

Aldh1l2 Cas9-CKO Strategy

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Project Overview

Project Name

Aldh1l2

Project type

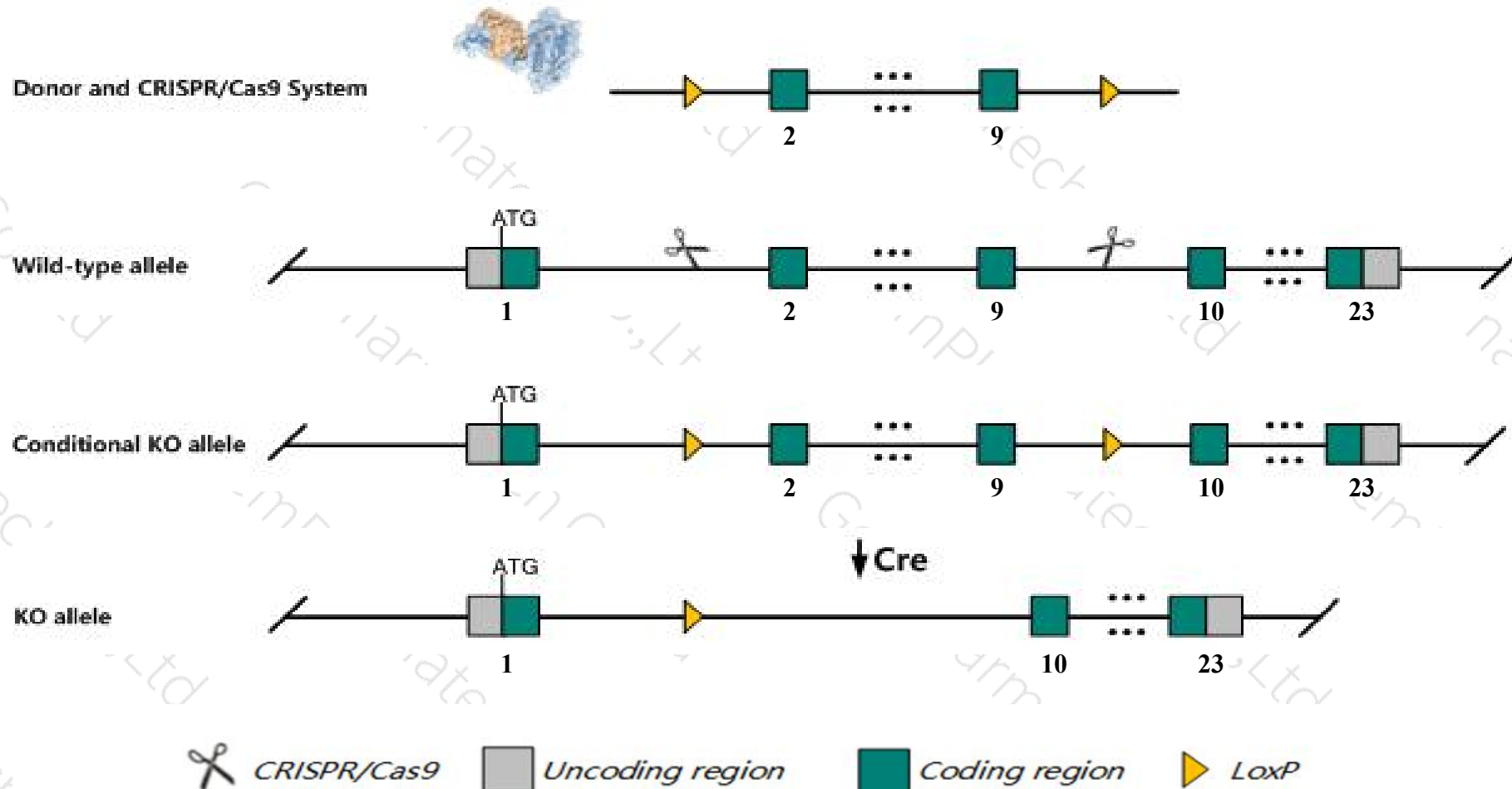
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Aldh1l2* gene. The schematic diagram is as follows:



- The *Aldh1l2* gene has 7 transcripts. According to the structure of *Aldh1l2* gene, exon2-exon9 of *Aldh1l2*-201 (ENSMUST00000020497.13) transcript is recommended as the knockout region. The region contains 1091bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Aldh1l2* 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

- Transcript *Aldh1l2*-204&205&207 may not be affected.
- The *Aldh1l2* gene is located on the Chr10. 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)

Aldh1l2 aldehyde dehydrogenase 1 family, member L2 [*Mus musculus* (house mouse)]

Gene ID: 216188, updated on 20-Aug-2019

Summary

Official Symbol Aldh1l2 provided by [MGI](#)
Official Full Name aldehyde dehydrogenase 1 family, member L2 provided by [MGI](#)
Primary source [MGI:MGI:2444680](#)
See related [Ensembl:ENSMUSG00000020256](#)
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 mtFDH; D330038I09Rik
Expression Biased expression in CNS E18 (RPKM 8.3), whole brain E14.5 (RPKM 6.4) and 13 other tissues [See more](#)
Orthologs [human](#) [all](#)

