

Trim42 Cas9-CKO Strategy

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Design Date: 2023-06-07

Overview

Target Gene Name

- Trim42

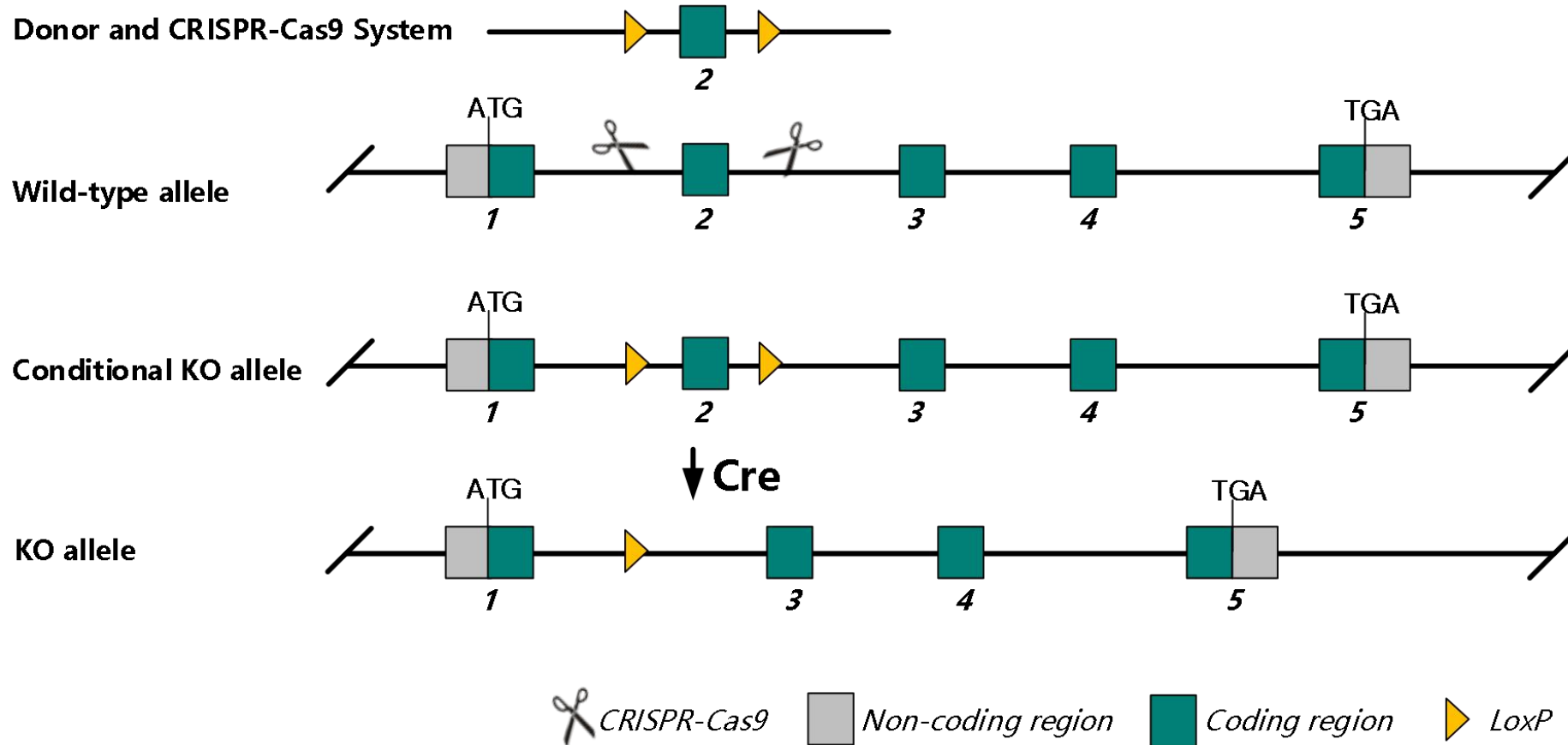
Project Type

- Cas9-CKO

Genetic Background

- C57BL/6JGpt

Strain Strategy



Schematic representation of CRISPR-Cas9 engineering used to edit the *Trim42* gene.

