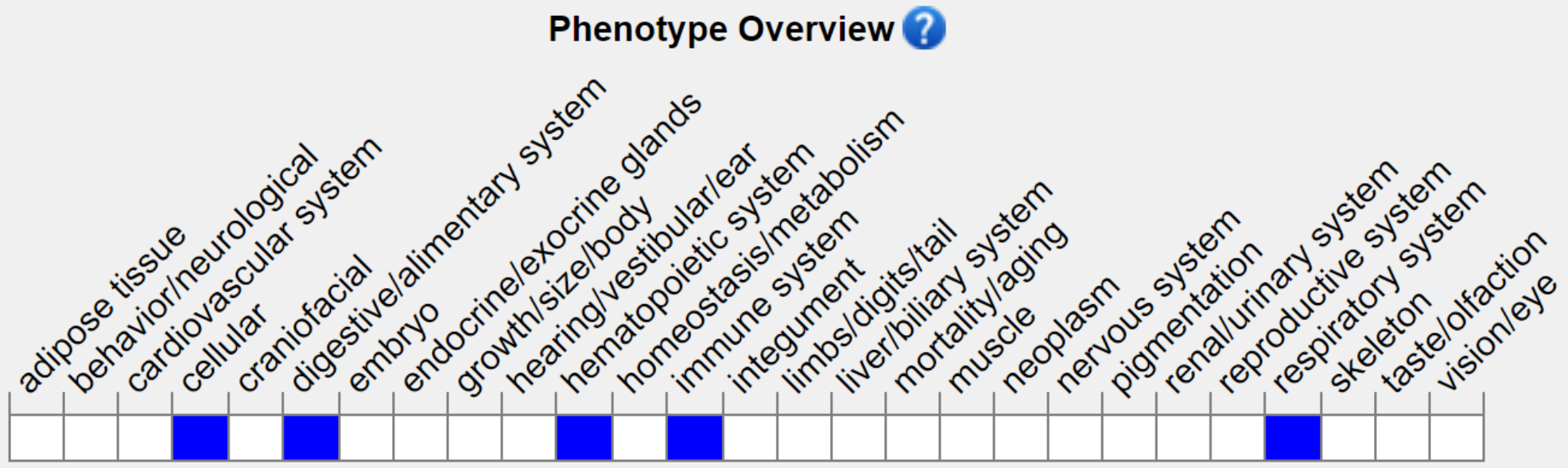
Genomic location distribution



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 one null allele exhibit increased susceptibility to oral bacterial infection while mice homozygous for another null allele exhibit decreased susceptibility to experimental models of colitis and CNS inflammation but have enhanced inflammatory responses to a chronic asthma model.

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

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