

Col4a6 Cas9-KO Strategy

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Reviewer:

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Project Overview

Project Name

Col4a6

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Col4a6* gene. The schematic diagram is as follows:



- The *Col4a6* gene has 3 transcripts. According to the structure of *Col4a6* gene, exon5-exon17 of *Col4a6-201* (ENSMUST00000101205.2) transcript is recommended as the knockout region. The region contains 784bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Col4a6* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Male mice hemizygous for a knock-out allele are viable, fertile and healthy with no apparent defects in the topology of neuromuscular junctions in the diaphragm muscle.
- The *Col4a6* gene is located on the ChrX. 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)

Col4a6 collagen, type IV, alpha 6 [*Mus musculus* (house mouse)]

Gene ID: 94216, updated on 24-Aug-2019

Summary



Official Symbol	Col4a6 provided by MGI
Official Full Name	collagen, type IV, alpha 6 provided by MGI
Primary source	MGI:MGI:2152695
See related	Ensembl:ENSMUSG000000031273
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	BB116301
Expression	Broad expression in bladder adult (RPKM 12.0), ovary adult (RPKM 3.7) and 15 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

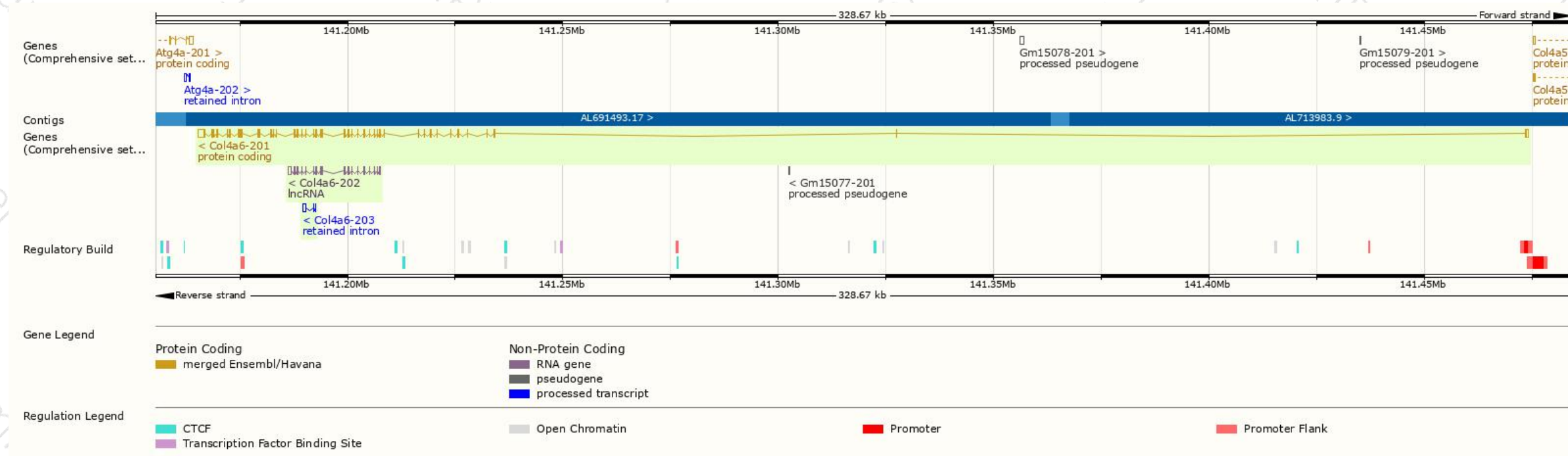
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Col4a6-201	ENSMUST00000101205.2	6648	1691aa	Protein coding	CCDS41153	B1AVK5	TSL:1 GENCODE basic APPRIS P1
Col4a6-203	ENSMUST00000151459.1	845	No protein	Retained intron	-	-	TSL:3
Col4a6-202	ENSMUST00000137051.7	3092	No protein	lncRNA	-	-	TSL:1

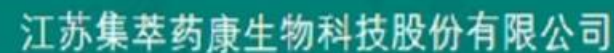
The strategy is based on the design of *Col4a6-201* transcript,The transcription is shown below



Genomic location distribution



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

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