

Il21r Cas9-KO Strategy

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Reviewer:

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Design Date:

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Project Overview



Project Name

IL21r

Project type

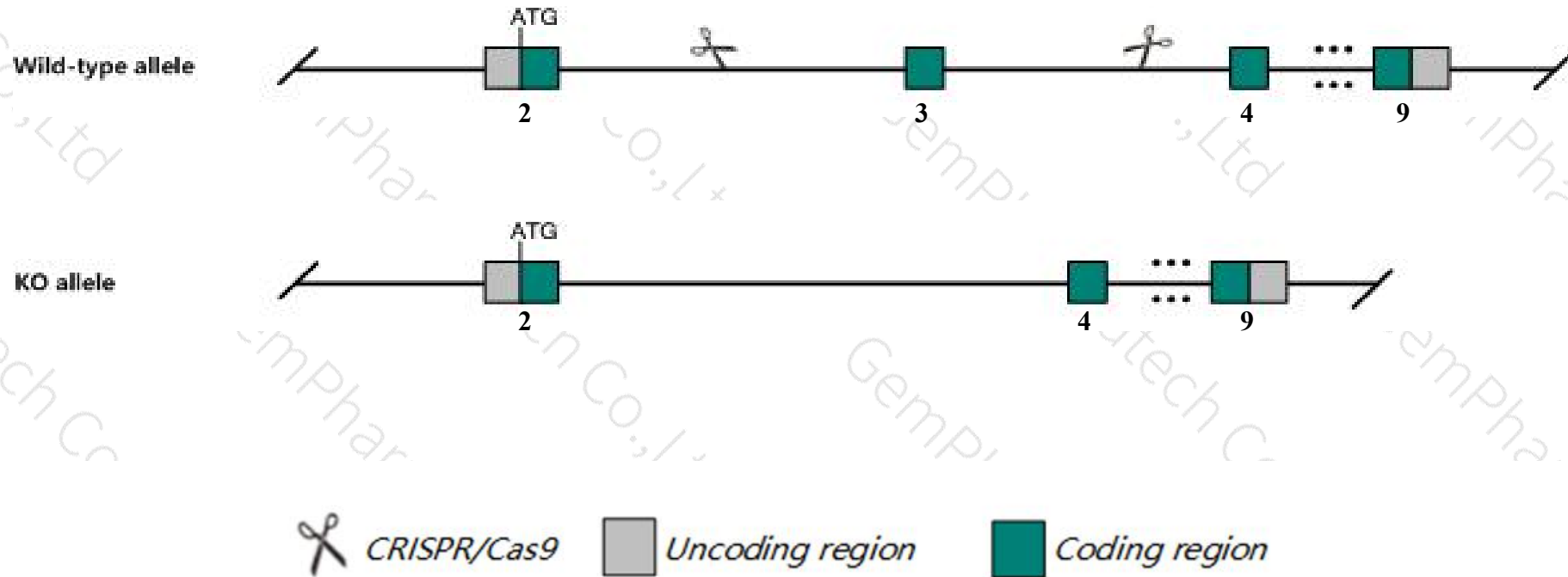
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Il21r* gene. The schematic diagram is as follows:



- The *Il21r* gene has 3 transcripts. According to the structure of *Il21r* gene, exon3 of *Il21r-201* (ENSMUST00000033000.7) transcript is recommended as the knockout region. The region contains 103bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Il21r* gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, Homozygous null mutation of this gene results in decreased immunoglobulin levels, decreased Th17 T cell differentiation, and decreased production of IL-17.
- The *Il21r* gene is located on the Chr7. 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)

Il21r interleukin 21 receptor [*Mus musculus* (house mouse)]

Gene ID: 60504, updated on 21-Aug-2019

Summary



Official Symbol	Il21r provided by MGI
Official Full Name	interleukin 21 receptor provided by MGI
Primary source	MGI:MGI:1890475
See related	Ensembl:ENSMUSG00000030745
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	NILR
Expression	Biased expression in spleen adult (RPKM 55.0), thymus adult (RPKM 44.6) and 3 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

