

Col9a3 Cas9-CKO Strategy

Designer:

JiaYu

Reviewer:

Xiaojing Li

Design Date:

2020-2-13

Project Overview

Project Name

Col9a3

Project type

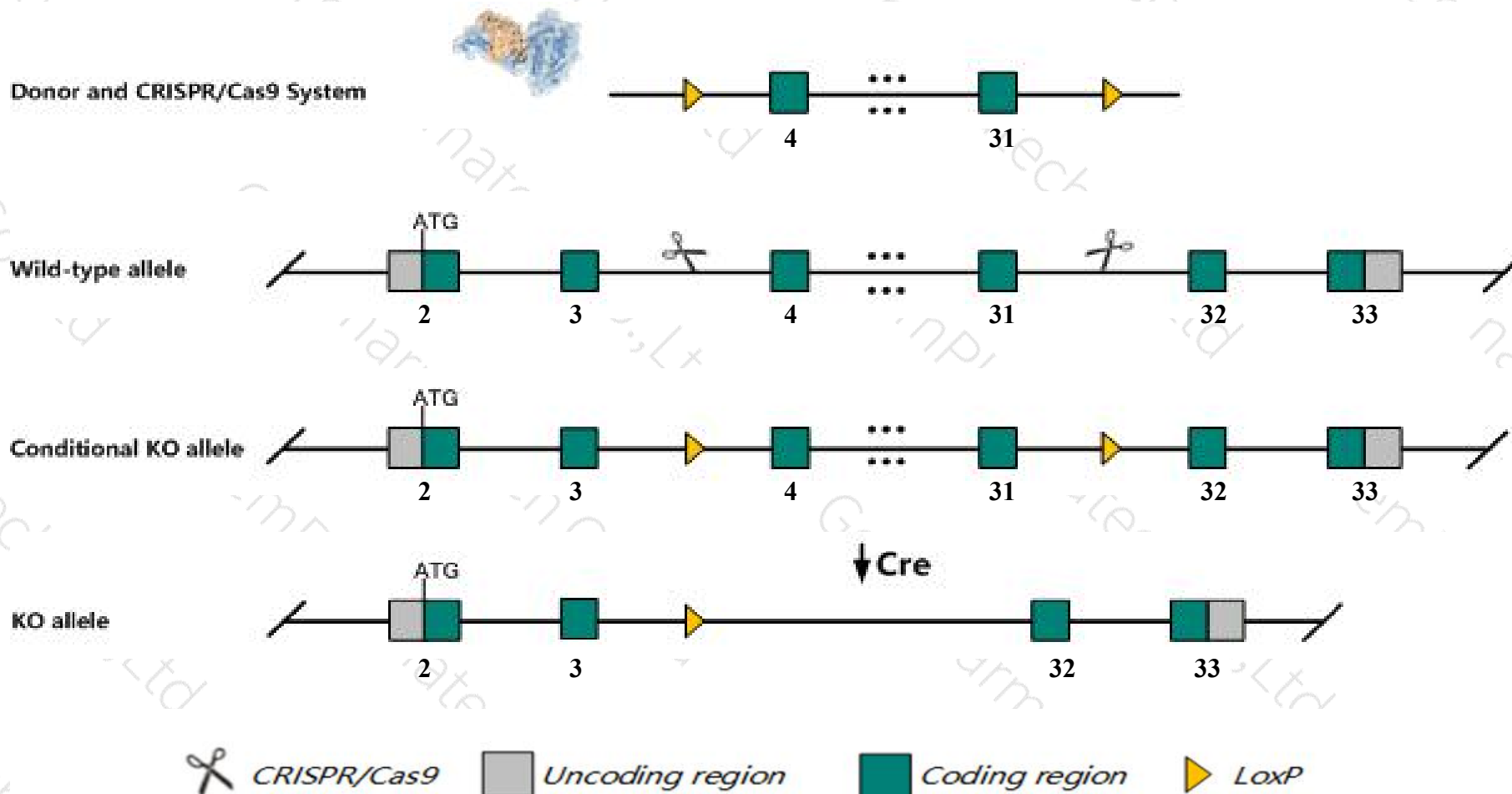
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Col9a3* gene. The schematic diagram is as follows:



Technical routes

- The *Col9a3* gene has 6 transcripts. According to the structure of *Col9a3* gene, exon4-exon31 of *Col9a3-203* (ENSMUST00000132527.8) transcript is recommended as the knockout region. The region contains 1639bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Col9a3* 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 sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.
- 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.

