

Il12a Cas9-KO Strategy

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Project Overview

Project Name

Il12a

Project type

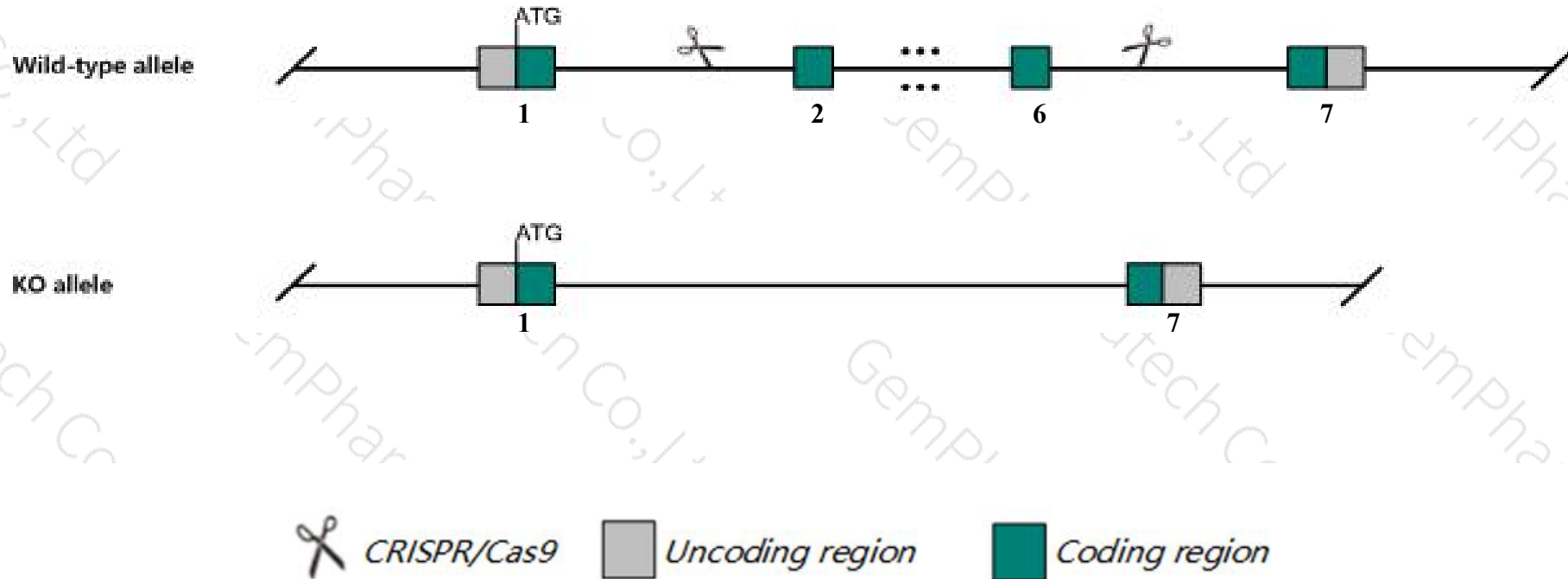
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Il12a* gene. The schematic diagram is as follows:



- The *Il12a* gene has 6 transcripts. According to the structure of *Il12a* gene, exon2-exon6 of *Il12a-202* (ENSMUST00000107816.3) transcript is recommended as the knockout region. The region contains 476bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Il12a* gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, Null homozygotes have decreased NK cell responses, altered effector T cell differentiation, and increased susceptibility to parasitic infections.
- The *Il12a* gene is located on the Chr3. 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)

Il12a interleukin 12a [Mus musculus (house mouse)]

Gene ID: 16159, updated on 23-Feb-2019

Summary



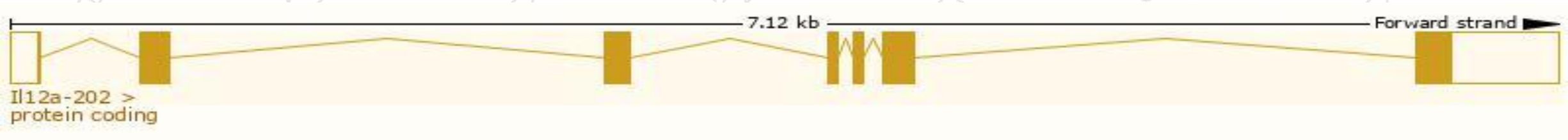
Official Symbol	Il12a provided by MGI
Official Full Name	interleukin 12a provided by MGI
Primary source	MGI:MGI:96539
See related	Ensembl:ENSMUSG000000027776
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	IL-12p35, IL-12a, IL12a, p35
Expression	Biased expression in spleen adult (RPKM 2.9), lung adult (RPKM 1.2) and 8 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

