

Aldh4a1 Cas9-KO Strategy

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Design Date: 2020-4-20

Project Overview

Project Name

Aldh4a1

Project type

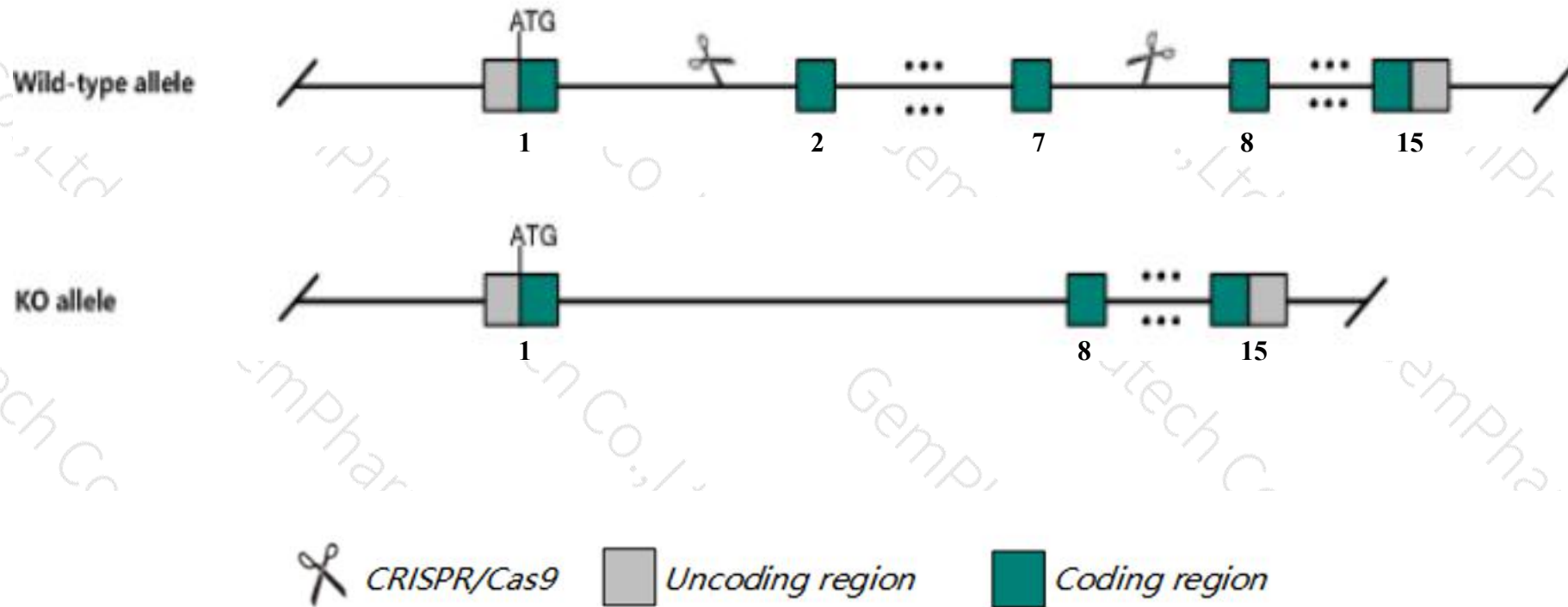
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Aldh4a1* gene. The schematic diagram is as follows:



- The *Aldh4a1* gene has 3 transcripts. According to the structure of *Aldh4a1* gene, exon2-exon7 of *Aldh4a1*-201 (ENSMUST00000039818.9) transcript is recommended as the knockout region. The region contains 616bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Aldh4a1* gene. The brief process is as follows: CRISPR/Cas9 system

- Part 3'UTR of *Gm21969* will be knockout, and the effect on it is unknown.
- The *Aldh4a1* gene is located on the Chr4. 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)

Aldh4a1 aldehyde dehydrogenase 4 family, member A1 [*Mus musculus* (house mouse)]

Gene ID: 212647, updated on 31-Mar-2020

Summary

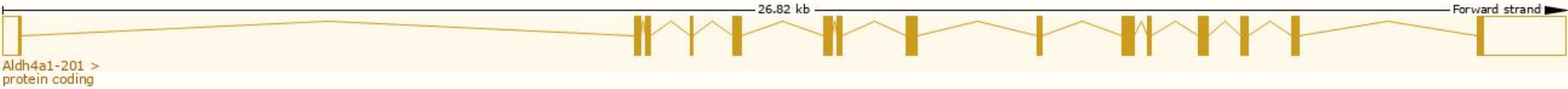
Official Symbol	Aldh4a1 provided by MGI
Official Full Name	aldehyde dehydrogenase 4 family, member A1 provided by MGI
Primary source	MGI:MGI:2443883
See related	Ensembl:ENSMUSG00000028737
Gene type	protein coding
RefSeq status	VALIDATED
Organism	<i>Mus musculus</i>
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Ahd1; P5cd; Ahd-1; Aldh4; P5cdh; Ssdh1; P5cdhl; P5cdhs; Aldh5a1; E330022C09; A930035F14Rik
Expression	Broad expression in liver adult (RPKM 211.3), kidney adult (RPKM 197.0) and 17 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

