

Il13ra2 Cas9-CKO Strategy

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Overview

Target Gene Name

- *Il13ra2*

Project Type

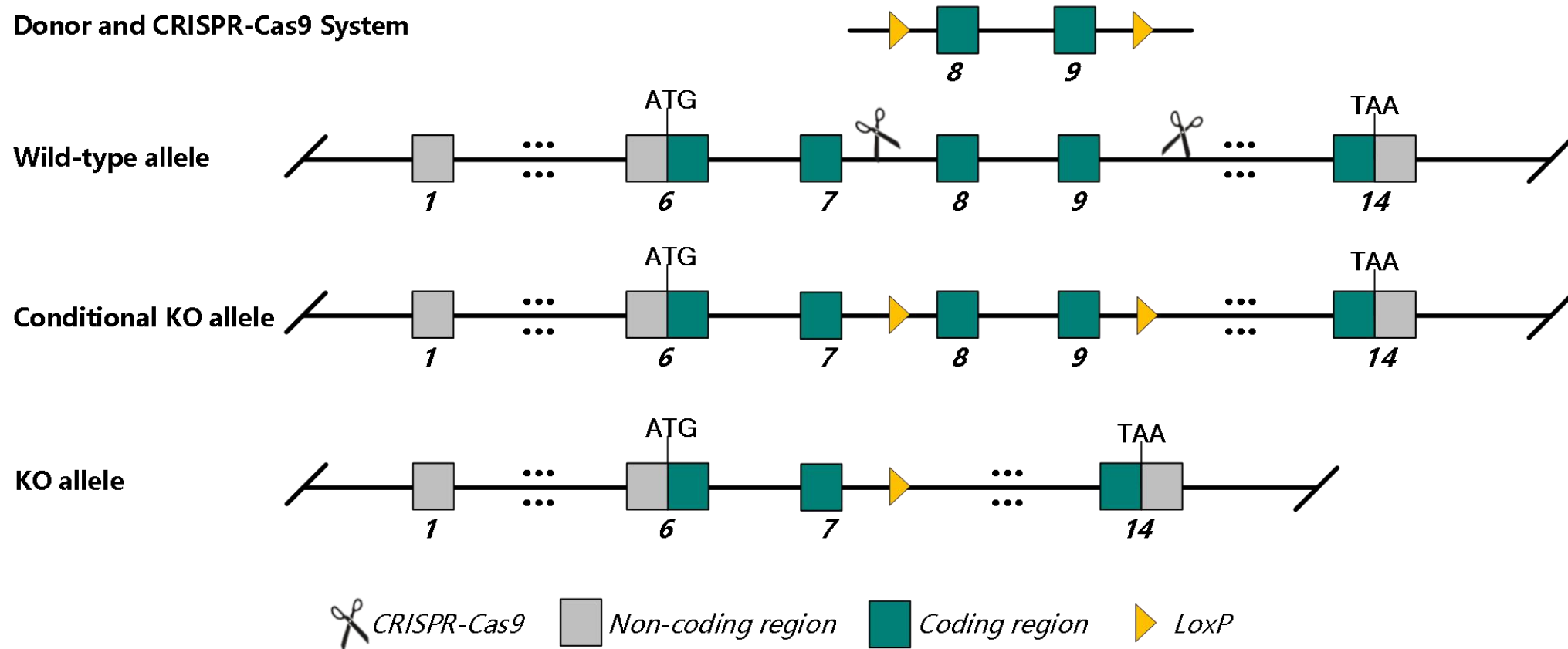
- Cas9-CKO

Genetic Background

- C57BL/6JGpt

Strain Strategy

Donor and CRISPR-Cas9 System



Schematic representation of CRISPR-Cas9 engineering used to edit the *Ill3ra2* gene.

Technical Information

- The *Il13ra2* gene has 2 transcripts. According to the structure of *Il13ra2* gene, exon 8-9 of *Il13ra2*-201 (ENSMUST00000033646.9) is recommended as the knockout region. The region contains 275 bp of coding sequence. Knockout the region will result in disruption of gene function.
- In this project we use CRISPR-Cas9 technology to modify *Il13ra2* gene. The brief process is as follows: CRISPR-Cas9 system and Donor 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 on-target amplicon sequencing. A stable F1-generation mouse strain was obtained by mating positive F0-generation mice with C57BL/6JGpt mice and confirmation of the desired mutant allele was carried out by PCR and on-target amplicon sequencing.
- The flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

Gene Information

Il13ra2 interleukin 13 receptor, alpha 2 [*Mus musculus* (house mouse)]

[Download Datasets](#)

