

# Muc6 Cas9-KO Strategy

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# Overview

## Target Gene Name

- Muc6

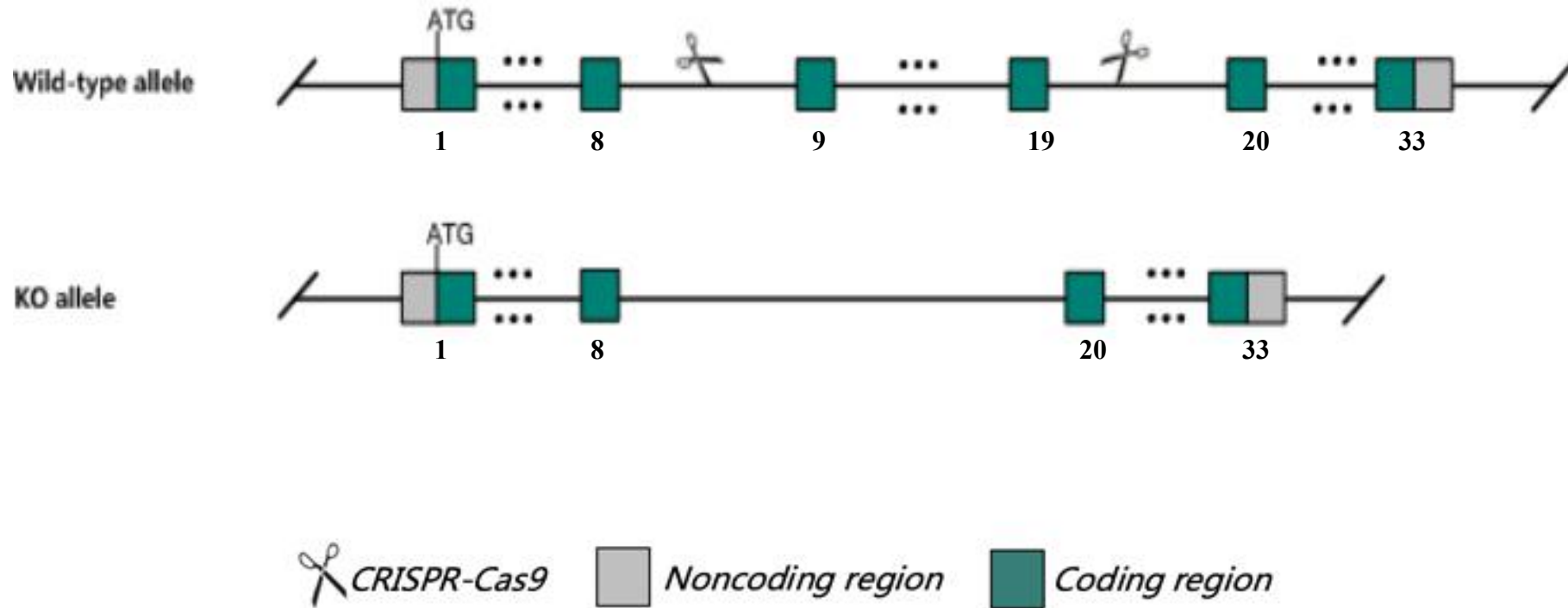
## Project Type

- Cas9-KO

## Genetic Background

- C57BL/6JGpt

# Strain Strategy



# Technical Information

- The *Muc6* gene has 1 transcript. According to the structure of *Muc6* gene, exon9-exon19 of *Muc6*-201 (ENSMUST00000239500.1) transcript is recommended as the knockout region. The region contains 1379bp 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](#)