Notice

- The *Col9a3* gene is located on the Chr2. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Col9a3 collagen, type IX, alpha 3 [Mus musculus (house mouse)]

Gene ID: 12841, updated on 3-Feb-2019

Summary



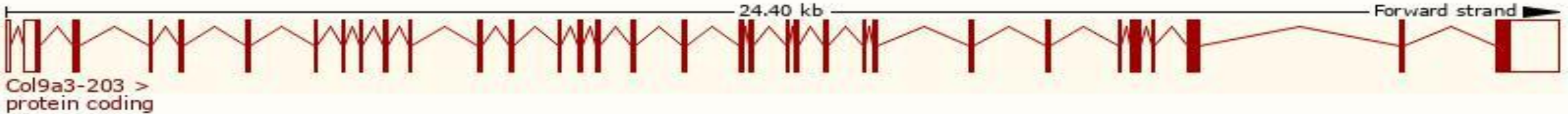
Official Symbol	Col9a3 provided by MGI
Official Full Name	collagen, type IX, alpha 3 provided by MGI
Primary source	MGI:MGI:894686
See related	Ensembl:ENSMUSG00000027570
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AV006866
Expression	Biased expression in limb E14.5 (RPKM 147.4), CNS E14 (RPKM 29.8) and 2 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

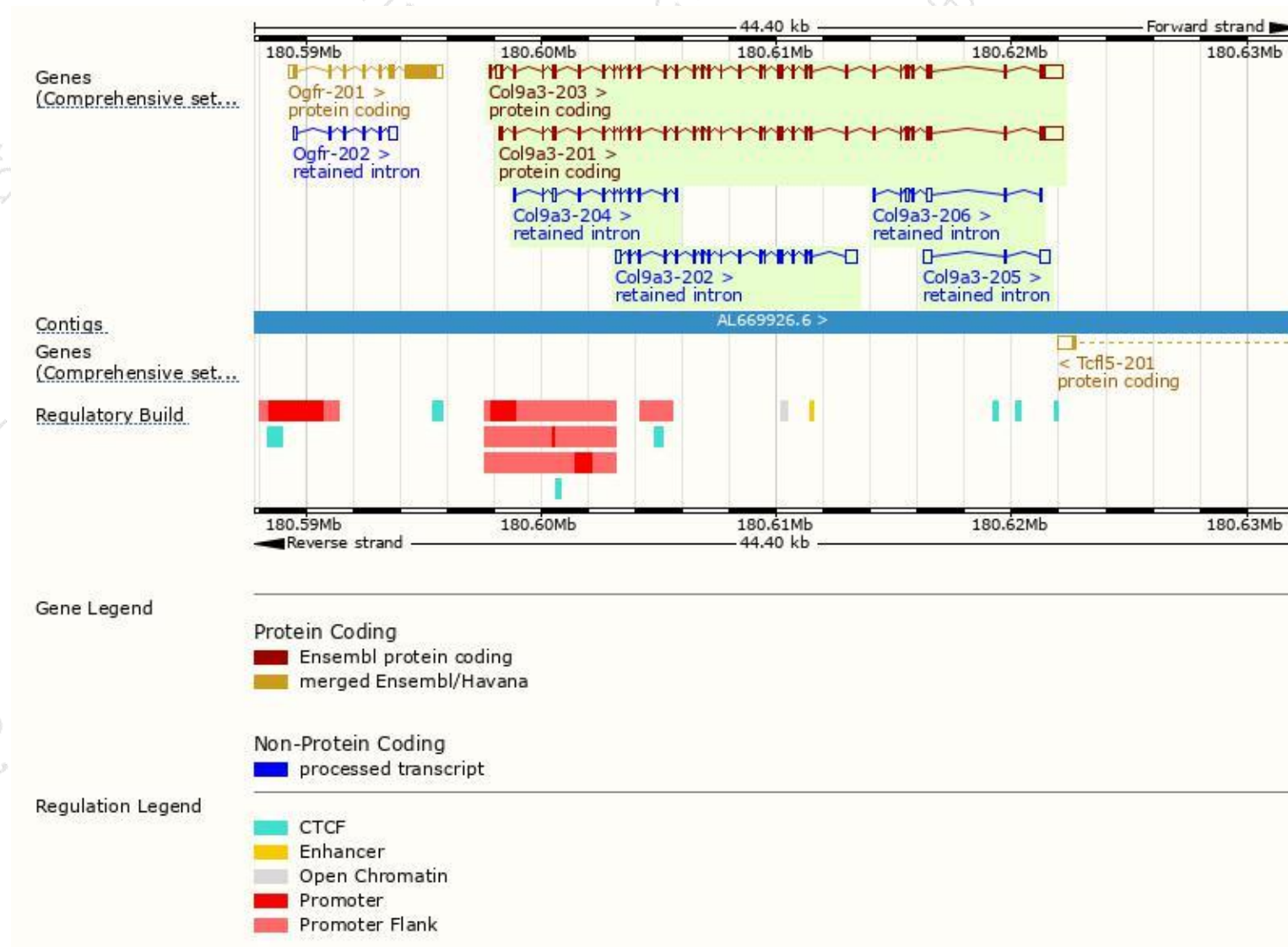
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Col9a3-203	ENSMUST00000132527.8	3046	680aa	Protein coding	CCDS17180	A2ACT7	TSL:5 GENCODE basic APPRIS P1
Col9a3-201	ENSMUST00000103059.1	2846	680aa	Protein coding	CCDS17180	A2ACT7	TSL:1 GENCODE basic APPRIS P1
Col9a3-202	ENSMUST00000129090.1	1552	No protein	Retained intron	-	-	TSL:1
Col9a3-205	ENSMUST00000165224.1	749	No protein	Retained intron	-	-	TSL:1
Col9a3-206	ENSMUST00000165879.7	644	No protein	Retained intron	-	-	TSL:1
Col9a3-204	ENSMUST00000141056.7	609	No protein	Retained intron	-	-	TSL:5

