

Alk Cas9-KO Strategy

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Project Overview



Project Name

Alk

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Alk* gene has 3 transcripts. According to the structure of *Alk* gene, exon4 of *Alk-201* (ENSMUST00000086639.5) transcript is recommended as the knockout region. The region contains 202bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Alk* gene. The brief process is as follows: CRISPR/Cas9 system were

- According to the existing MGI data, Mice homozygous for a null allele show increased ethanol consumption and increased sedation in response to ethanol. Male mice homozygous for a different null allele show delayed puberty, hypogonadotropic hypogonadism, reduced serum testosterone levels, and altered seminiferous tubule morphology.
- The *Alk* gene is located on the Chr17. 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)

Alk anaplastic lymphoma kinase [*Mus musculus* (house mouse)]

Gene ID: 11682, updated on 12-Aug-2019

Summary

Official Symbol	Alk provided by MGI
Official Full Name	anaplastic lymphoma kinase provided by MGI
Primary source	MGI:MGI:103305
See related	Ensembl:ENSMUSG00000055471
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	Tcrz; CD246
Expression	Low expression observed in reference dataset See more
Orthologs	human all

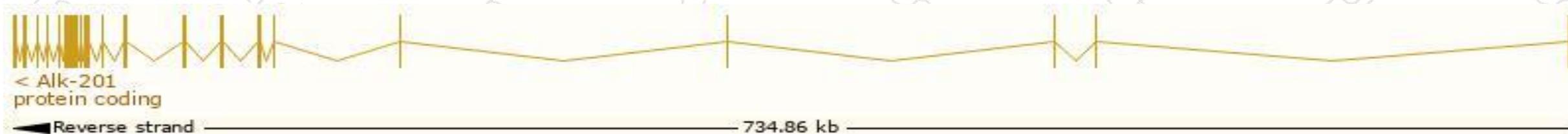


Transcript information (Ensembl)

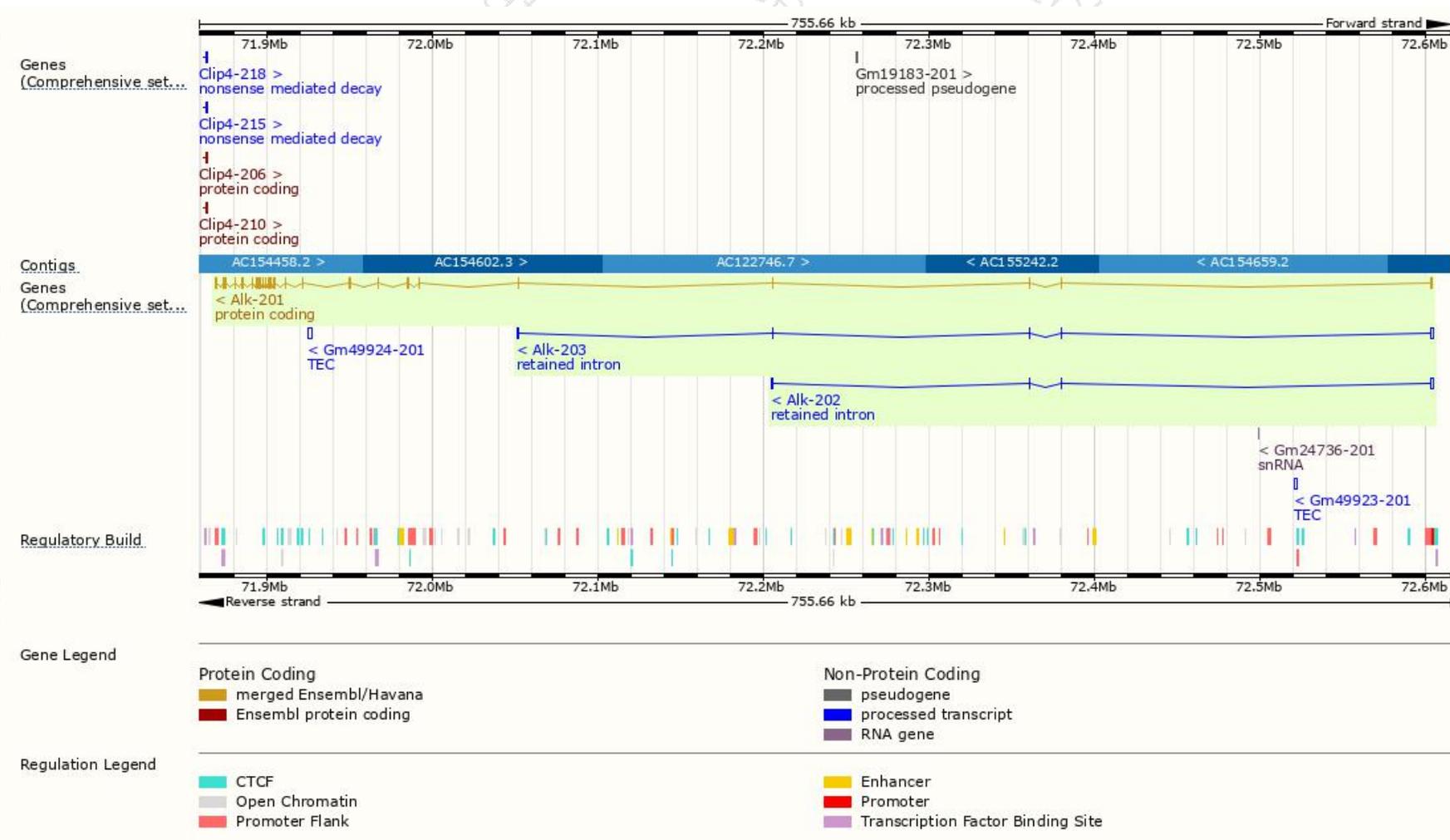
The gene has 3 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Alk-201	ENSMUST00000086639.5	5454	1621aa	ENSMUSP00000083840.4	Protein coding	CCDS37688	P97793	TSL:1 Gencode basic APPRIS P1
Alk-202	ENSMUST00000232804.1	2902	No protein	-	Retained intron	-	-	-
Alk-203	ENSMUST00000232891.1	2575	No protein	-	Retained intron	-	-	-