Gene ID: 16165, updated on 12-Apr-2023

Summary

Official Symbol	Il13ra2 provided by MGI
Official Full Name	interleukin 13 receptor, alpha 2 provided by MGI
Primary source	MGI:MGI:1277954
See related	Ensembl:ENSMUSG00000031289 AllianceGenome:MGI:1277954
Gene type	protein coding
RefSeq status	REVIEWED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	CD213a2; IL-13R-alpha-2
Summary	This gene encodes a receptor protein that binds to interleukin 13 (IL-13) with very high affinity. The encoded protein acts as a decoy receptor, and does not elicit any signal upon the binding of IL-13. Mice lacking the encoded protein exhibit increased levels of serum immunoglobulins, immune-dependent production of interferon gamma and, increased bone marrow macrophage progenitor frequency. Macrophages lacking the encoded protein release less nitric oxide and IL-12 in response to lipopolysaccharide. Alternative splicing results in multiple transcript variants encoding different isoforms. [provided by RefSeq, Apr 2015]
Expression	Biased expression in bladder adult (RPKM 1.3), frontal lobe adult (RPKM 0.3) and 2 other tissues See more
Orthologs	human all
NEW	Try the new Gene table Try the new Transcript table

Genomic context

Location: X F2; X 68.46 cM

See Il13ra2 in [Genome Data Viewer](#)

Exon count: 16

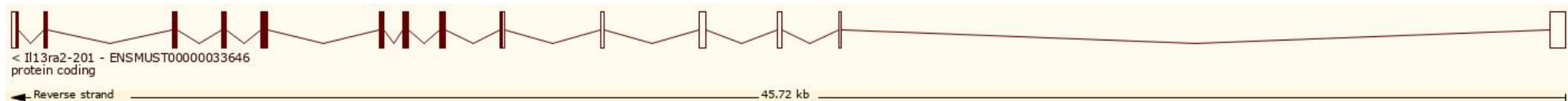
<https://www.ncbi.nlm.nih.gov/gene/16165>

Transcript Information

The gene has 2 transcripts, all transcripts are shown below:

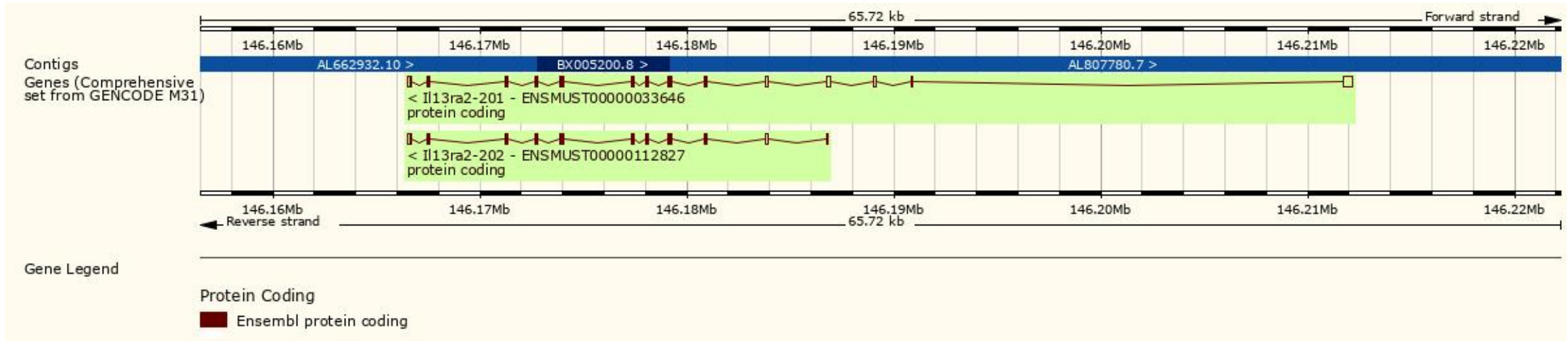
Transcript ID	Name	bp	Protein	Biotype	CCDS	UniProt Match	Flags
ENSMUST00000033646.9	Il13ra2-201	2281	383aa	Protein coding	CCDS30460	O88786-1	Ensembl Canonical GENCODE basic APPRIS P1 TSL:1
ENSMUST00000112827.2	Il13ra2-202	1536	383aa	Protein coding	CCDS30460	O88786-1	GENCODE basic APPRIS P1 TSL:1

The strategy is based on the design of *Il13ra2-201* transcript, the transcription is shown below:

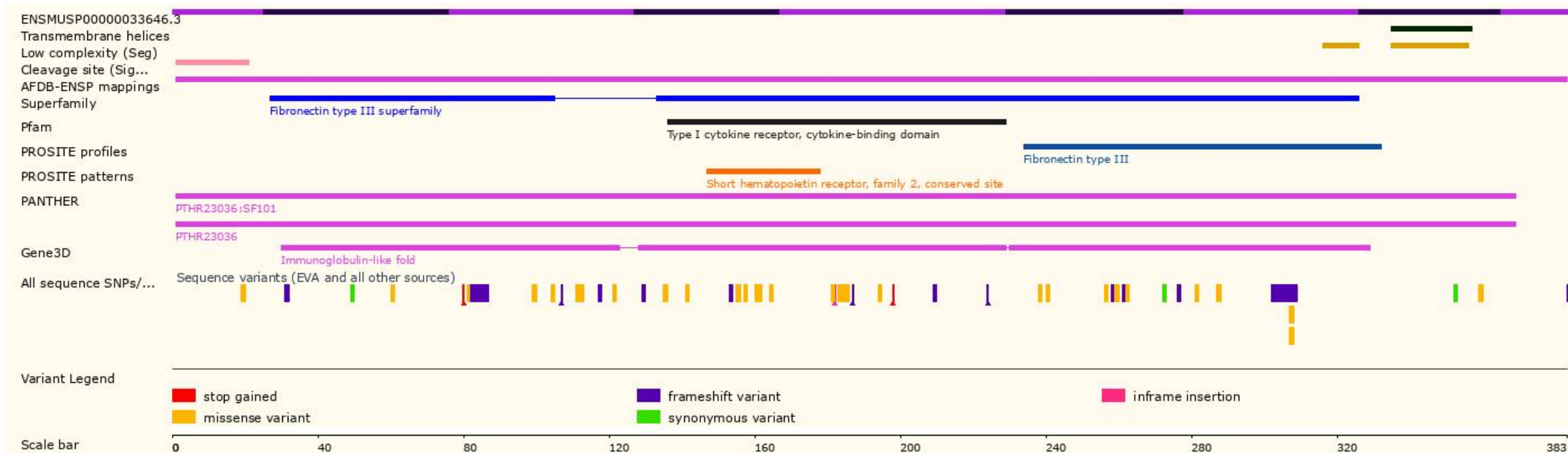


Source: <http://asia.ensembl.org/>

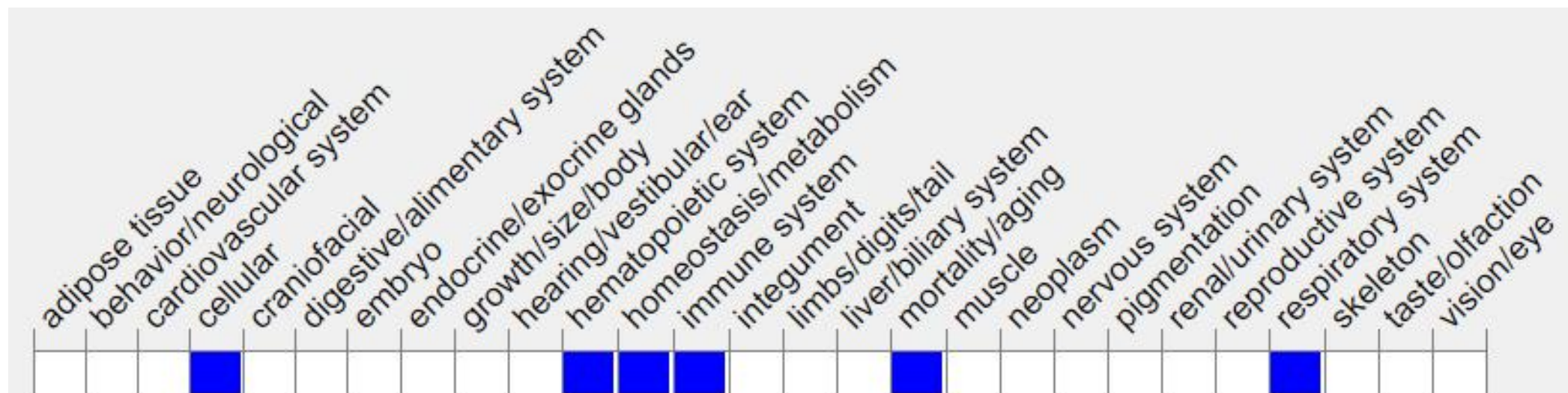
Genomic Information



Protein Information



Mouse Phenotype Information (MGI)



Null mice display a phenotype consistent with attenuated IL13 responsiveness, including abnormal serum protein concentrations, increased frequency of bone marrow macrophage progenitor cells, and abnormal response of tissue macrophage to LPS.

Important Information

- According to the existing MGI data, null mice display a phenotype consistent with attenuated IL13 responsiveness, including abnormal serum protein concentrations, increased frequency of bone marrow macrophage progenitor cells, and abnormal response of tissue macrophage to LPS.
- *Il13ra2* is located on Chr X. If the knockout mice are crossed with other mouse strains to obtain double homozygous mutant offspring, please avoid the situation that the second gene is 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.