

Alox12 Cas9-KO Strategy

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Reviewer:

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Project Overview

Project Name

Alox12

Project type

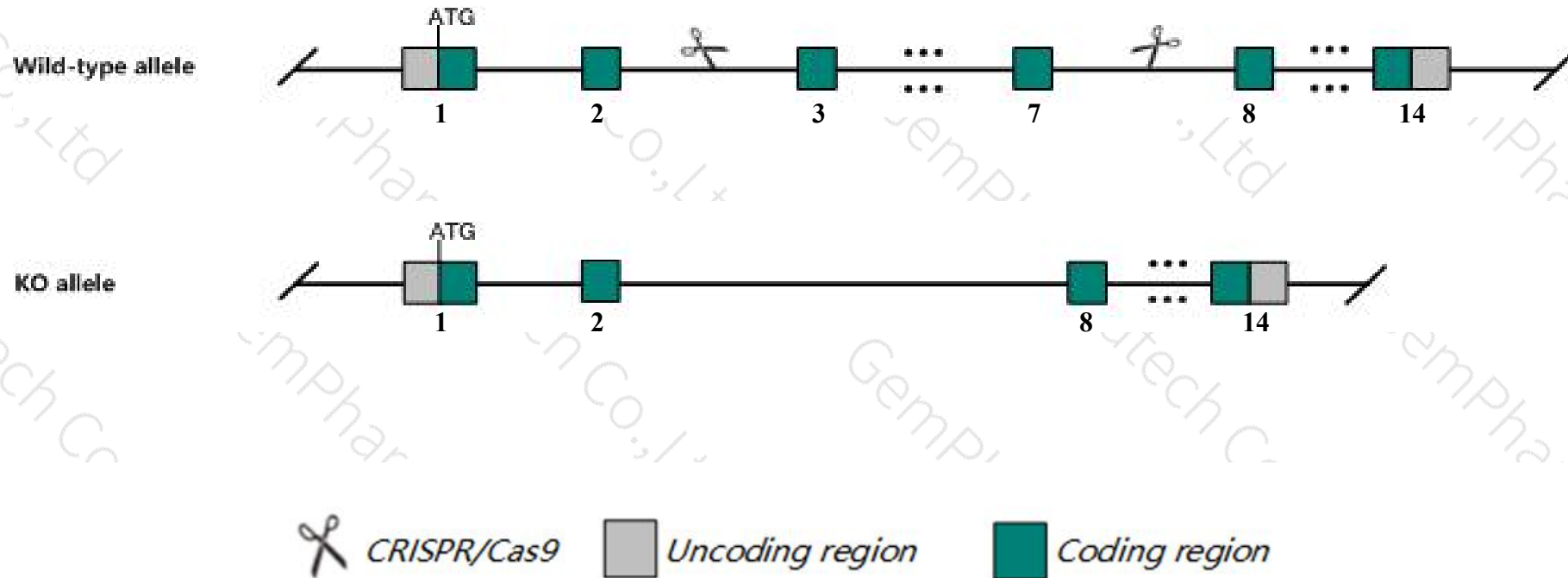
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Alox12* gene. The schematic diagram is as follows:



- The *Alox12* gene has 2 transcripts. According to the structure of *Alox12* gene, exon3-exon7 of *Alox12-201* (ENSMUST00000000329.8) transcript is recommended as the knockout region. The region contains 614bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Alox12* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygotes for a targeted null mutation exhibit increased basal transepidermal water loss and hypersensitivity to adenosine 5-diphosphate-induced platelet aggregation and mortality.
- The *Alox12* gene is located on the Chr11. 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)

Alox12 arachidonate 12-lipoxygenase [Mus musculus (house mouse)]

