Il34 Cas9-KO Strategy

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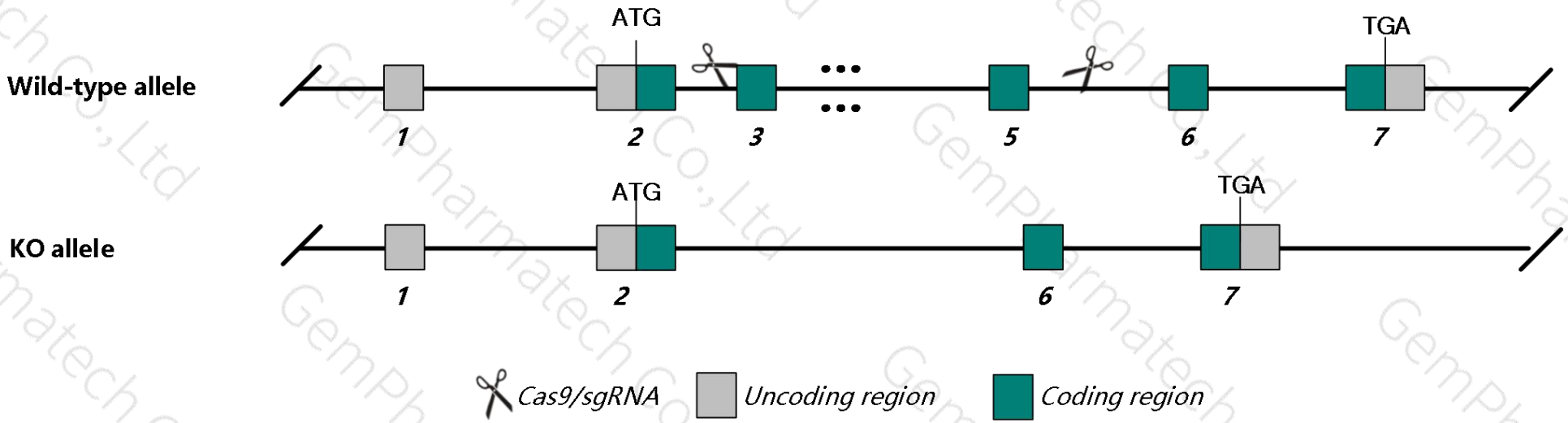
Project Overview

Project Name	***Il34***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Il34* gene. The schematic diagram is as follows:



Technical routes

➢ The *Il34* gene has 5 transcripts. According to the structure of *Il34* gene, exon3-exon5 of *Il34-201* (ENSMUST00000076846.10) transcript is recommended as the knockout region.The region contains 374bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Il34* 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.

Notice

- According to the existing MGI data,Mice homozygous for a knock-out allele exhibit reduced Langerhans cells and microglial cells in the skin and brain, respectively, with decreased susceptibility to type IV hypersensitivity reaction and fungal infection but increased susceptibility to viral infection.

- Transcript *Il34-202/203/205* may not be affected. The KO region is close to 5'UTR region of the *Gm15894* gene. Knockout the region may affect the regulation of *Gm15894* gene.

- The *Il34* gene is located on the Chr8. 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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Il34 interleukin 34 [*Mus musculus* (house mouse)]

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Gene ID: 76527, updated on 3-Aug-2021

Summary

Official Symbol	Il34 provided by MGI
Official Full Name	interleukin 34 provided by MGI
Primary source	MGI:MGI:1923777
See related	Ensembl:ENSMUSG00000031750
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	AI593503; 2010004A03Rik
Expression	Broad expression in adrenal adult (RPKM 23.9), frontal lobe adult (RPKM 16.7) and 18 other tissues See more
Orthologs	human all

