

Alox8 Cas9-CKO Strategy

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Project Overview

Project Name

Alox8

Project type

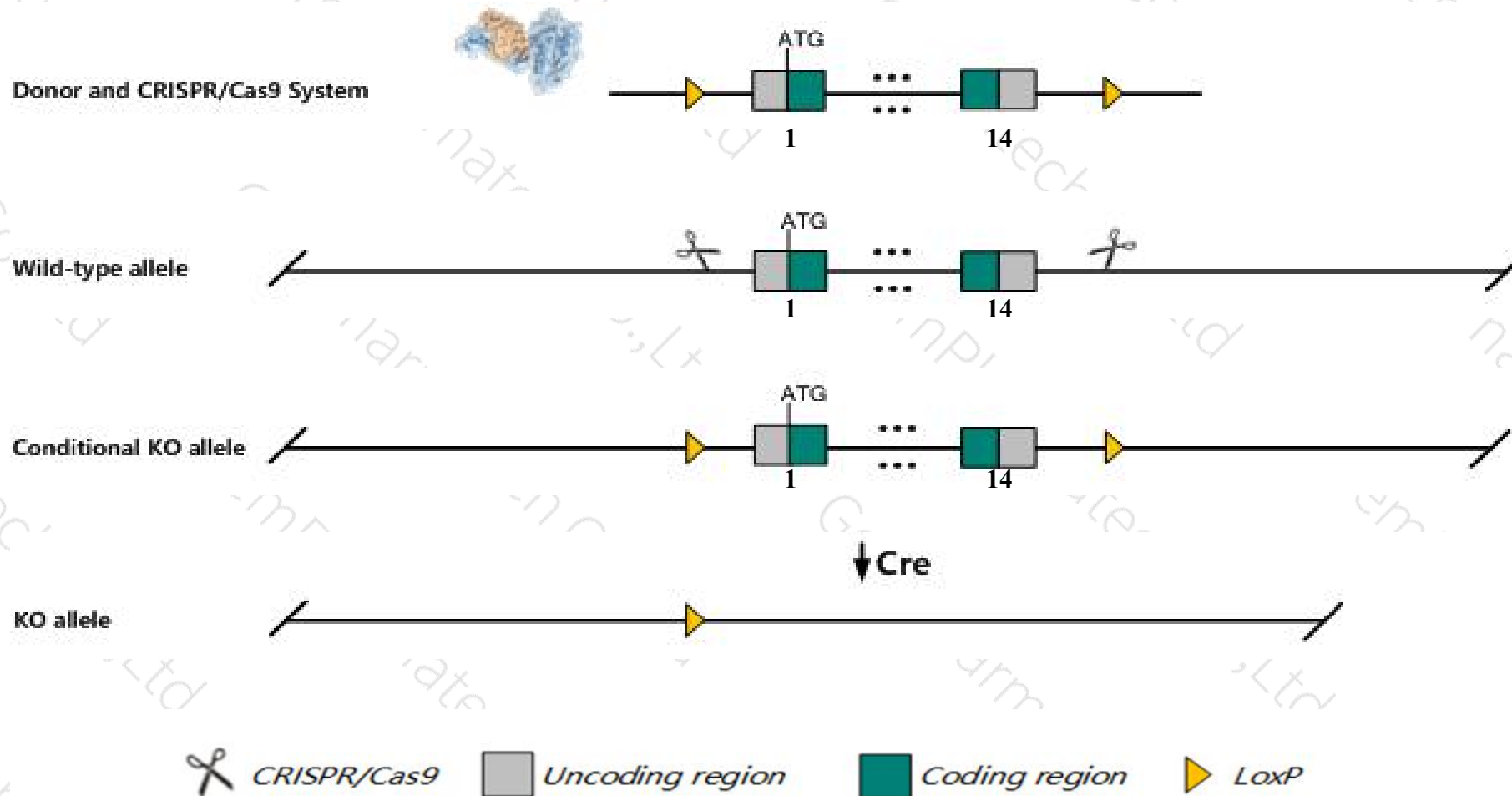
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Alox8* gene. The schematic diagram is as follows:



- The *Alox8* gene has 4 transcripts. According to the structure of *Alox8* gene, exon1-exon14 of *Alox8-201* (ENSMUST00000021262.9) transcript is recommended as the knockout region. The region contains all of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Alox8* 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 sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.
- 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.

Notice

- The *Alox8* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Alox8 arachidonate 8-lipoxygenase [*Mus musculus* (house mouse)]

Gene ID: 11688, updated on 24-Sep-2019

Summary

Official Symbol	Alox8 provided by MGI
Official Full Name	arachidonate 8-lipoxygenase provided by MGI
Primary source	MGI:MGI:1098228
See related	Ensembl:ENSMUSG000000020891
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	8-LOX; 8S-LOX; Alox15b; 15-LOX-2; 15-LOX-B
Summary	This gene belongs to the lipoxygenase (LOX) gene family whose members encode enzymes that catalyze the addition of molecular oxygen to polyunsaturated fatty acids (PUFAs) to yield fatty acid hydroperoxides. The encoded enzyme preferentially metabolizes arachidonic acid to yield 8-hydroxyeicosatetraenoic acid (8-HETE), while metabolizing linoleic acid less efficiently. The gene may also function as a tumor suppressor. This gene is located in a cluster of related genes that spans approximately 75 kilobases on chromosome 11. [provided by RefSeq, Jan 2013]
Expression	Biased expression in cerebellum adult (RPKM 1.1), cortex adult (RPKM 0.5) and 6 other tissues See more
Orthologs	human all