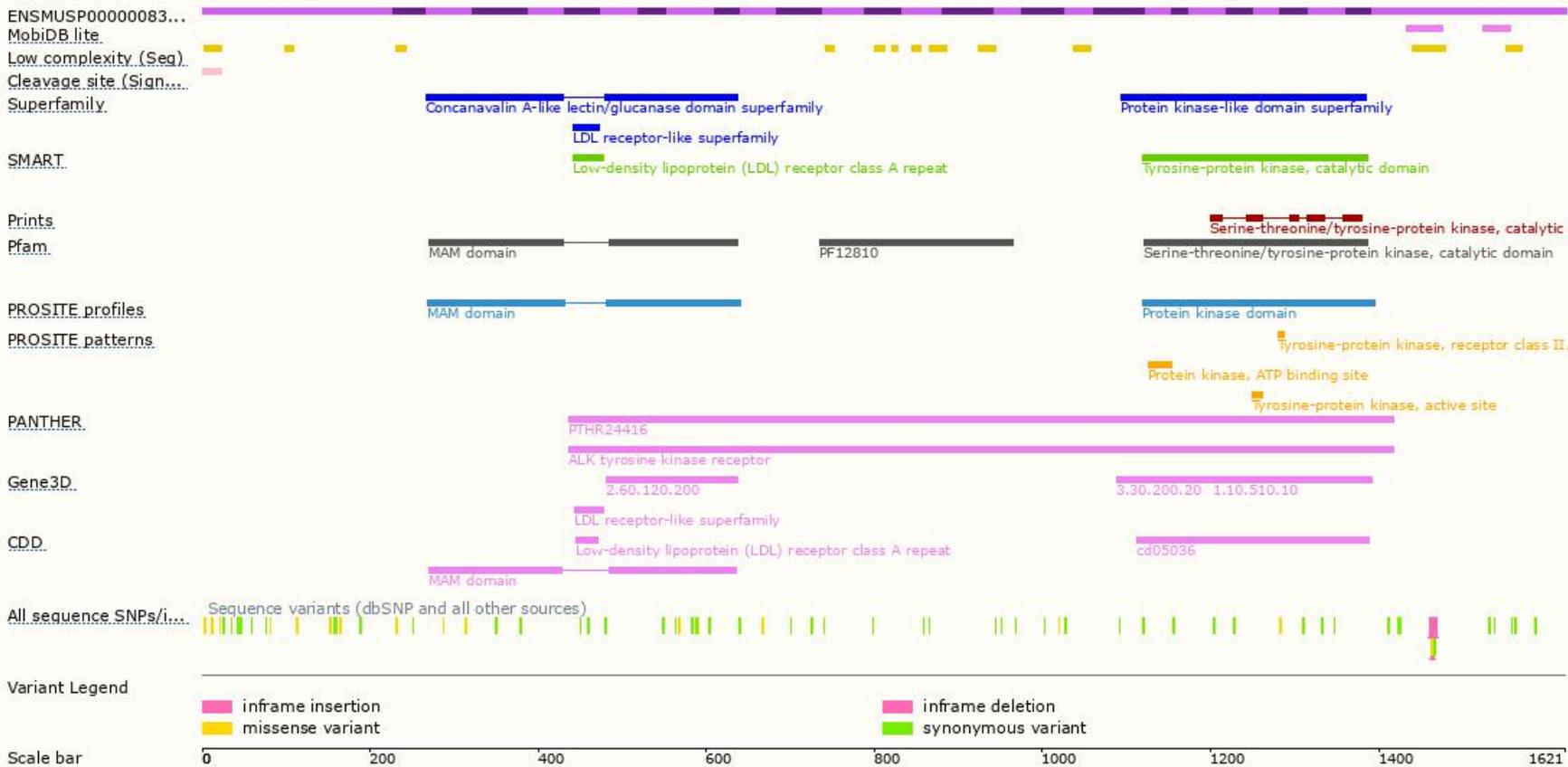
The strategy is based on the design of *Alk-201* transcript, The transcription is shown below



