

Adams8 Cas9-CKO Strategy

Designer: JiaYu

Reviewer: Xiaojing Li

Design Date: 2020-8-14

Project Overview

Project Name

Adamts8

Project type

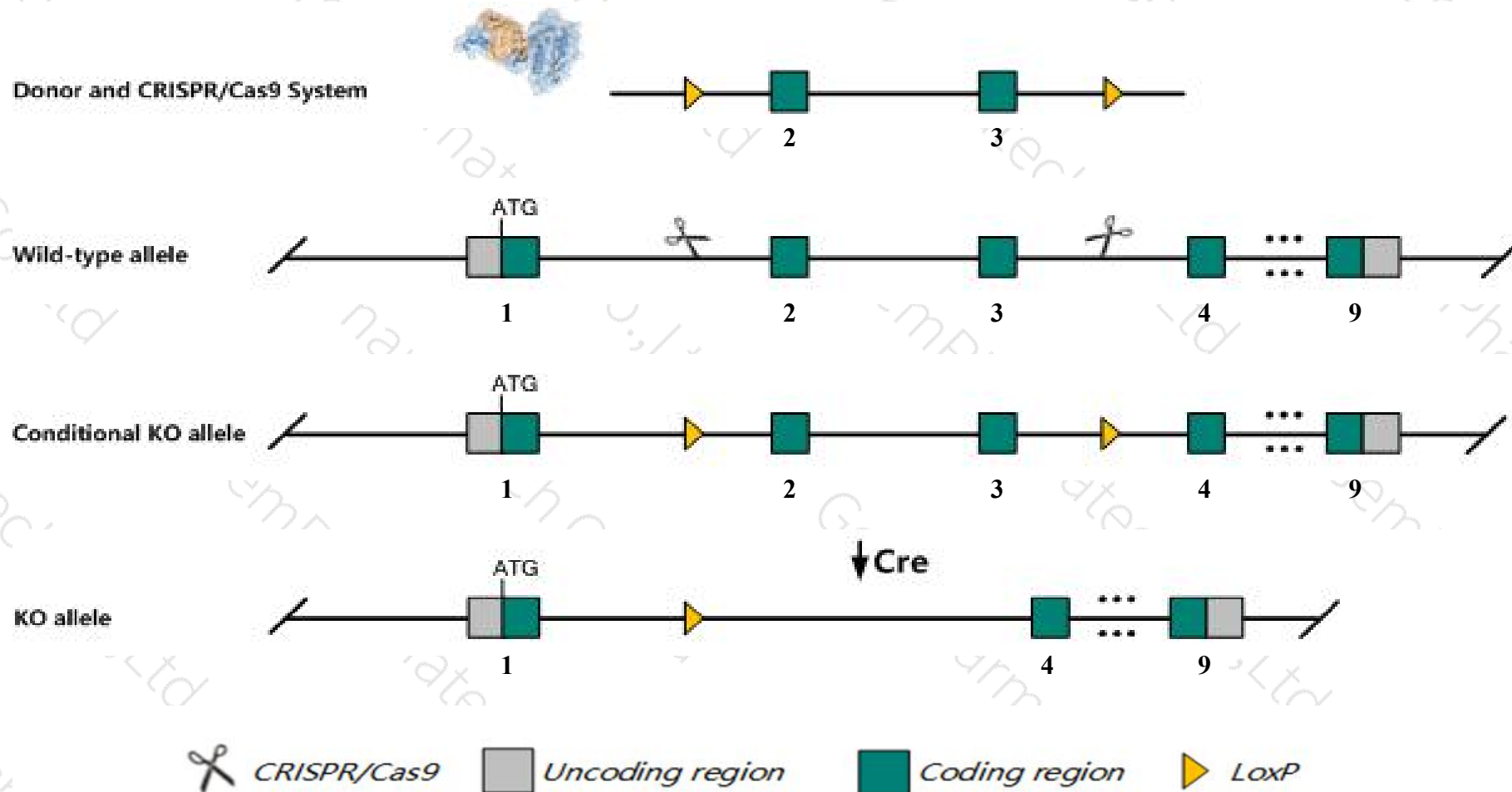
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Adamts8* gene. The schematic diagram is as follows:



Technical routes

- The *Adamts8* gene has 2 transcripts. According to the structure of *Adamts8* gene, exon2-exon3 of *Adamts8*-201(ENSMUST00000068135.12) transcript is recommended as the knockout region. The region contains 376bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Adamts8* 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 *Adamts8* gene is located on the Chr9. 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)

Adamts8 a disintegrin-like and metallopeptidase (reprolysin type) with thrombospondin type 1 motif, 8 [Mus musculus (house mouse)]

Gene ID: 30806, updated on 13-Mar-2020

Summary

Official Symbol Adamts8 provided by [MGI](#)

Official Full Name a disintegrin-like and metallopeptidase (reprolysin type) with thrombospondin type 1 motif, 8 provided by [MGI](#)

Primary source [MGI:MGI:1353468](#)

See related [Ensembl:ENSMUSG000000031994](#)

Gene type protein coding

RefSeq status REVIEWED

Organism [Mus musculus](#)