Genomic context

Location: 10; 10 C1

[See Aldh1l2 in Genome Data Viewer](#)

Exon count: 24

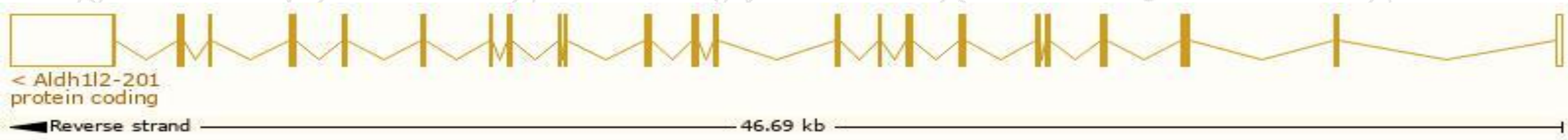
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	10	NC_000076.6 (83487447..83534146, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	10	NC_000076.5 (82950192..82996885, complement)

Transcript information (Ensembl)

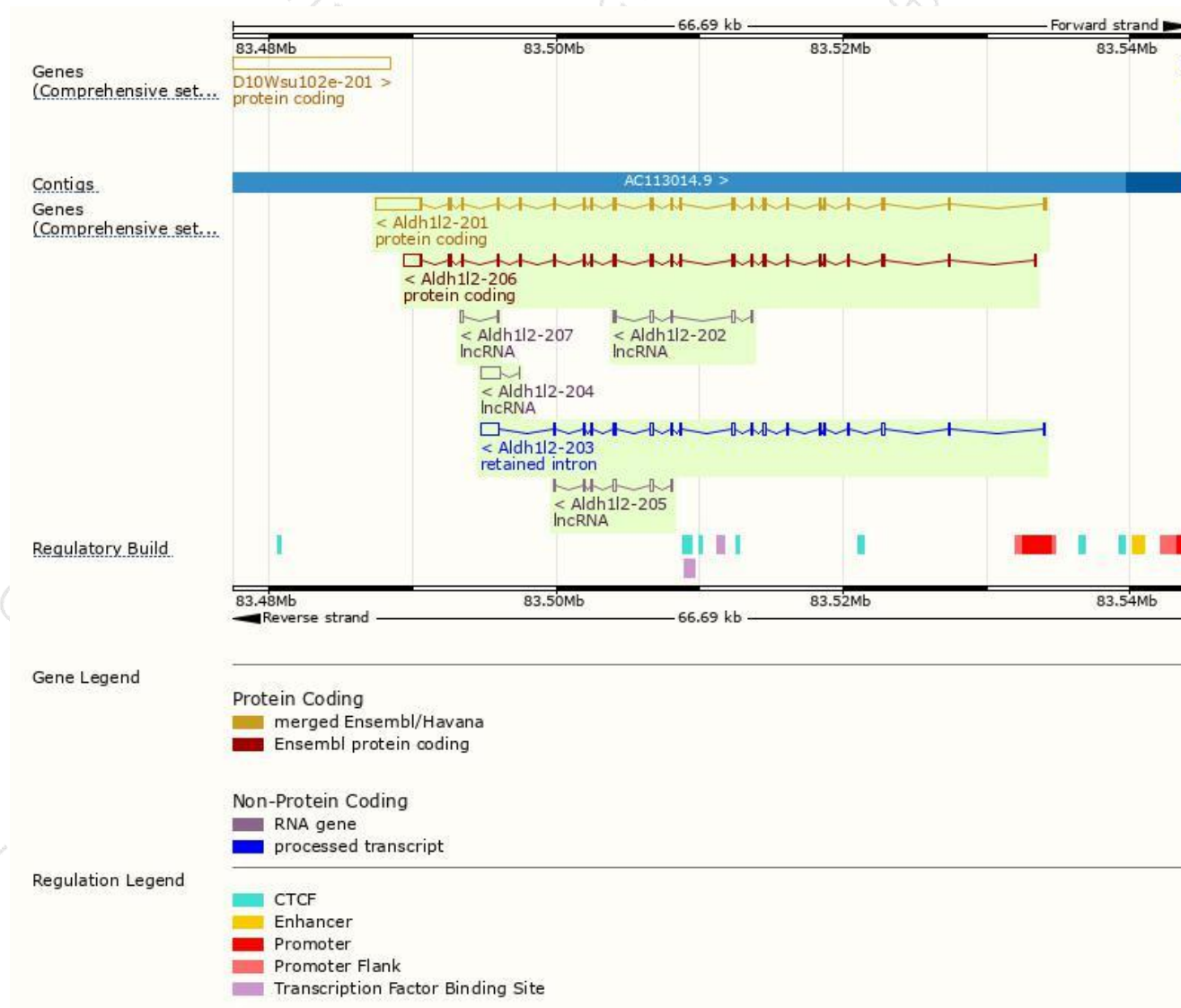
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Aldh1l2-201	ENSMUST00000020497.13	6027	923aa	Protein coding	CCDS24077	Q8K009	TSL:1 GENCODE basic APPRIS P1
Aldh1l2-206	ENSMUST00000146640.7	3938	810aa	Protein coding	-	D3Z6B9	TSL:1 GENCODE basic
Aldh1l2-203	ENSMUST00000138858.7	3505	No protein	Retained intron	-	-	TSL:2
Aldh1l2-204	ENSMUST00000141184.1	1383	No protein	lncRNA	-	-	TSL:2
Aldh1l2-205	ENSMUST00000143793.7	804	No protein	lncRNA	-	-	TSL:3
Aldh1l2-202	ENSMUST00000125193.1	692	No protein	lncRNA	-	-	TSL:5
Aldh1l2-207	ENSMUST00000147381.1	347	No protein	lncRNA	-	-	TSL:3

