Aldh7a1 Cas9-KO Strategy

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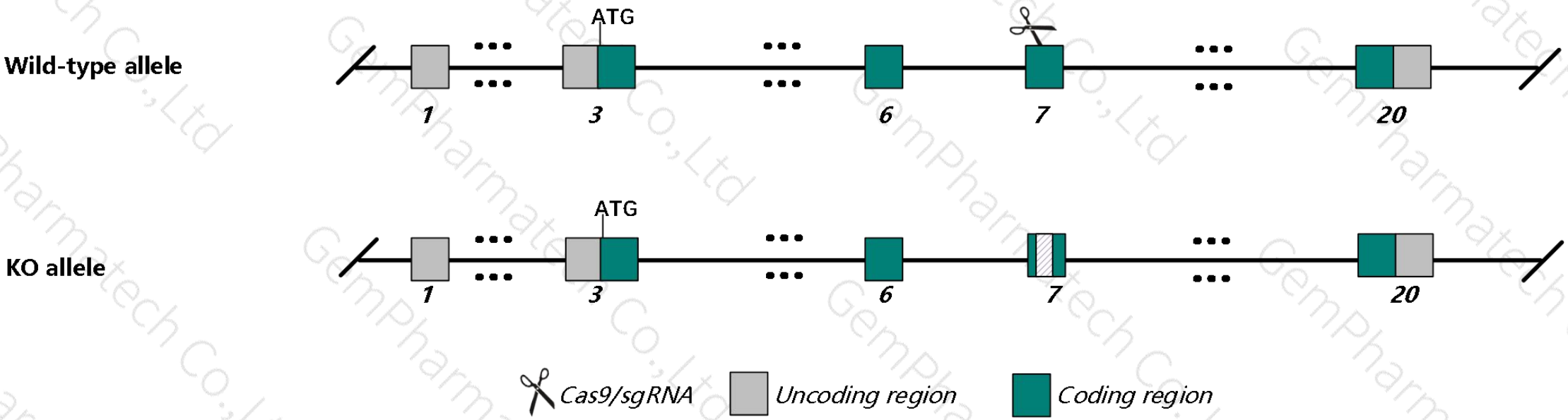
Project Overview

Project Name	***Aldh7a1***
Project type	**Cas9-KO**
Strain background	**C57BL/6N**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Aldh7a1* gene. The schematic diagram is as follows:



Technical routes

- In this project we use CRISPR/Cas9 technology to modify *Aldh7a1* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6N 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/6N mice.

Notice

- According to the existing MGI data，Mice homozygous for disruptions in this gene display a normal phenotype.

- The *Aldh7a1* gene is located on the Chr18. 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）

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Aldh7a1 aldehyde dehydrogenase family 7, member A1 [*Mus musculus* (house mouse)]