Genomic context

Location: 11; 11 B3

Exon count: 14

See Alox8 in [Genome Data Viewer](#)

Transcript information (Ensembl)

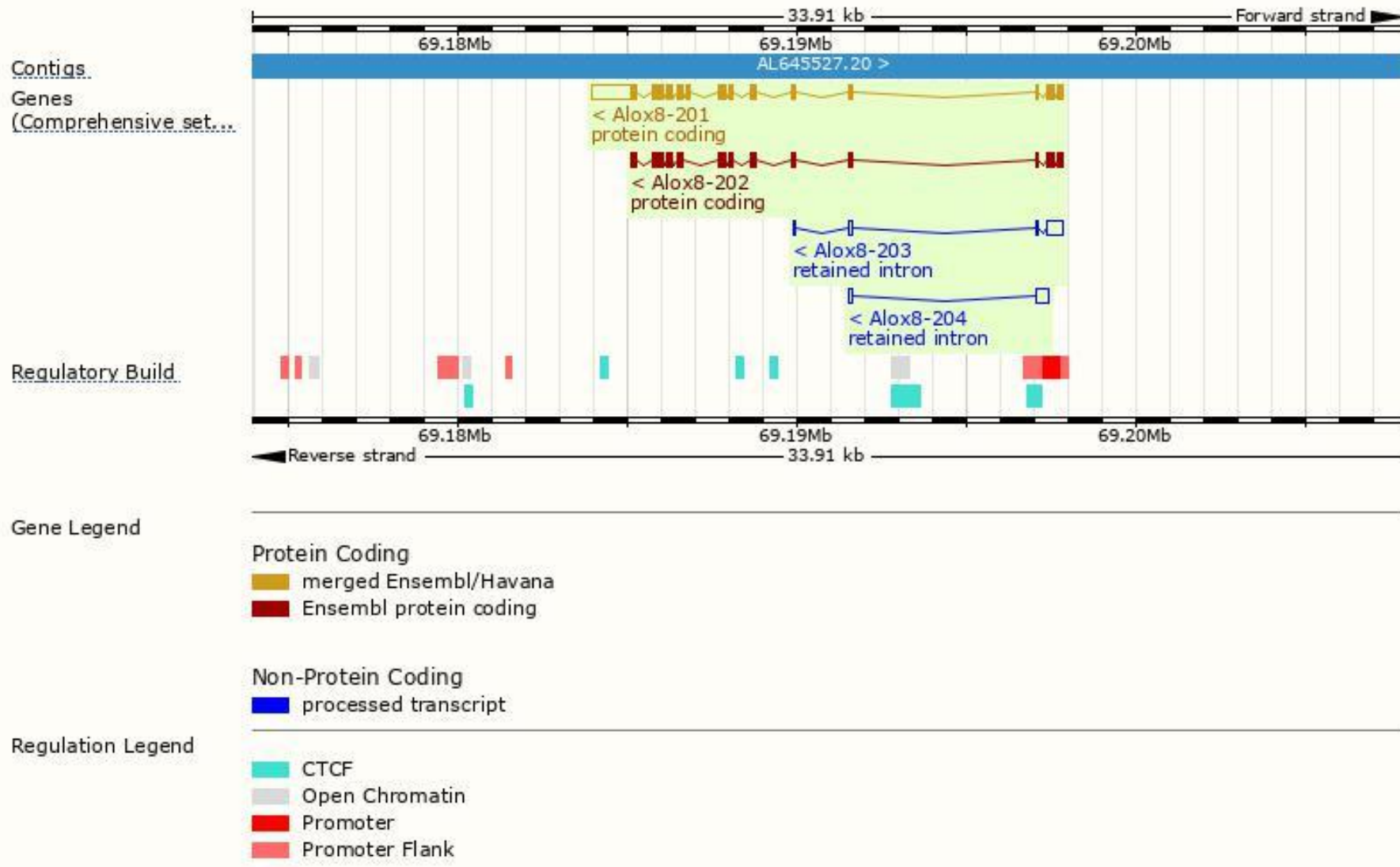
The gene has 4 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Alox8-201	ENSMUST00000021262.9	3226	677aa	Protein coding	CCDS24886	O35936	TSL:1 GENCODE basic APPRIS P2
Alox8-202	ENSMUST00000094078.3	1947	648aa	Protein coding	-	B1ASX6	TSL:5 GENCODE basic APPRIS ALT2
Alox8-203	ENSMUST00000144787.1	731	No protein	Retained intron	-	-	TSL:3
Alox8-204	ENSMUST00000156157.1	470	No protein	Retained intron	-	-	TSL:3

The strategy is based on the design of *Alox8-201* transcript, The transcription is shown below



Genomic location distribution



Protein domain



集萃药康
GemPharmatech



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

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