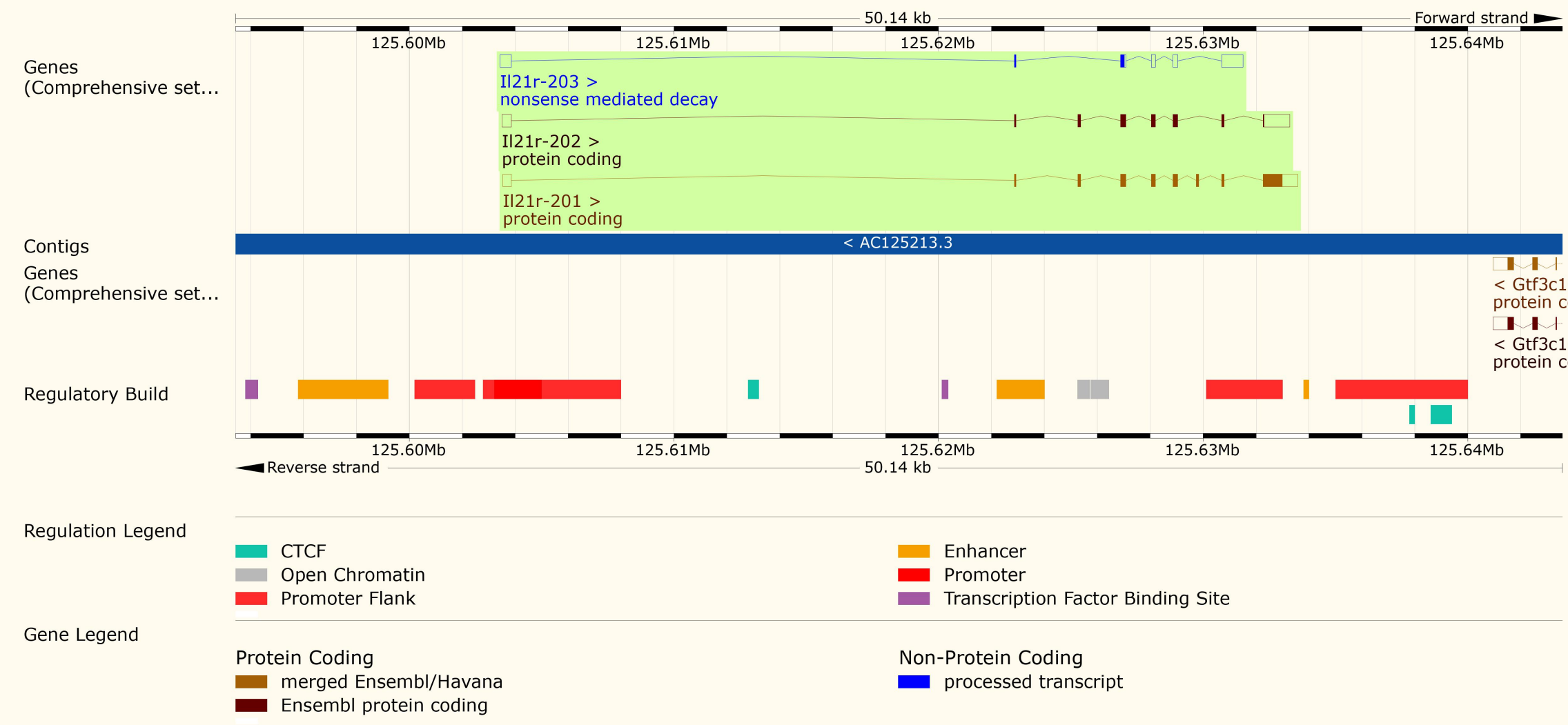
The gene has 3 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
II21r-201	ENSMUST00000033000.7	2499	529aa	Protein coding	CCDS21823	Q3TAI3 Q9JHX3	TSL:1 GENCODE basic APPRIS P2
II21r-202	ENSMUST00000206103.1	2147	268aa	Protein coding	-	Q6PEU8	TSL:1 GENCODE basic APPRIS ALT2
II21r-203	ENSMUST00000206234.1	1822	63aa	Nonsense mediated decay	-	A0A0U1RP02	TSL:1

