

Itgax Cas9-KO Strategy

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Overview

Target Gene Name

- *Itgax*

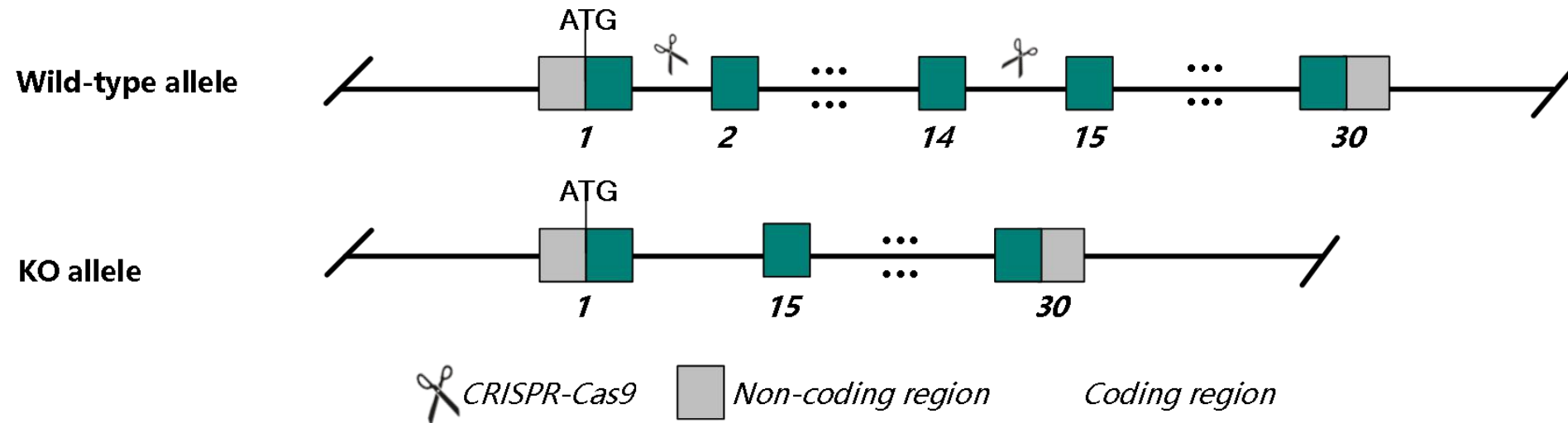
Project Type

- Cas9-KO

Genetic Background

- C57BL/6JGpt

Strain Strategy



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

Technical Information

- The *Itgax* gene has 4 transcripts. According to the structure of *Itgax* gene, exon 2-14 of *Itgax*-201 (ENSMUST00000033053.8) is recommended as the knockout region. The region contains 1676 bp coding sequence. Knocking out the region may result in disruption of gene function.
- In this project we use CRISPR-Cas9 technology to modify *Itgax* gene. The brief process is as follows: gRNAs were transcribed in vitro. Cas9 and gRNAs 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.

Gene Information

Itgax integrin alpha X [*Mus musculus* (house mouse)]

[Download Datasets](#)

Gene ID: 16411, updated on 4-Jun-2024

Summary

Official Symbol	Itgax provided by MGI
Official Full Name	integrin alpha X provided by MGI
Primary source	MGI:MGI:96609
See related	Ensembl:ENSMUSG00000030789 AllianceGenome:MGI:96609
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	Cr4; N418; Cd11c
Summary	Predicted to enable receptor tyrosine kinase binding activity. Involved in positive regulation of gene expression and positive regulation of myelination. Acts upstream of or within defense response to virus. Located in external side of plasma membrane. Is expressed in heart and hemolymphoid system. Orthologous to human ITGAX (integrin subunit alpha X). [provided by Alliance of Genome Resources, Apr 2022]
Expression	Biased expression in spleen adult (RPKM 12.4), lung adult (RPKM 9.2) and 10 other tissues See more
Orthologs	human all

NEW Try the new [Gene table](#)
Try the new [Transcript table](#)

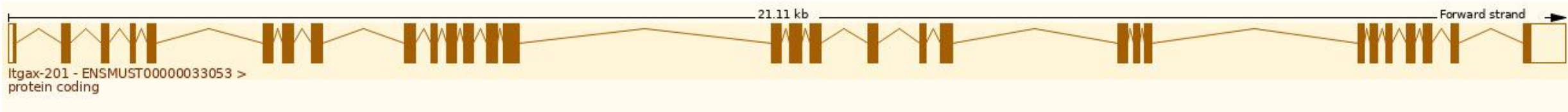
<https://www.ncbi.nlm.nih.gov/gene/16411>