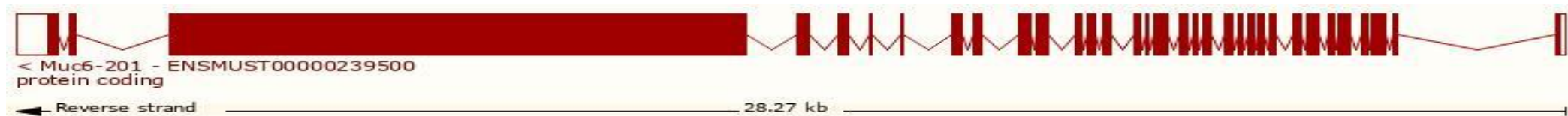
Source: <https://www.ncbi.nlm.nih.gov/>

# Transcript Information

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

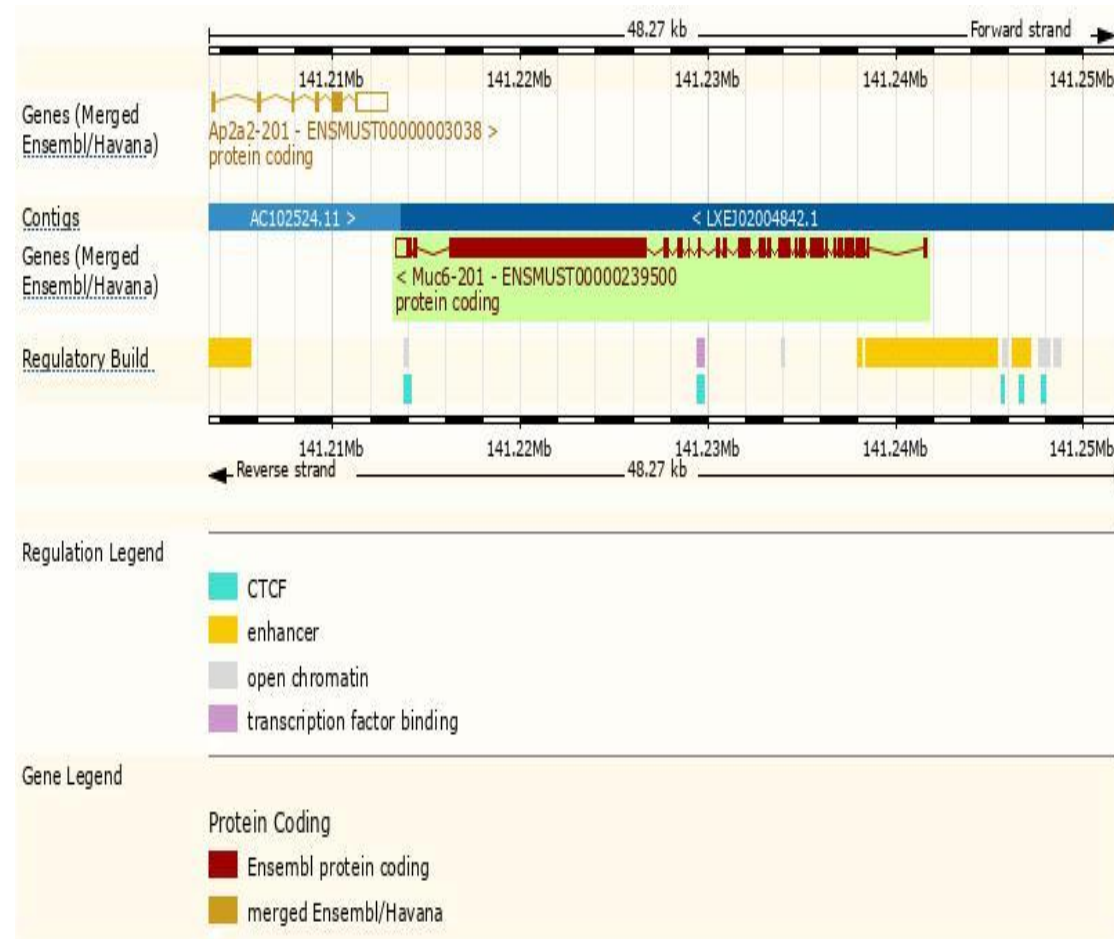
Transcript ID	Name	bp	Protein	Biotype	CCDS	UniProt Match	Flags
<a href="#">ENSMUST00000239500.1</a>	Muc6-201	15593	<a href="#">4972aa</a>	Protein coding		<a href="#">A0A7N9VSS4</a>	Ensembl Canonical Gencode basic APPRIS P1

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



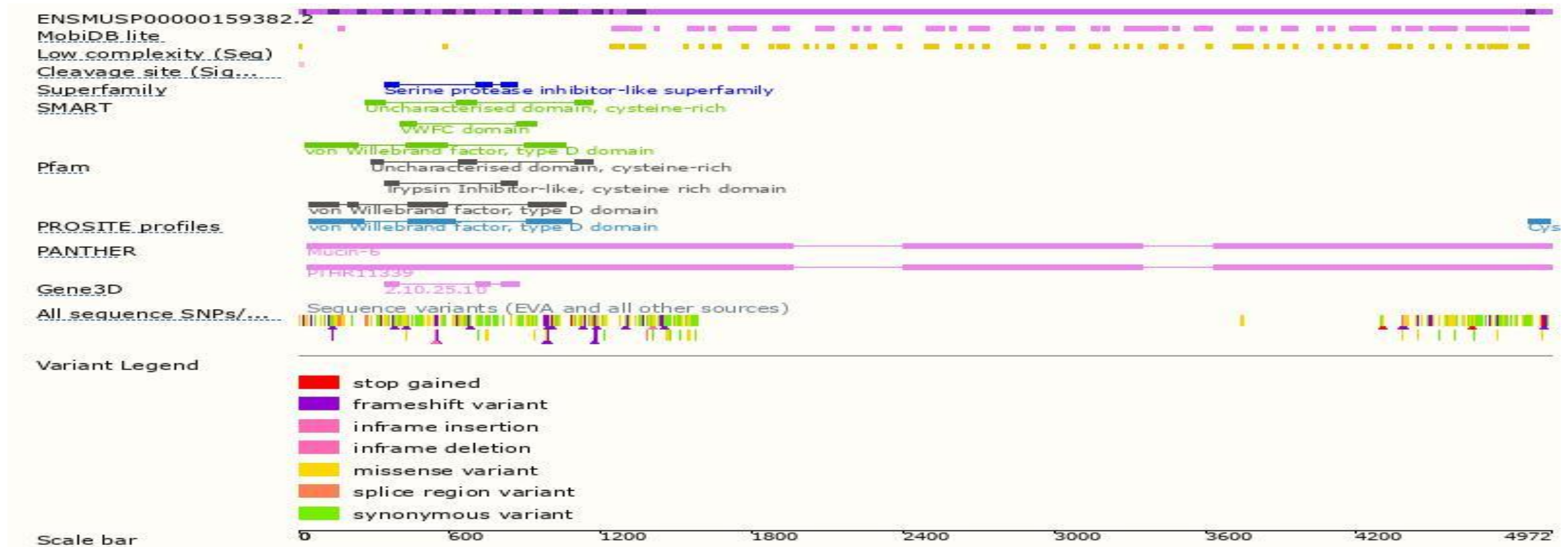
Source: <https://www.ensembl.org>

# 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.