Il33 Cas9-KO Strategy

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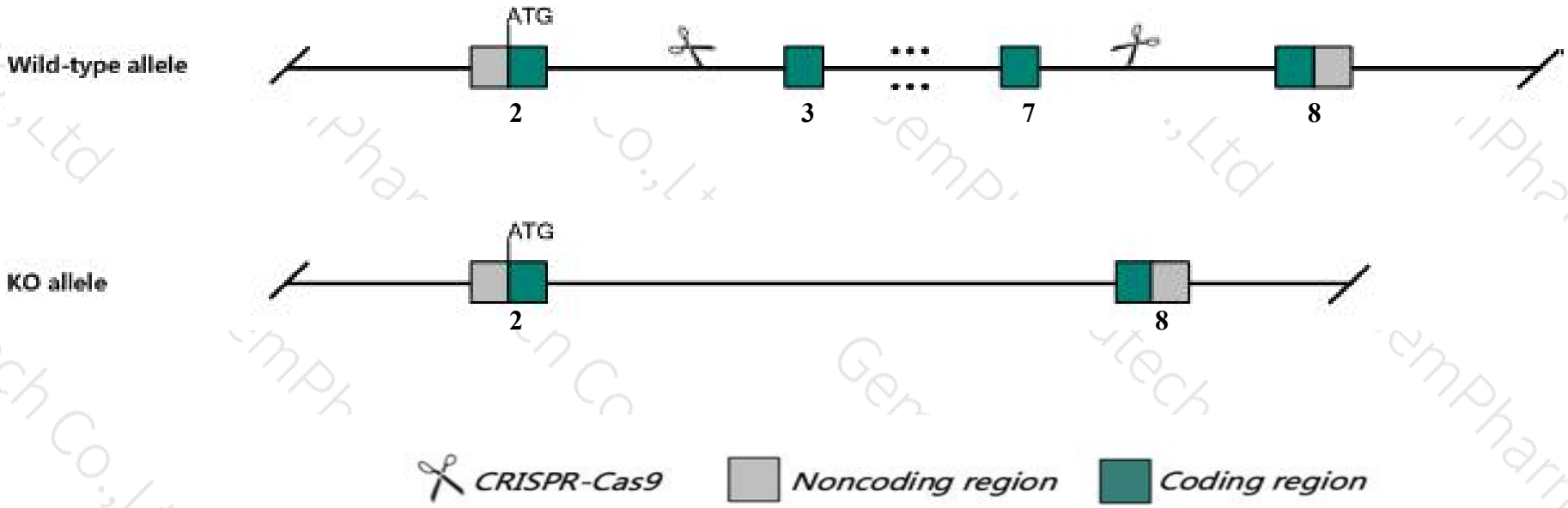
Project Overview

Project Name	***Il33***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Il33* gene. The schematic diagram is as follows:



Technical routes

➢ The *Il33* gene has 5 transcripts. According to the structure of *Il33* gene, exon3-exon7 of *Il33-201* (ENSMUST00000025724.8) transcript is recommended as the knockout region.The region contains 512bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Il33* gene. The brief process is as follows: gRNA was transcribed in vitro.Cas9 and gRNA 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,Nullizygous mutations lead to altered Type 2 immunity and increased susceptibility to parasite infection. Homozygotes for a null allele show accelerated ovarian functional decline and early reproductive aging due to impaired migration of ovarian macrophages and failed disposal of atretic follicles.

- The *Il33* gene is located on the Chr19. 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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Il33 interleukin 33 [Mus musculus (house mouse)]

Gene ID: 77125, updated on 19-Mar-2019

Summary

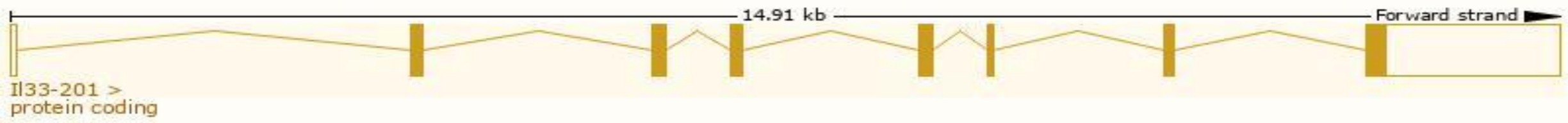
Official Symbol	Il33 provided by MGI
Official Full Name	interleukin 33 provided byMGI
Primary source	MGI:MGI:1924375
See related	Ensembl:ENSMUSG00000024810
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	9230117N10Rik, Il-33, Il1f11, NF-HEV
Expression	Broad expression in lung adult (RPKM 13.9), cerebellum adult (RPKM 10.6) and 19 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