NEW **Try the new Gene table**

Try the new Transcript table

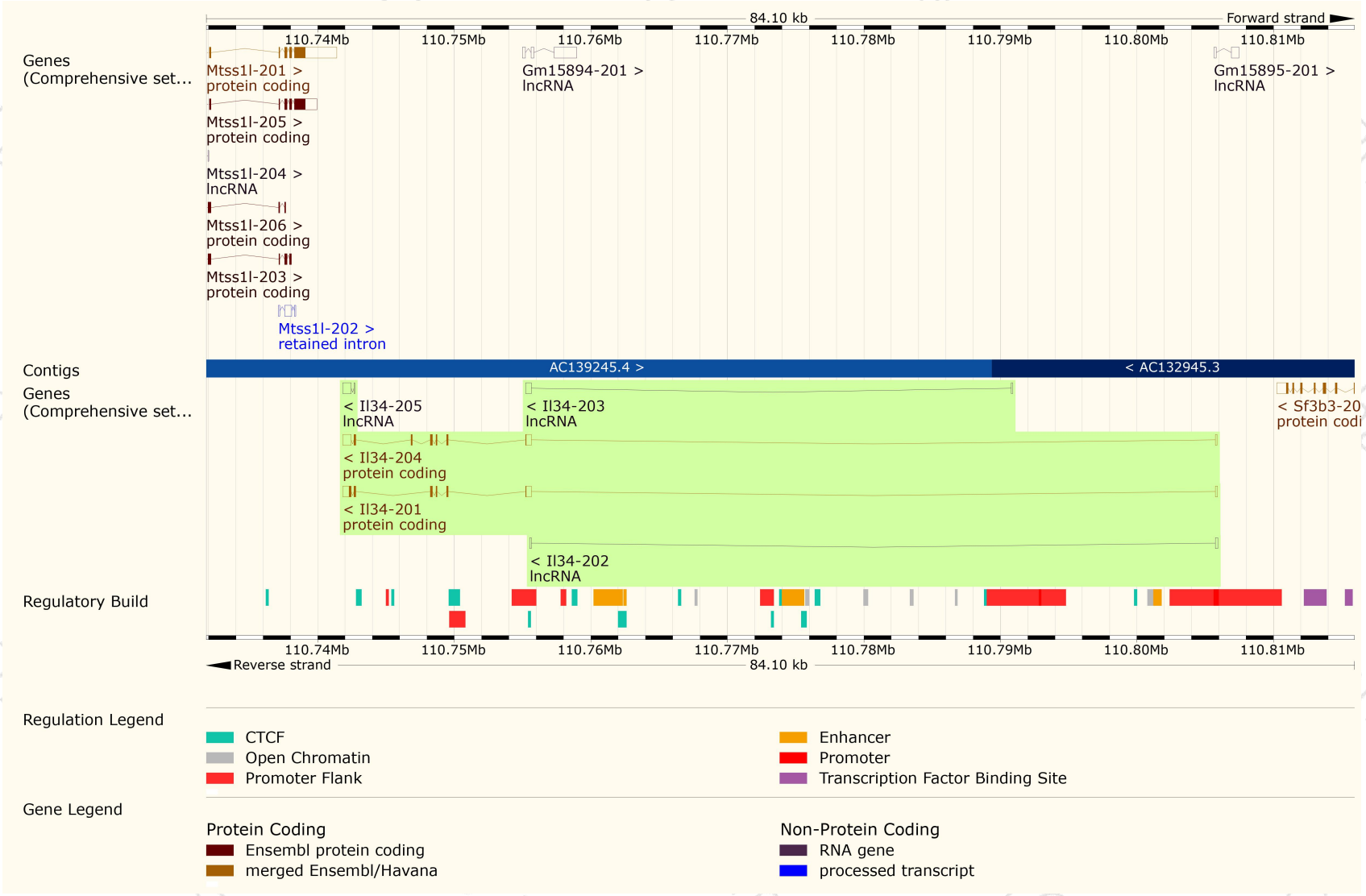
Transcript information（Ensembl）

The gene has 5 transcripts,all transcripts are shown below:

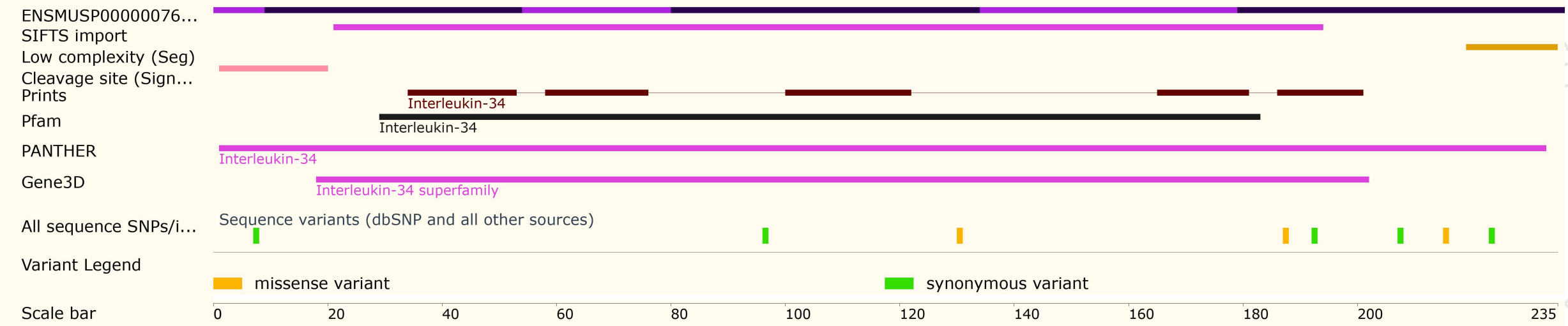
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt Match	Flags
Il34-204	ENSMUST00000150680.2	1796	219aa	Protein coding	CCDS52670	Q8R1R4-2	GENCODE basic TSL:1
Il34-201	ENSMUST00000076846.11	1709	235aa	Protein coding	CCDS52669	Q8R1R4-1	GENCODE basic APPRIS P1 TSL:1
Il34-205	ENSMUST00000154803.2	675	No protein	Processed transcript	-	-	TSL:3
Il34-203	ENSMUST00000148732.2	515	No protein	Processed transcript	-	-	TSL:3
Il34-202	ENSMUST00000137362.2	309	No protein	Processed transcript	-	-	TSL:3

The strategy is based on the design of *Il34-201* transcript,The transcription is shown below

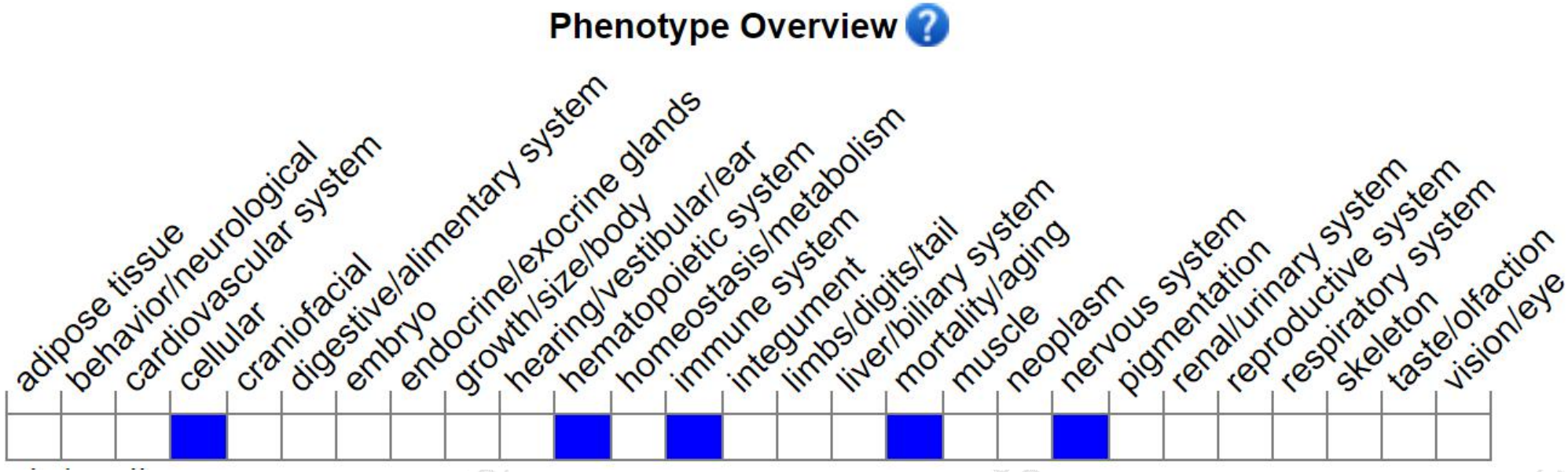
Genomic location distribution



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/).

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

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