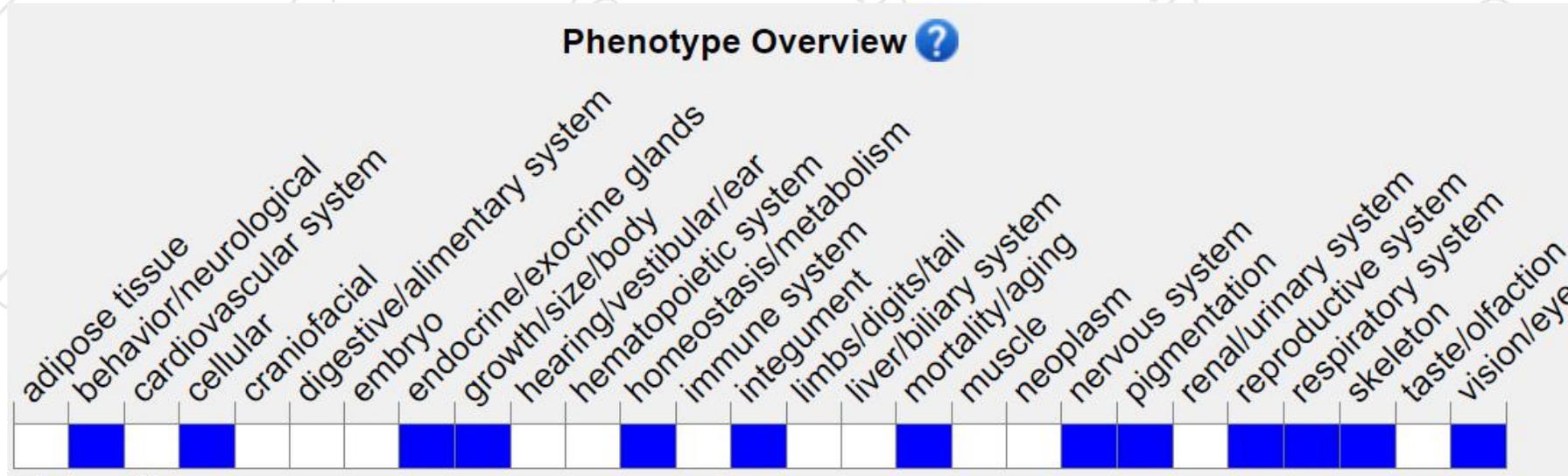
Genomic location distribution



Protein domain



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, Mice homozygous for a null allele show increased ethanol consumption and increased sedation in response to ethanol. Male mice homozygous for a different null allele show delayed puberty, hypogonadotropic hypogonadism, reduced serum testosterone levels, and altered seminiferous tubule morphology.

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

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