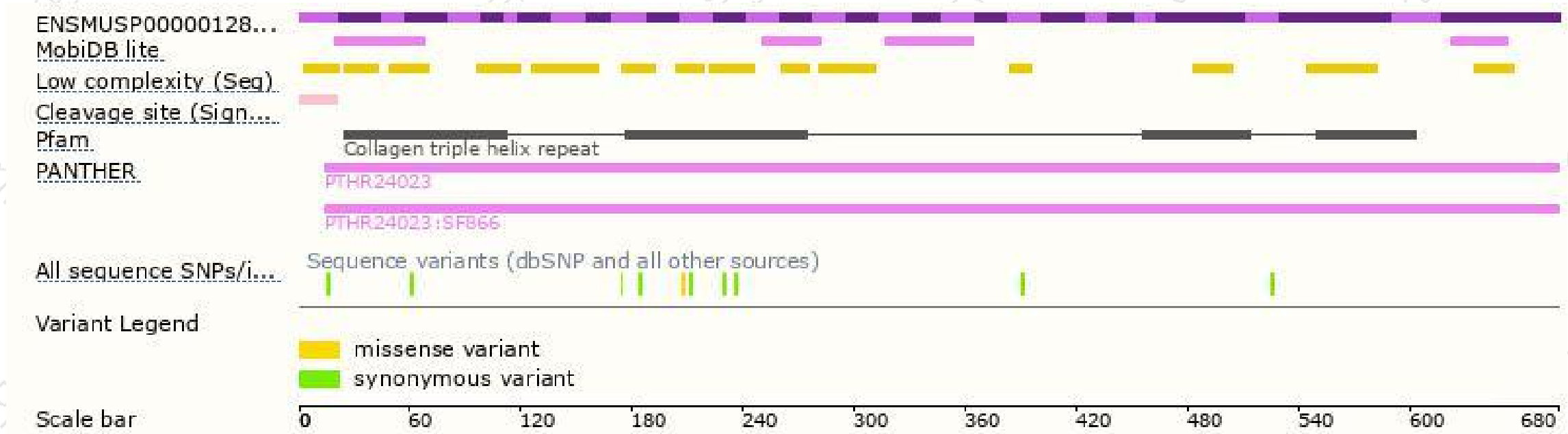
The strategy is based on the design of *Col9a3-203* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

Tel: 400-9660890

