

Muc6 Cas9-KO Strategy

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Design Date: 2024-1-26

Overview

Target Gene Name

- Muc6

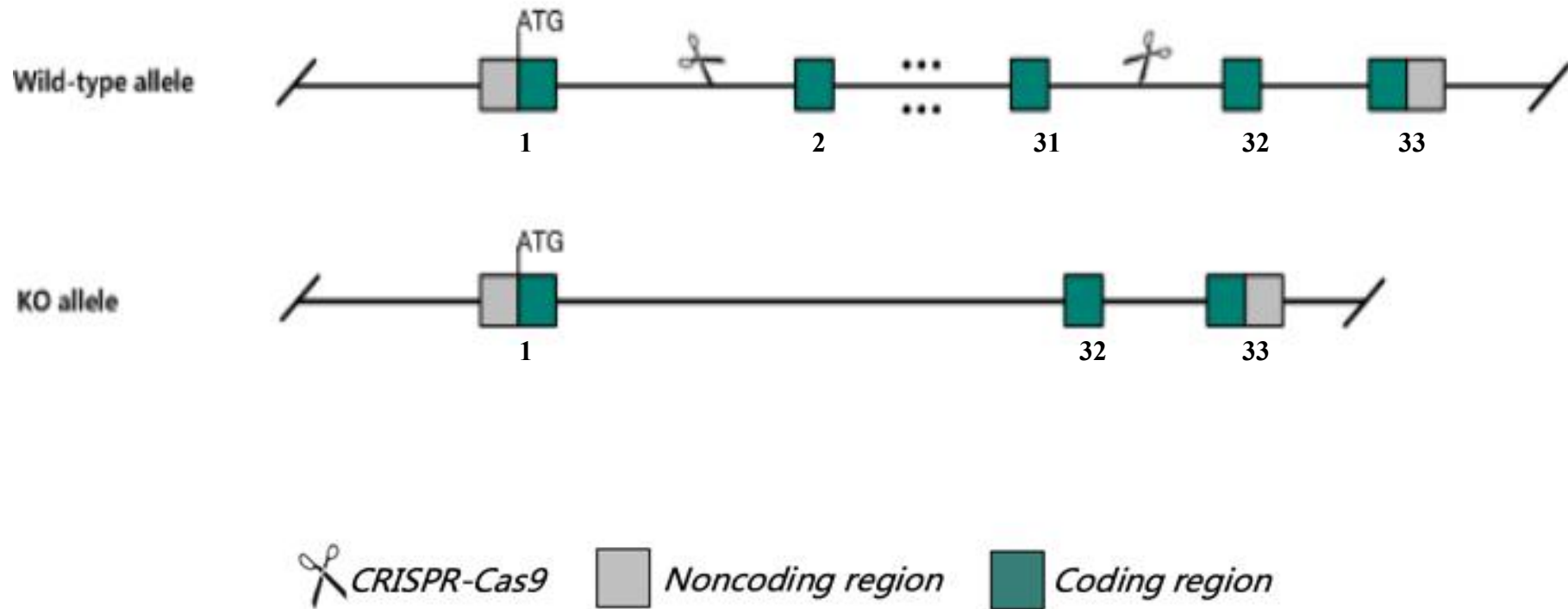
Project Type

- Cas9-KO

Genetic Background

- C57BL/6JGpt

Strain Strategy



Technical Information

- The *Muc6* gene has 1 transcript. According to the structure of *Muc6* gene, exon2-exon31 of *Muc6*-201 (ENSMUST00000239500.1) transcript is recommended as the knockout region. The region contains most of the coding sequence. Knocking out the region will result in disruption of protein function.
- In this project we use CRISPR-Cas9 technology to modify *Muc6* gene. The brief process is as follows: gRNAs were transcribed in vitro. Cas9 and gRNAs 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 on-target amplicon sequencing. A stable F1-generation mouse strain was obtained by mating positive F0-generation mice with C57BL/6JGpt mice and confirmation of the desired mutant allele was carried out by PCR and on-target amplicon sequencing.