Gene ID: 11684, updated on 31-Jan-2019

Summary



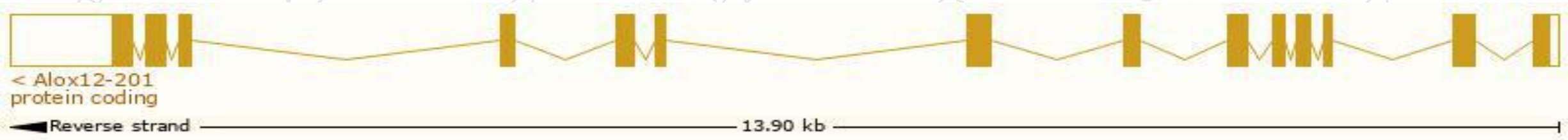
Official Symbol	Alox12 provided by MGI
Official Full Name	arachidonate 12-lipoxygenase provided by MGI
Primary source	MGI:MGI:87998
See related	Ensembl:ENSMUSG00000000320
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	9930022G08Rik, Alox12p, P-12LO
Expression	Broad expression in genital fat pad adult (RPKM 9.9), spleen adult (RPKM 9.6) and 19 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

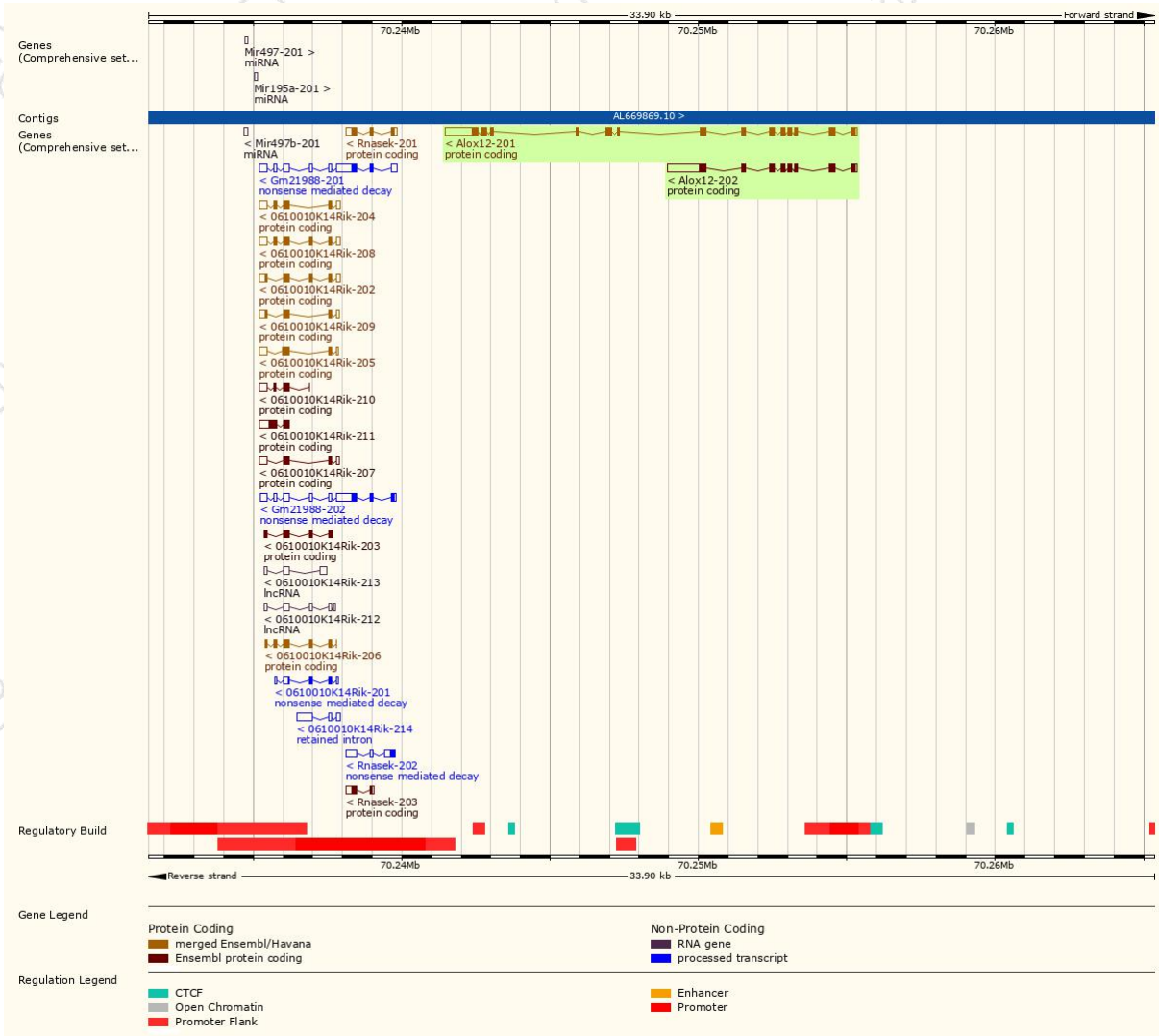
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Alox12-201	ENSMUST00000000329.8	3001	663aa	Protein coding	CCDS24942	A2CF85 P39655	TSL:1 GENCODE basic APPRIS P1
Alox12-202	ENSMUST00000108574.2	2314	390aa	Protein coding	-	Q8C587	TSL:1 GENCODE basic