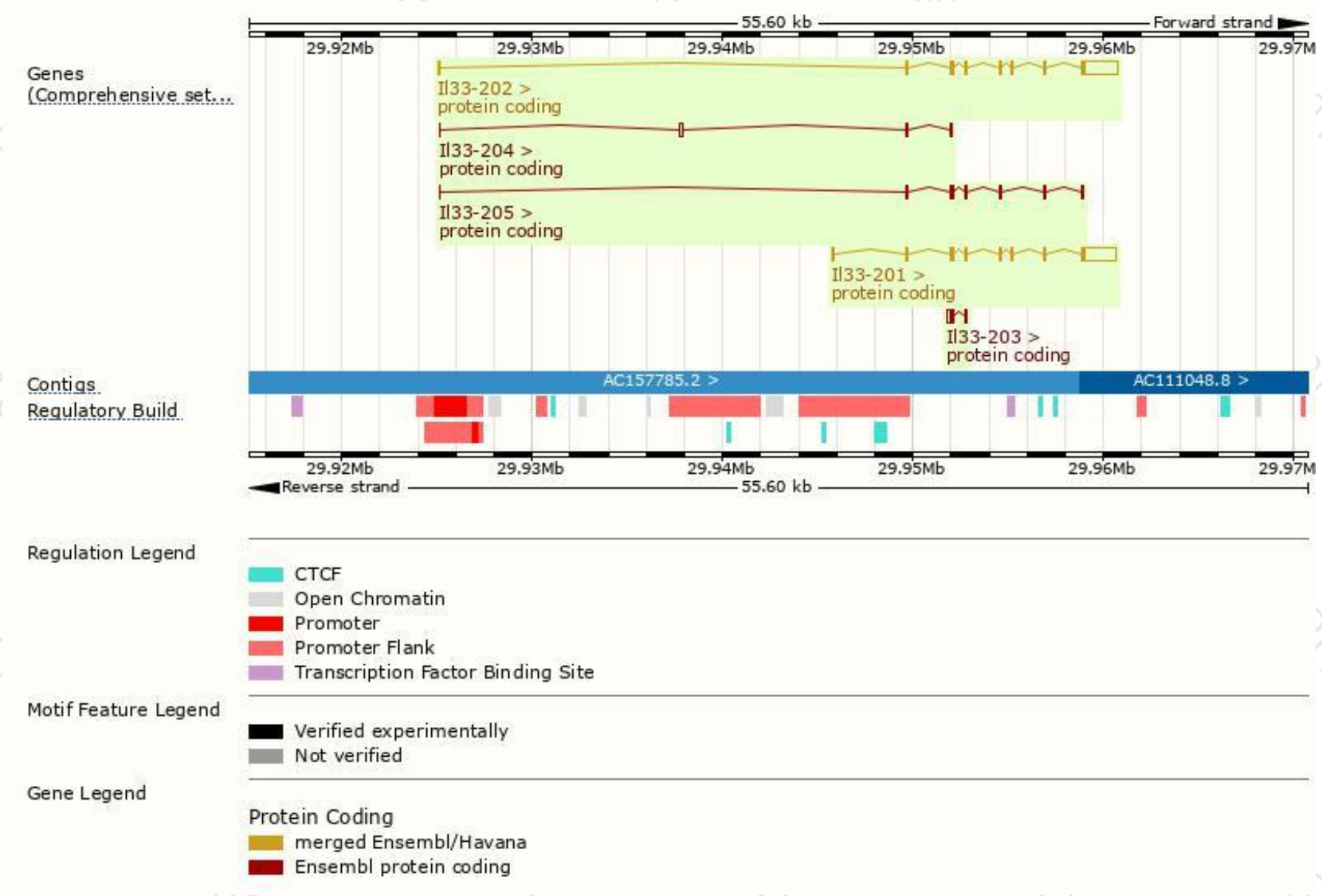
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Il33-201	ENSMUST00000025724.8	2544	266aa	Protein coding	CCDS29740	Q8BVZ5	TSL:1 GENCODE basic APPRIS P1
Il33-202	ENSMUST00000120388.8	2537	266aa	Protein coding	CCDS29740	Q8BVZ5	TSL:1 GENCODE basic APPRIS P1
Il33-205	ENSMUST00000177518.7	725	228aa	Protein coding	-	H3BLN5	CDS 3' incomplete TSL:3
Il33-204	ENSMUST00000144528.7	377	66aa	Protein coding	-	D3Z6T7	CDS 3' incomplete TSL:3
Il33-203	ENSMUST00000136850.1	370	83aa	Protein coding	-	H3BKB5	CDS 3' incomplete TSL:2