Gene Information

Muc6 mucin 6, gastric [Mus musculus (house mouse)]

Gene ID: 353328, updated on 26-Apr-2023

Summary

Official Symbol Muc6 provided by [MGI](#)

Official Full Name mucin 6, gastric provided by [MGI](#)

Primary source [MGI:MGI:2663233](#)

See related [Ensembl:ENSMUSG00000118661](#)

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

Summary Predicted to be active in extracellular matrix and extracellular space. Is expressed in stomach. Orthologous to human MUC6 (mucin 6, oligomeric mucus/gel-forming). [provided by Alliance of Genome Resources, Apr 2022]

Expression Biased expression in duodenum adult (RPKM 354.4), small intestine adult (RPKM 153.2) and 1 other tissue [See more](#)

Orthologs [human](#) [all](#)

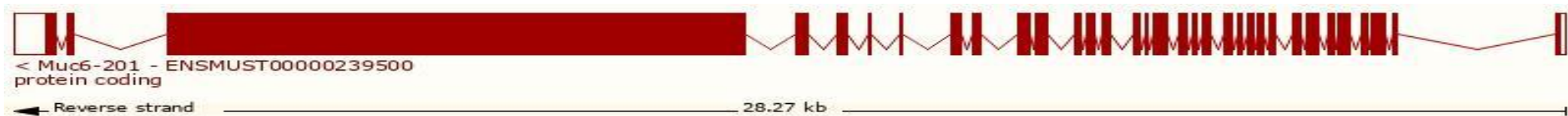
Source: <https://www.ncbi.nlm.nih.gov/>

Transcript Information

The gene has 1 transcript, and the transcript is shown below:

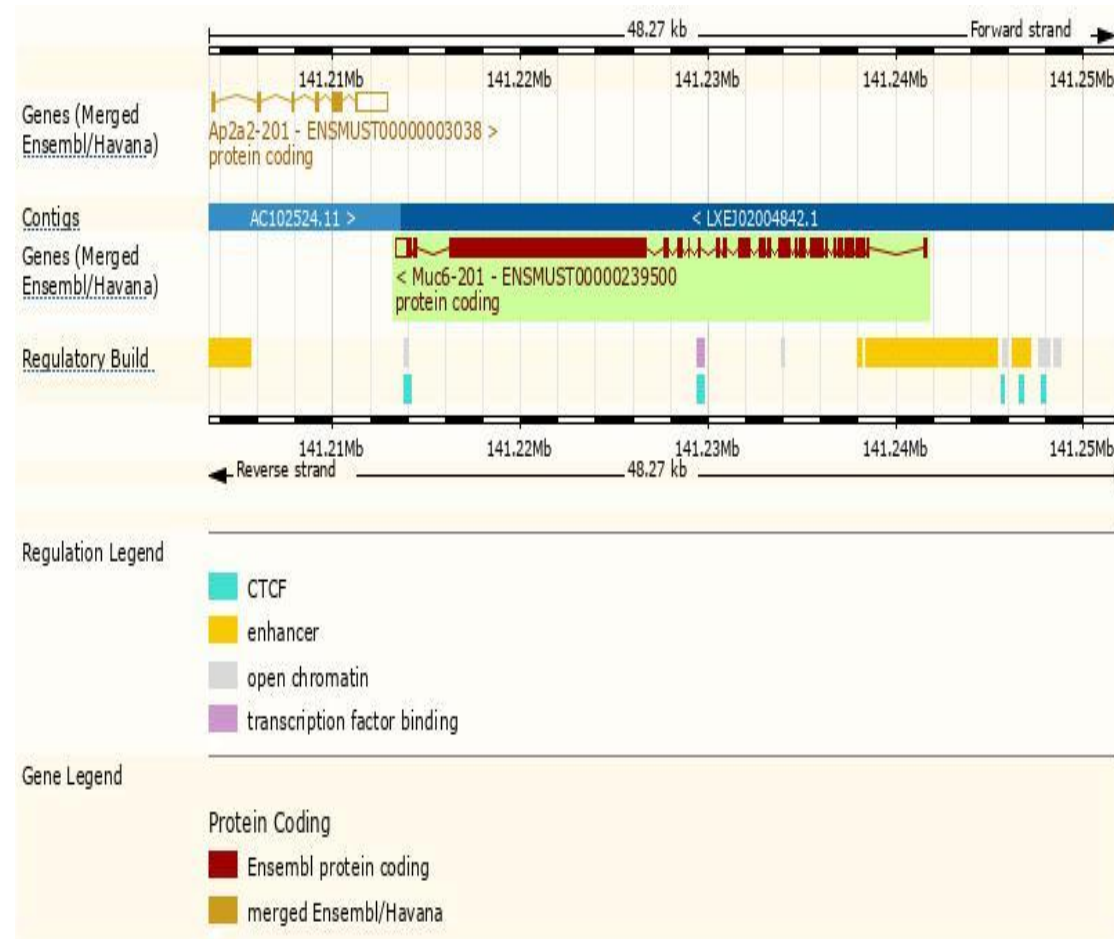
Transcript ID	Name	bp	Protein	Biotype	CCDS	UniProt Match	Flags
ENSMUST00000239500.1	Muc6-201	15593	4972aa	Protein coding		A0A7N9VSS4	Ensembl Canonical Gencode basic APPRIS P1