Technical Information

- The *Trim42* gene has 1 transcript. According to the structure of *Trim42* gene, exon2 of *Trim42*-201 (ENSMUST00000035026.5) transcript is recommended as the knockout region. The region contains 698bp of coding sequences. Knocking out the region will result in disruption of protein function.
- In this project we use CRISPR-Cas9 technology to modify *Trim42* 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 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.
- 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.

Gene Information

Trim42 tripartite motif-containing 42 [*Mus musculus* (house mouse)]

Gene ID: 78911, updated on 31-May-2023

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Summary

Official Symbol	Trim42 provided by MGI
Official Full Name	tripartite motif-containing 42 provided by MGI
Primary source	MGI:MGI:1926161
See related	Ensembl:ENSMUSG000000032451 AllianceGenome:MGI:1926161
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	4930486B16Rik
Summary	Predicted to enable ubiquitin-protein transferase activity. Predicted to be involved in positive regulation of transcription, DNA-templated. Predicted to be active in chromatin and nucleoplasm. Orthologous to human TRIM42 (tripartite motif containing 42). [provided by Alliance of Genome Resources, Apr 2022]
Expression	Restricted expression toward testis adult (RPKM 24.6) See more
Orthologs	human all

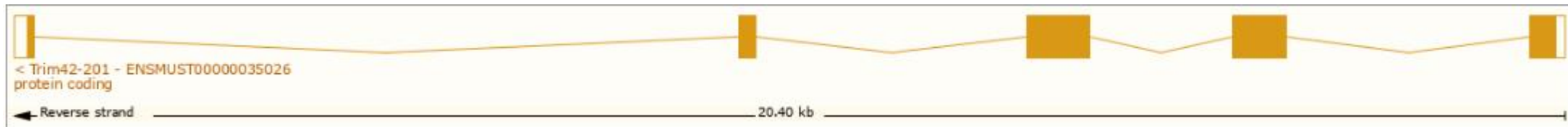
Source: <https://www.ncbi.nlm.nih.gov/gene/78911>

Transcript Information

The gene has 1 transcript, all transcripts are shown below:

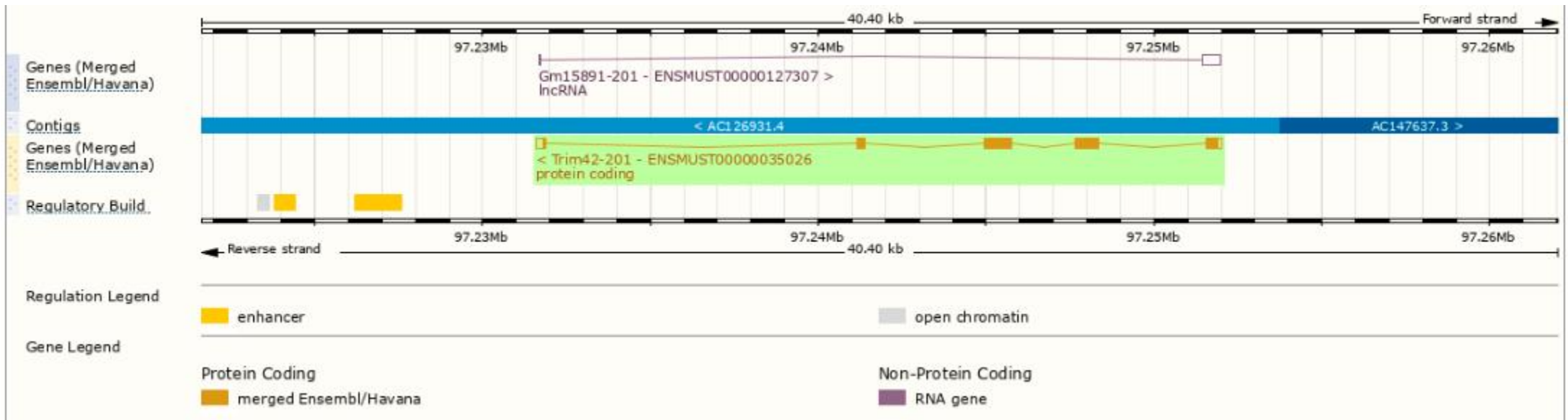
Transcript ID	Name	bp	Protein	Biotype	CCDS	UniProt Match	Flags
ENSMUST00000035026.5	Trim42-201	2463	723aa	Protein coding	CCDS23422	Q9D2H5	Ensembl Canonical Gencode basic APPRIS P1 TSL:1