The strategy is based on the design of *Alox12-201* transcript,The transcription is shown below



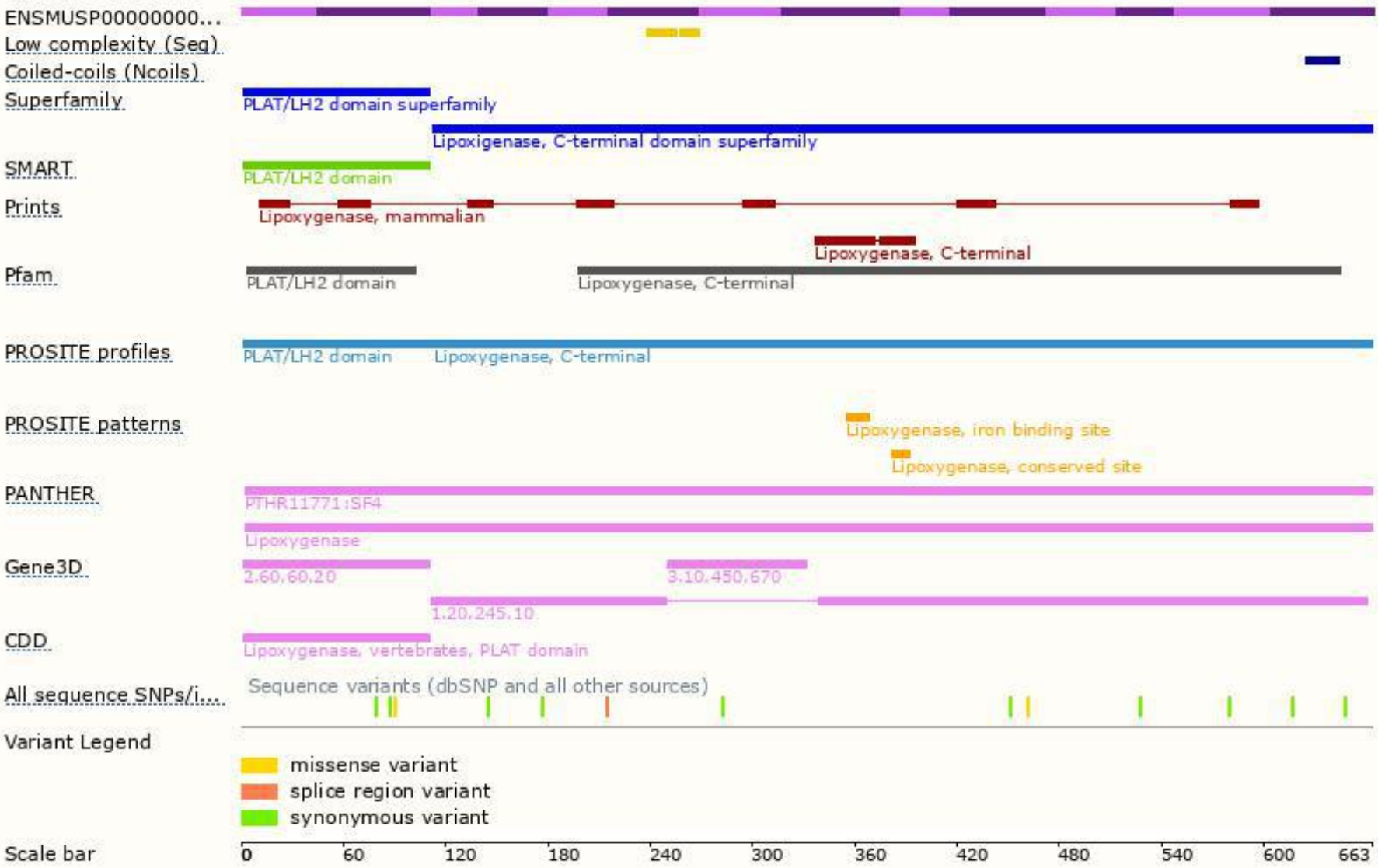
Genomic location distribution



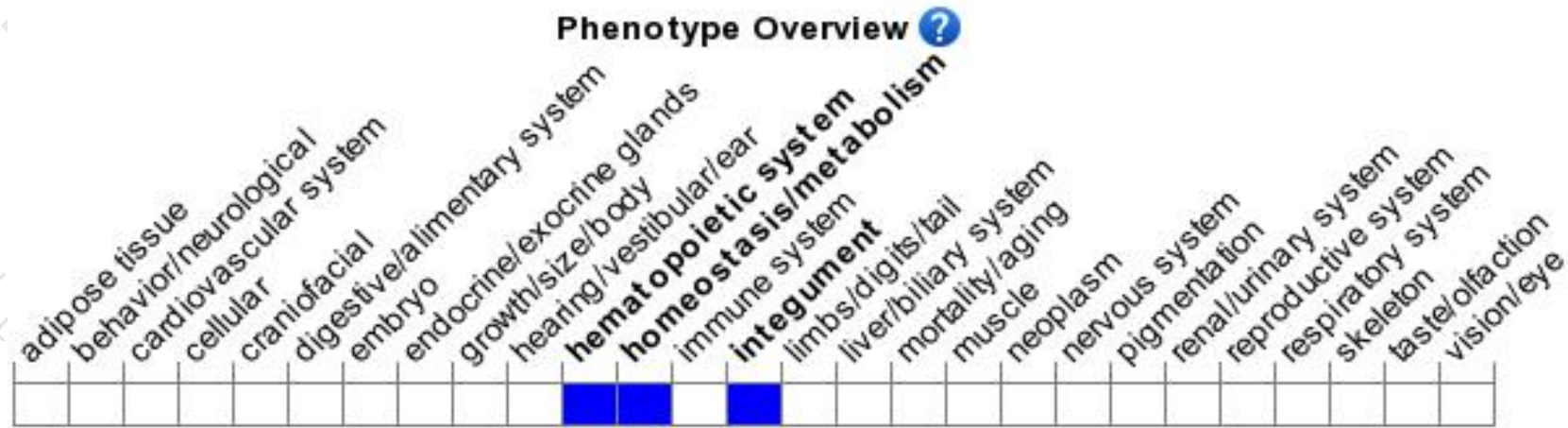
Protein domain



集萃药康
GemPharmatech



Mouse phenotype description(MGI)



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, Homozygotes for a targeted null mutation exhibit increased basal transepidermal water loss and hypersensitivity to adenosine 5-diphosphate-induced platelet aggregation and mortality.

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

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