The strategy is based on the design of *Muc6-201* transcript, the transcription is shown below:

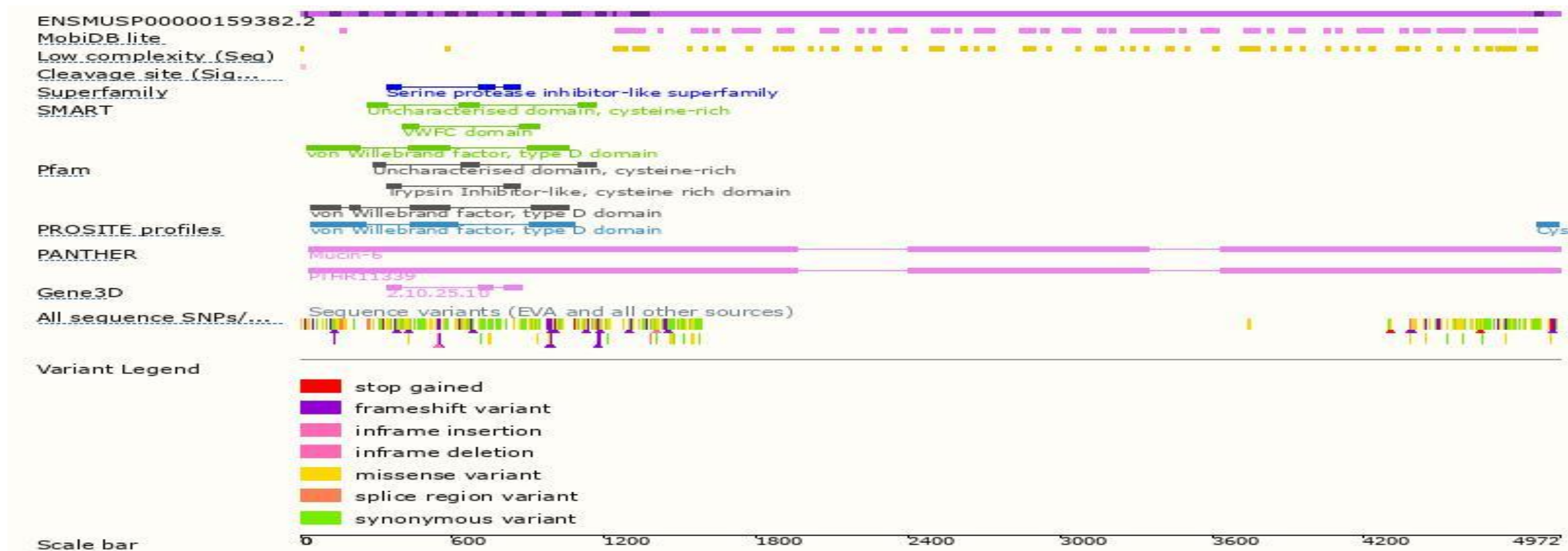


Source: <https://www.ensembl.org>

Genomic Information



Protein Information



Important Information

- *Muc6* is located on Chr7. If the knockout mice are crossed with other mouse strains to obtain double homozygous mutant offspring, please avoid the situation that the second gene is on the same chromosome.
- This Strategy is designed based on genetic information in existing databases. Due to the complexity of biological processes, all risks of the mutation on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.