Transcript Information

The gene has 4 transcripts, the transcript are shown below:

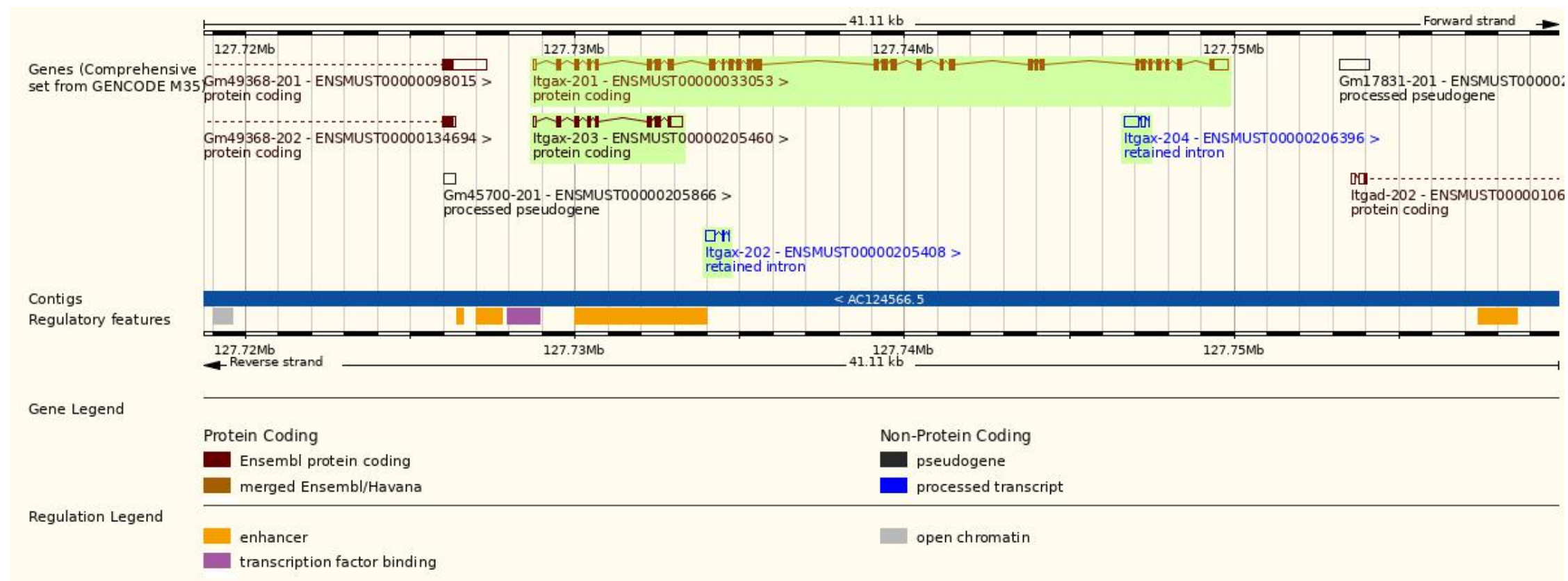
Show/hide columns (1 hidden)							Filter	
Transcript ID	Name	bp	Protein	Biotype	CCDS	UniProt Match	Flags	
ENSMUST00000033053.8	Itgax-201	4046	1169aa	Protein coding	CCDS40150	Q9QXH4	Ensembl Canonical	GENCODE basic APPRIS P1 TSL:1
ENSMUST00000205460.2	Itgax-203	1215	257aa	Protein coding		A0A0U1RNJ3	GENCODE basic	TSL:1
ENSMUST00000206396.2	Itgax-204	544	No protein	Retained intron		-	TSL:3	
ENSMUST00000205408.2	Itgax-202	352	No protein	Retained intron		-	TSL:3	

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



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

Genomic Information



Protein Information



Important Information

- The knockout region is about 1.8 kb away from the 3' of *Gm49368*, the risk is unknown.
- The knockout region is about 2.8 kb away from the 3' of *Gm45700*, the risk is unknown.
- *Itgax* is located on Chr 7. 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 risks of the mutation on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.