The strategy is based on the design of *Trim42-201* transcript, the transcription is shown below:

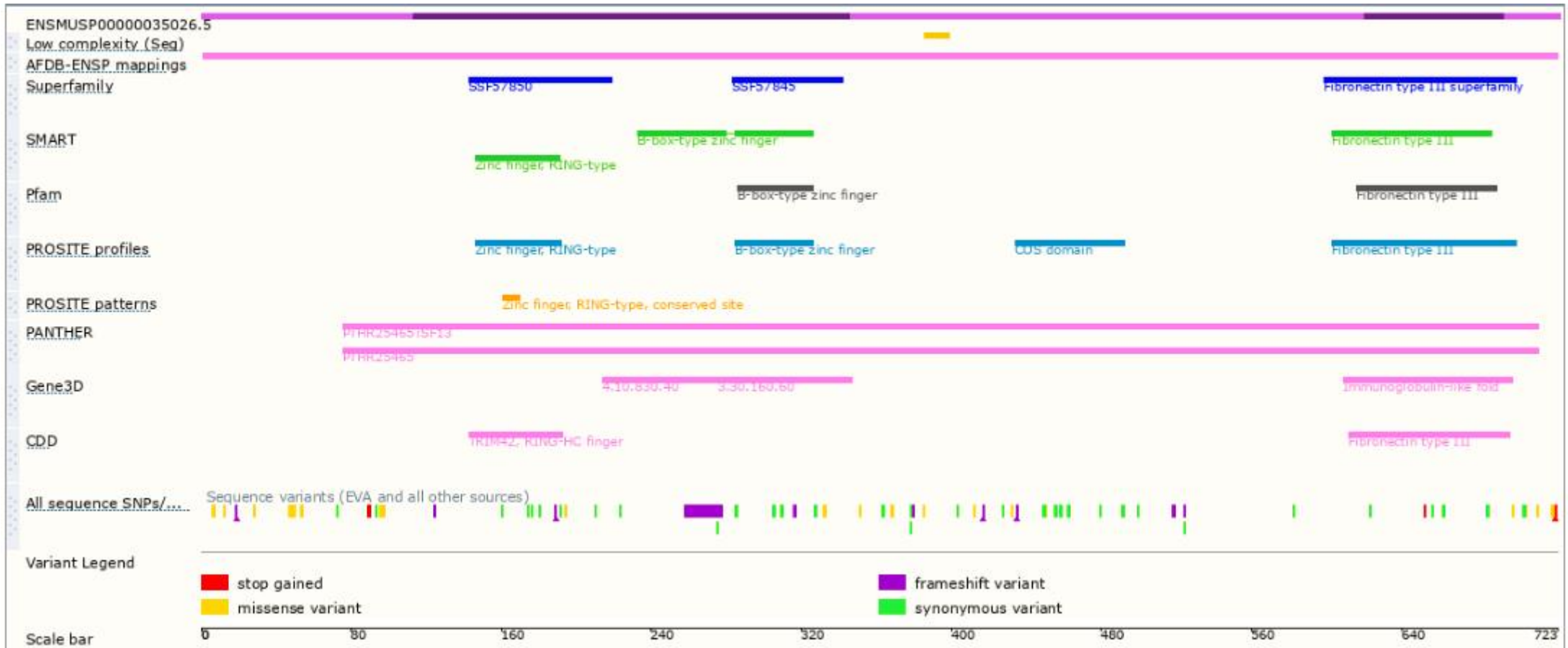


Source: <https://www.ensembl.org>

Genomic Information



Protein Information



Important Information

- The knockout region is overlapped with the predicted gene *Gm15891*. The expression of *Gm15891* gene may be affected.
- *Trim42* is located on Chr9. 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 risk of loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.