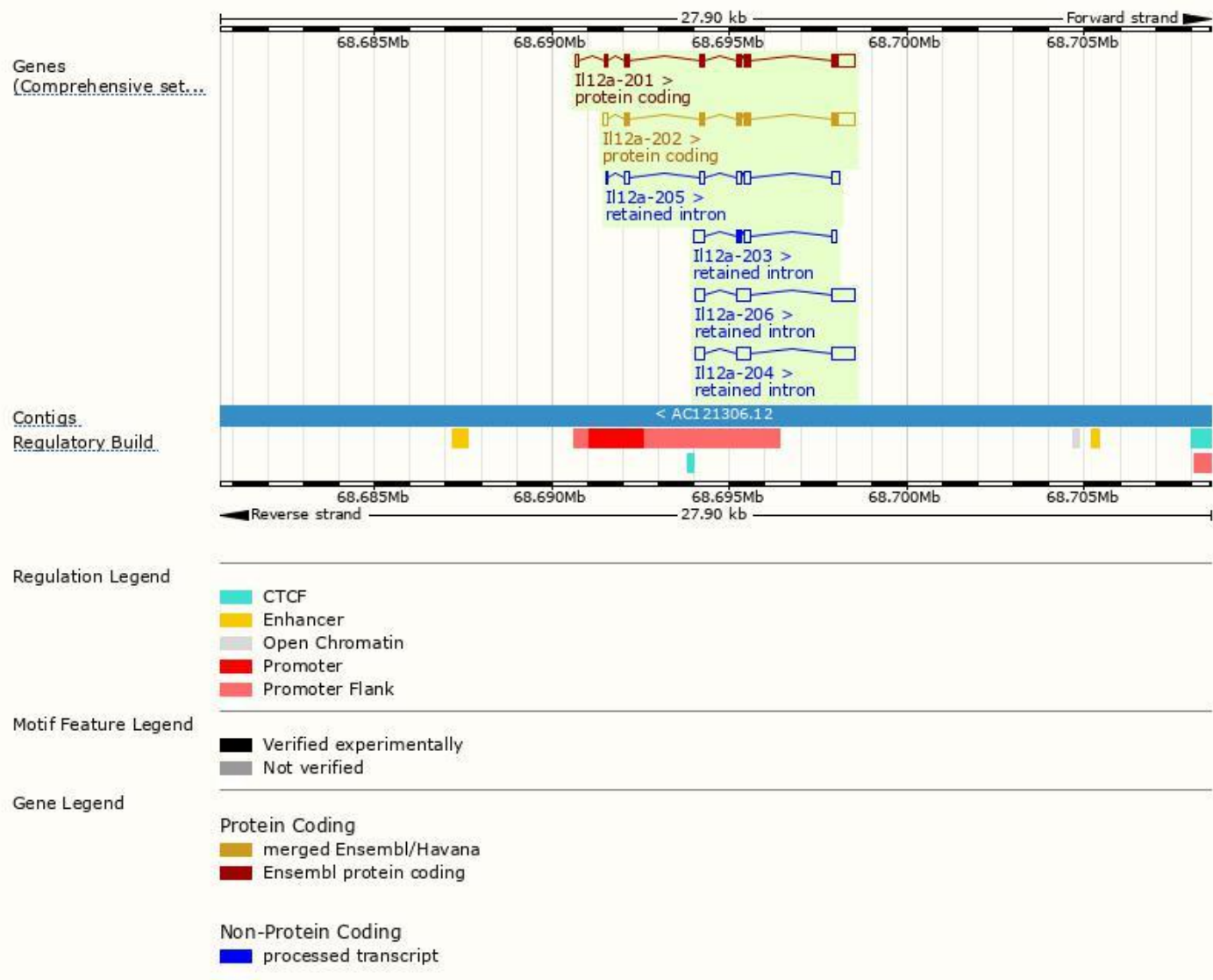
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
II12a-202	ENSMUST00000107816.3	1268	215aa	Protein coding	CCDS17400	P43431 Q549G3	TSL:1 GENCODE basic APPRIS P2
II12a-201	ENSMUST00000029345.11	1303	236aa	Protein coding	-	F8WI71	TSL:5 GENCODE basic APPRIS ALT2
II12a-206	ENSMUST00000195517.2	1298	No protein	Retained intron	-	-	TSL:2
II12a-204	ENSMUST00000192812.4	1296	No protein	Retained intron	-	-	TSL:2
II12a-205	ENSMUST00000195408.5	786	No protein	Retained intron	-	-	TSL:2
II12a-203	ENSMUST00000191910.1	639	No protein	Retained intron	-	-	TSL:2