Gene ID: 110695, updated on 12-Aug-2019

Summary

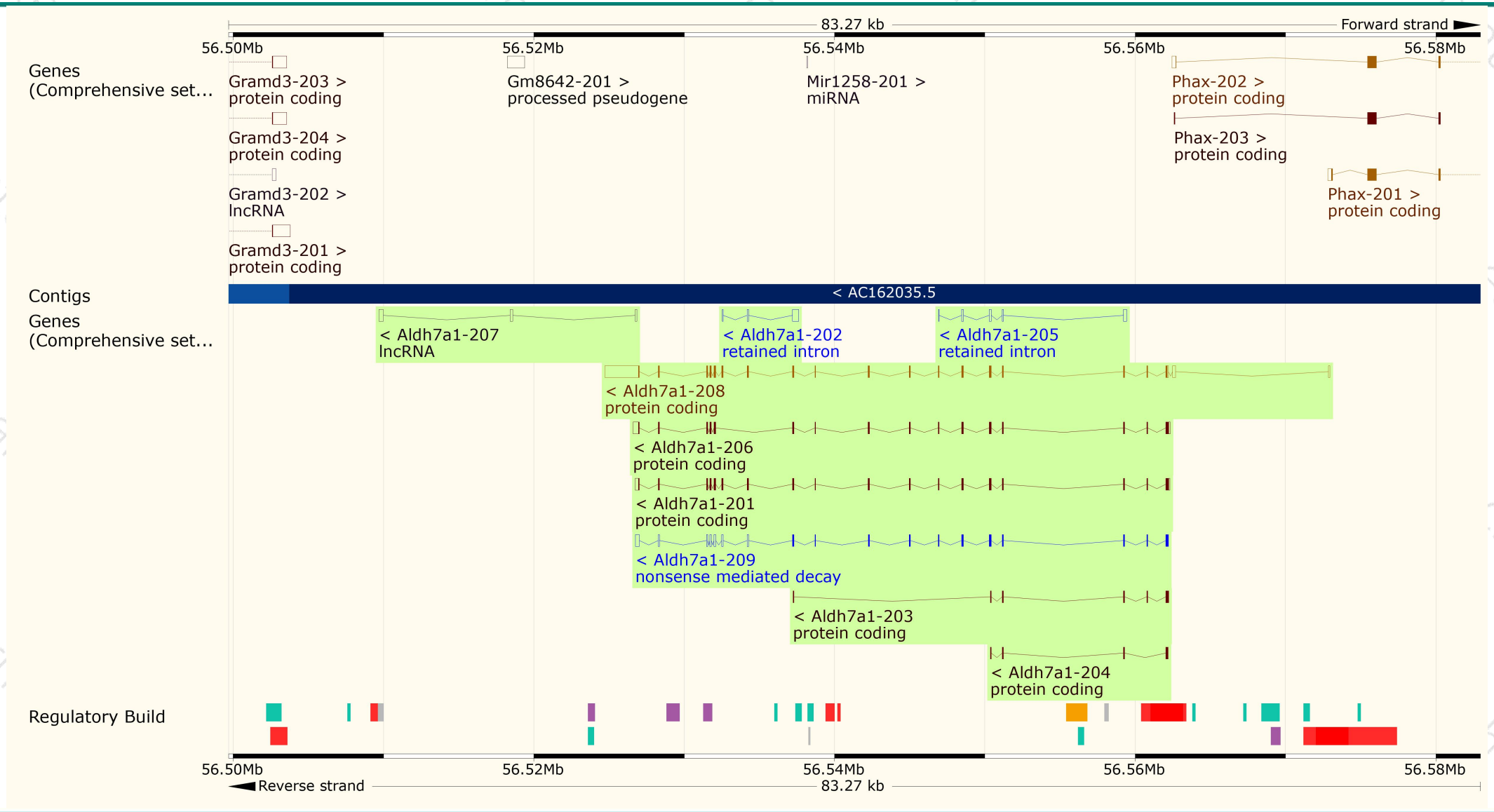
Official Symbol	Aldh7a1 provided by MGI
Official Full Name	aldehyde dehydrogenase family 7, member A1 provided by MGI
Primary source	MGI:MGI:108186
See related	Ensembl:ENSMUSG00000053644
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Atq1; D18Wsu181e
Expression	Broad expression in placenta adult (RPKM 56.9), liver adult (RPKM 51.3) and 23 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Aldh7a1-208	ENSMUST00000174518.7	4131	511aa	Protein coding	CCDS50291	Q9DBF1	TSL:1 GENCODE basic APPRIS ALT2
Aldh7a1-201	ENSMUST00000066208.12	1914	539aa	Protein coding	CCDS29258	Q9DBF1	TSL:1 GENCODE basic APPRIS P3
Aldh7a1-206	ENSMUST00000172734.7	1880	475aa	Protein coding	-	G3UYR8	TSL:5 GENCODE basic
Aldh7a1-203	ENSMUST00000170309.7	483	161aa	Protein coding	-	E9Q1H3	CDS 5' and 3' incomplete TSL:3
Aldh7a1-204	ENSMUST00000171844.2	365	121aa	Protein coding	-	E9Q1G1	CDS 5' and 3' incomplete TSL:3
Aldh7a1-209	ENSMUST00000174704.7	1789	321aa	Nonsense mediated decay	-	G3UY72	CDS 5' incomplete TSL:5
Aldh7a1-205	ENSMUST00000171851.1	568	No protein	Retained intron	-	-	TSL:2
Aldh7a1-202	ENSMUST00000168517.1	555	No protein	Retained intron	-	-	TSL:1
Aldh7a1-207	ENSMUST00000172902.1	588	No protein	lncRNA	-	-	TSL:3

Genomic location distribution



Mouse phenotype description(MGI)

Phenotypes affected by the gene are marked in blue.Data quoted from MGI database(http://www.informatics.jax.org/) .

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

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