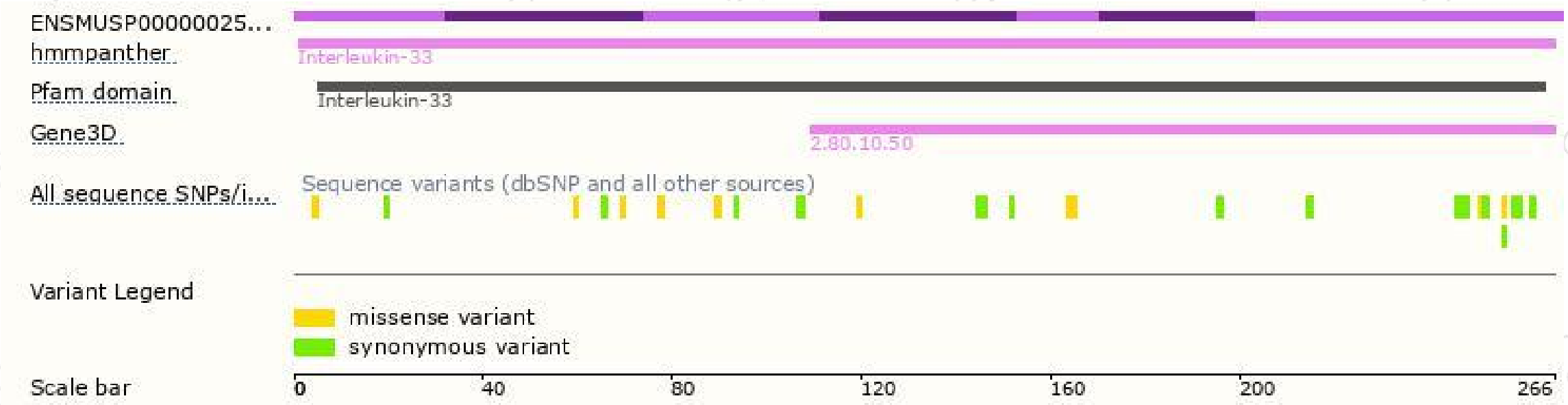
The strategy is based on the design of *Il33-201* transcript,The transcription is shown below



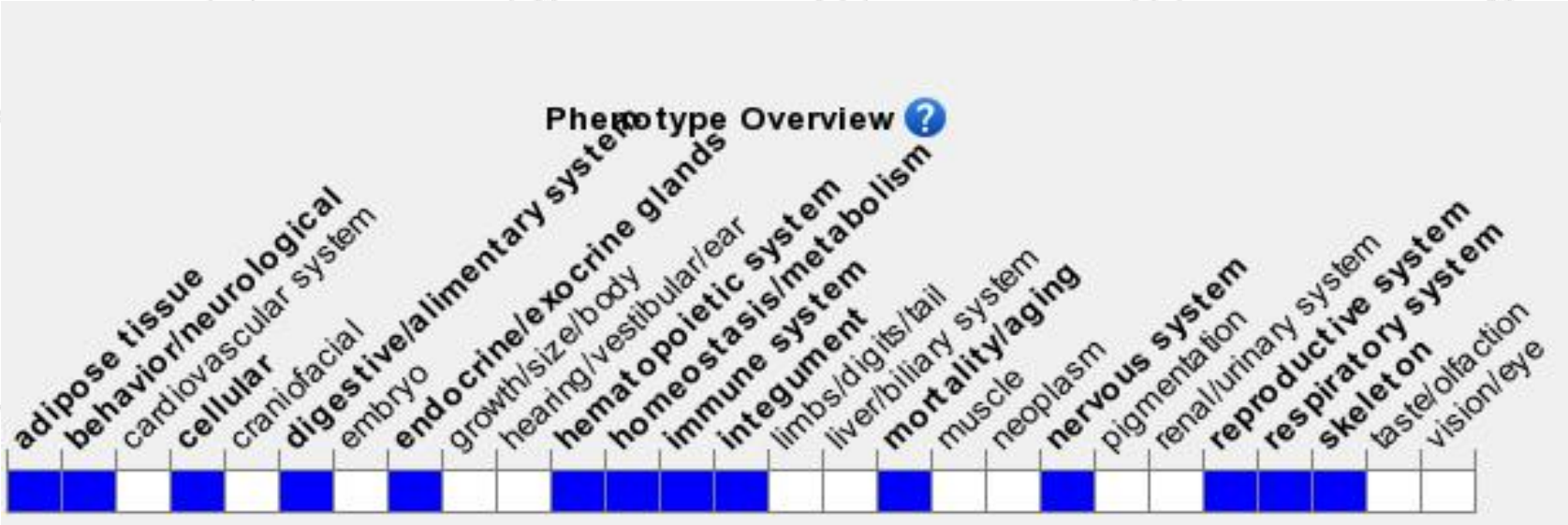
Genomic location distribution



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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