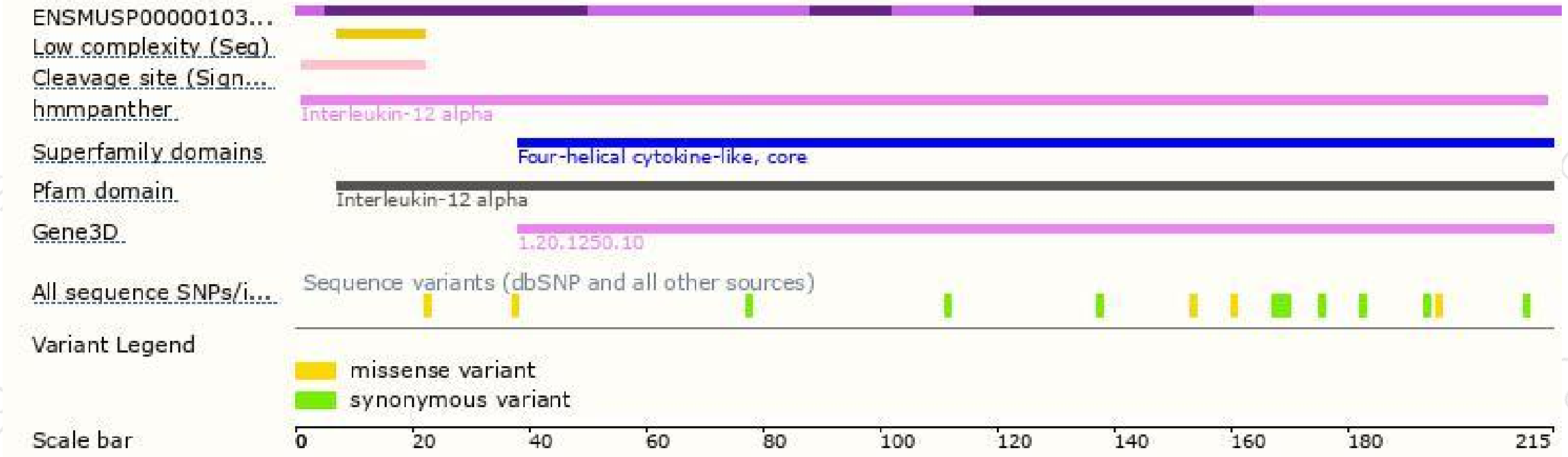
The strategy is based on the design of *Il12a-202* transcript,The transcription is shown below



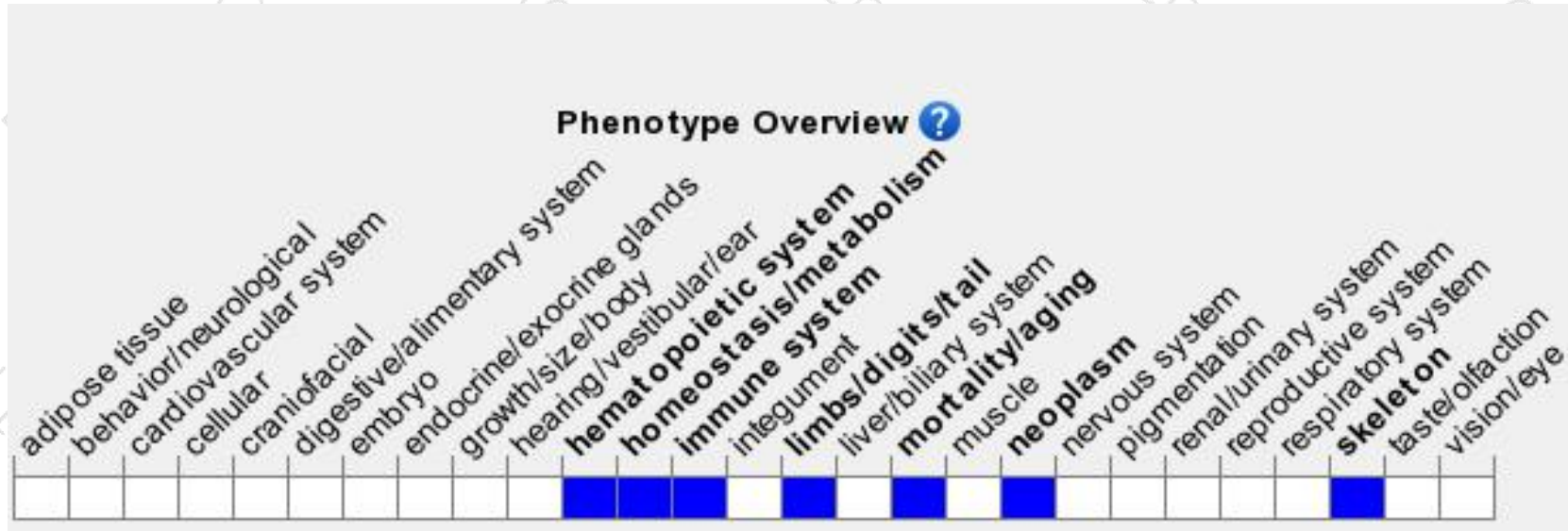
Genomic location distribution



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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