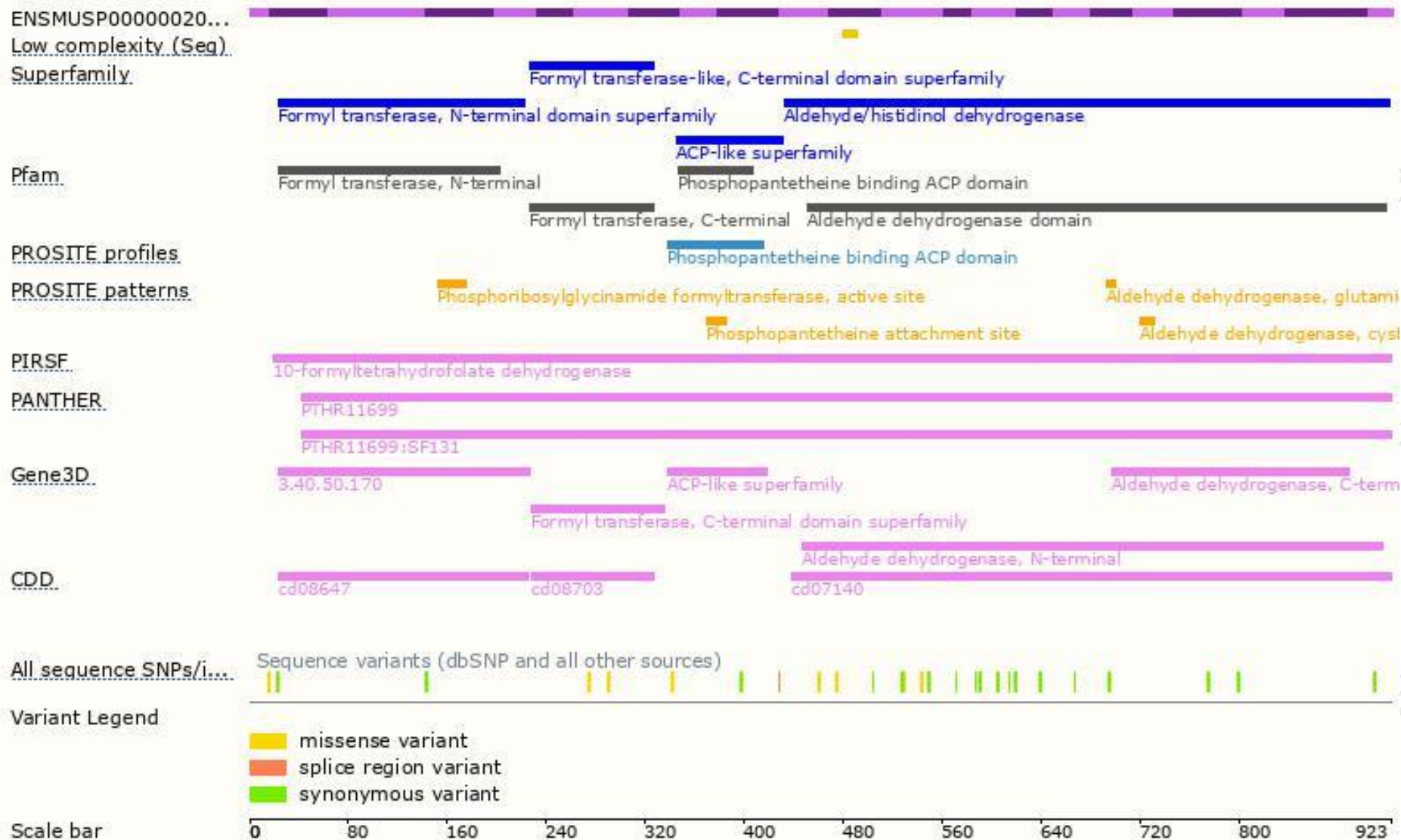
The strategy is based on the design of *Aldh1l2-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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