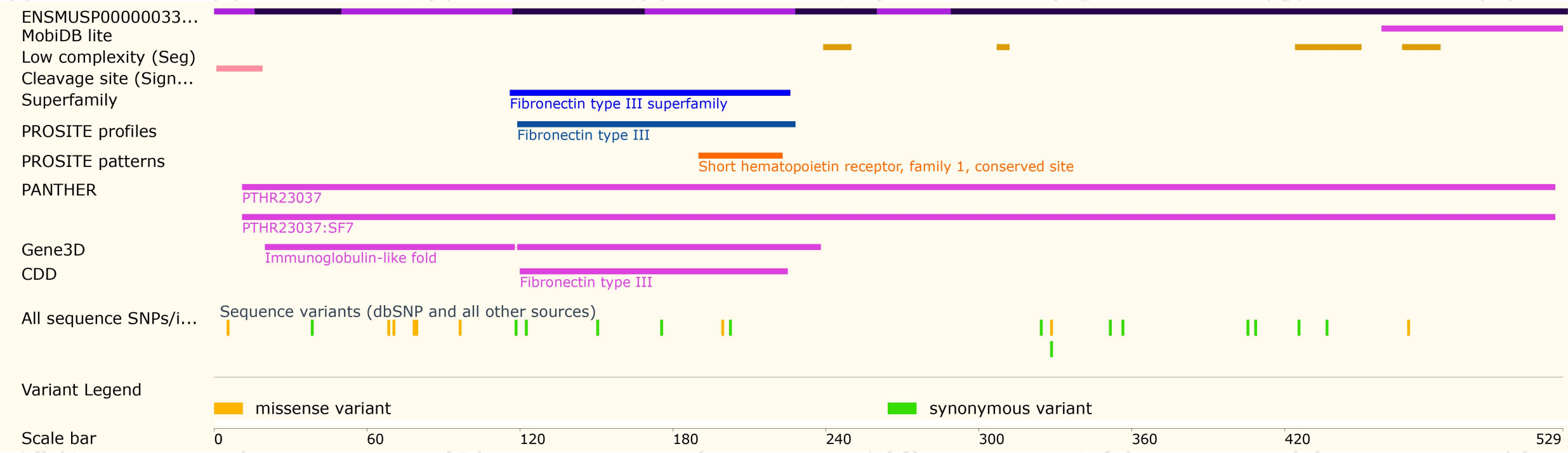
The strategy is based on the design of *II21r-201* transcript, The transcription is shown below



Genomic location distribution

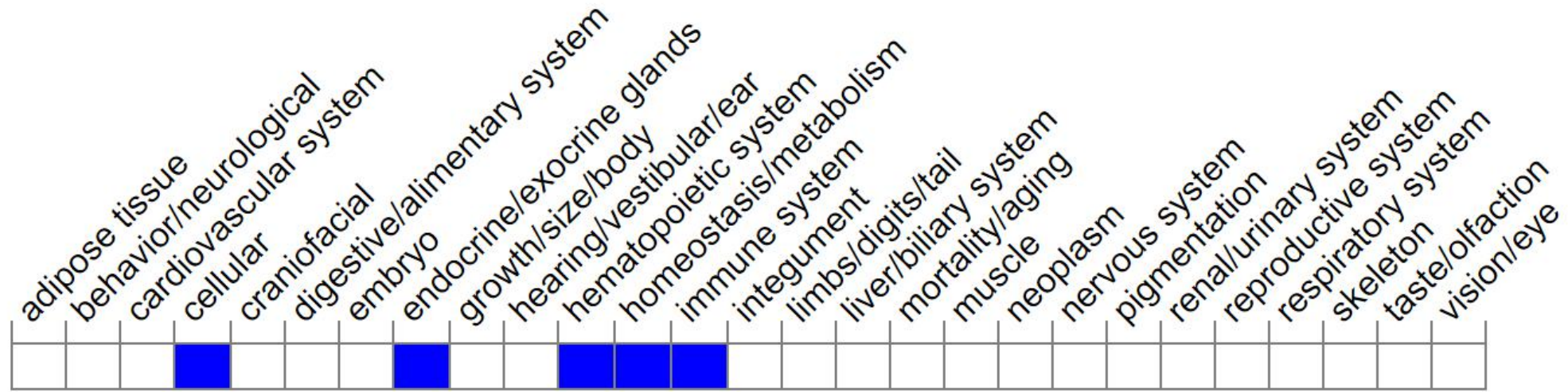


Protein domain



Mouse phenotype description(MGI)

Phenotype Overview



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, Homozygous null mutation of this gene results in decreased immunoglobulin levels, decreased Th17 T cell differentiation, and decreased production of IL-17.

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

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