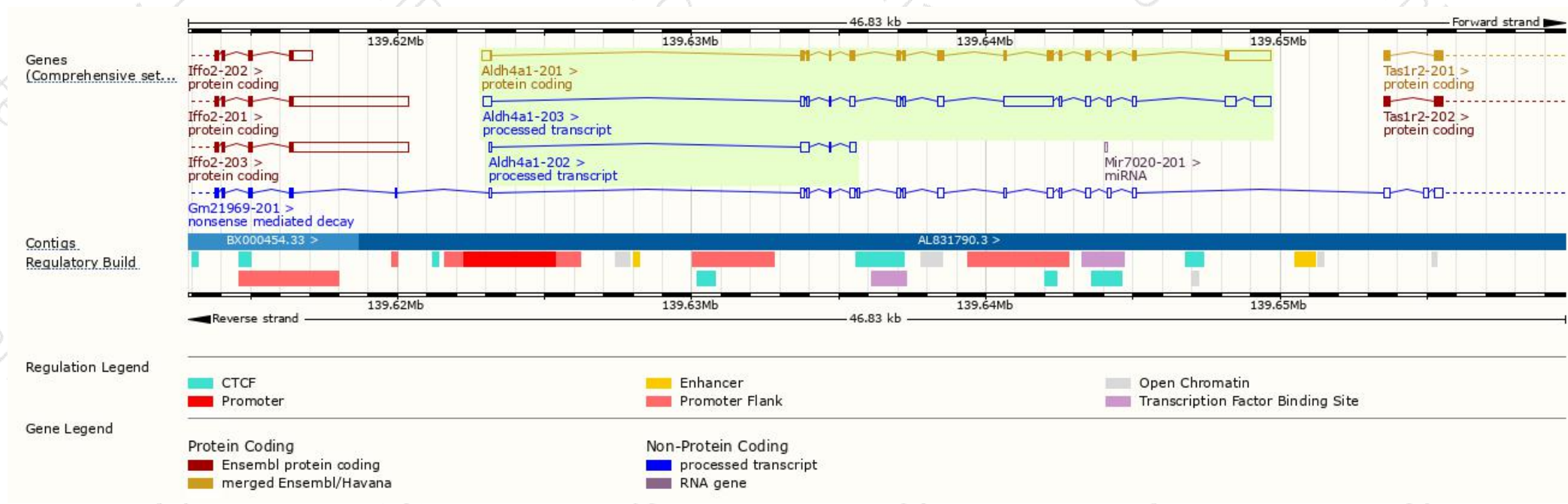
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Aldh4a1-201	ENSMUST00000039818.9	3382	562aa	Protein coding	CCDS18848	Q8CHT0	TSL:1 GENCODE basic APPRIS P1
Aldh4a1-203	ENSMUST00000146309.7	4142	No protein	Processed transcript	-	-	TSL:5
Aldh4a1-202	ENSMUST00000124987.1	615	No protein	Processed transcript	-	-	TSL:3

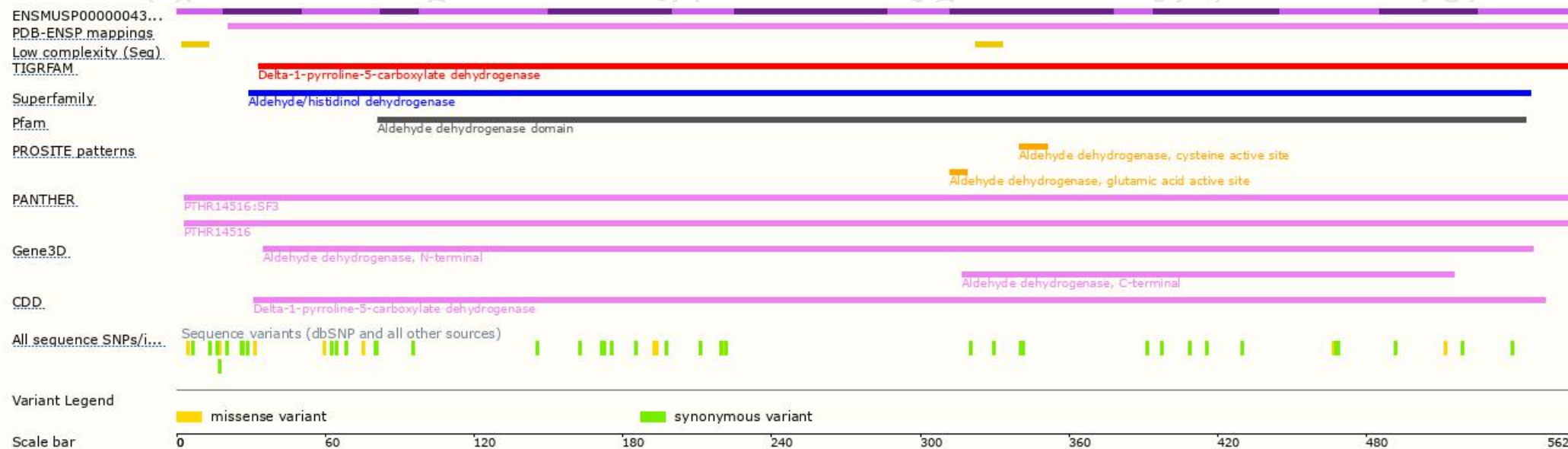
The strategy is based on the design of *Aldh4a1-201* transcript, the transcription is shown below



Genomic location distribution



Protein domain



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

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