Lineage Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus

Also known as METH-2, METH2

Summary This gene encodes a member of "a disintegrin and metalloproteinase with thrombospondin motifs" (ADAMTS) family of multi-domain matrix-associated metalloendopeptidases that have diverse roles in tissue morphogenesis and pathophysiological remodeling, in inflammation and in vascular biology. This gene is expressed in mouse lung, heart and macrophage-rich areas of atherosclerotic plaques. The encoded preproprotein undergoes proteolytic processing to generate an active, zinc-dependent aggrecanase enzyme. This gene is located adjacent to a related ADAMTS gene on chromosome 9. [provided by RefSeq, May 2016]

Expression Broad expression in lung adult (RPKM 4.1), limb E14.5 (RPKM 1.2) and 20 other tissues [See more](#)

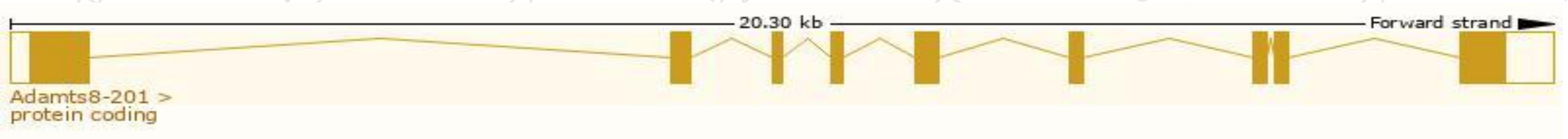
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

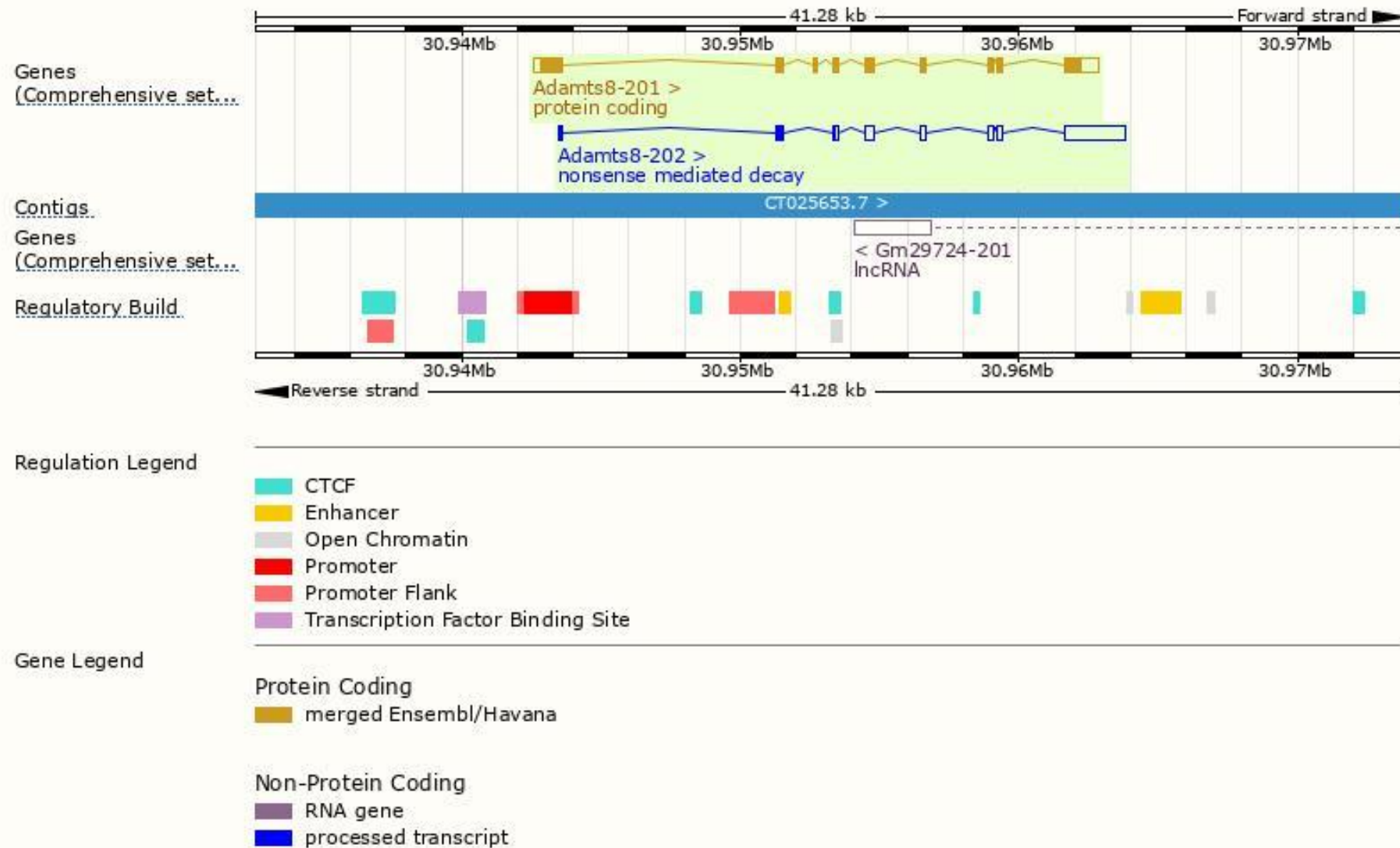
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Adamts8-201	ENSMUST00000068135.12	3631	905aa	Protein coding	CCDS22946	F8VQ15	TSL:1 GENCODE basic APPRIS P1
Adamts8-202	ENSMUST00000163037.1	3581	142aa	Nonsense mediated decay	-	F6U6K2	CDS 5' incomplete TSL:1

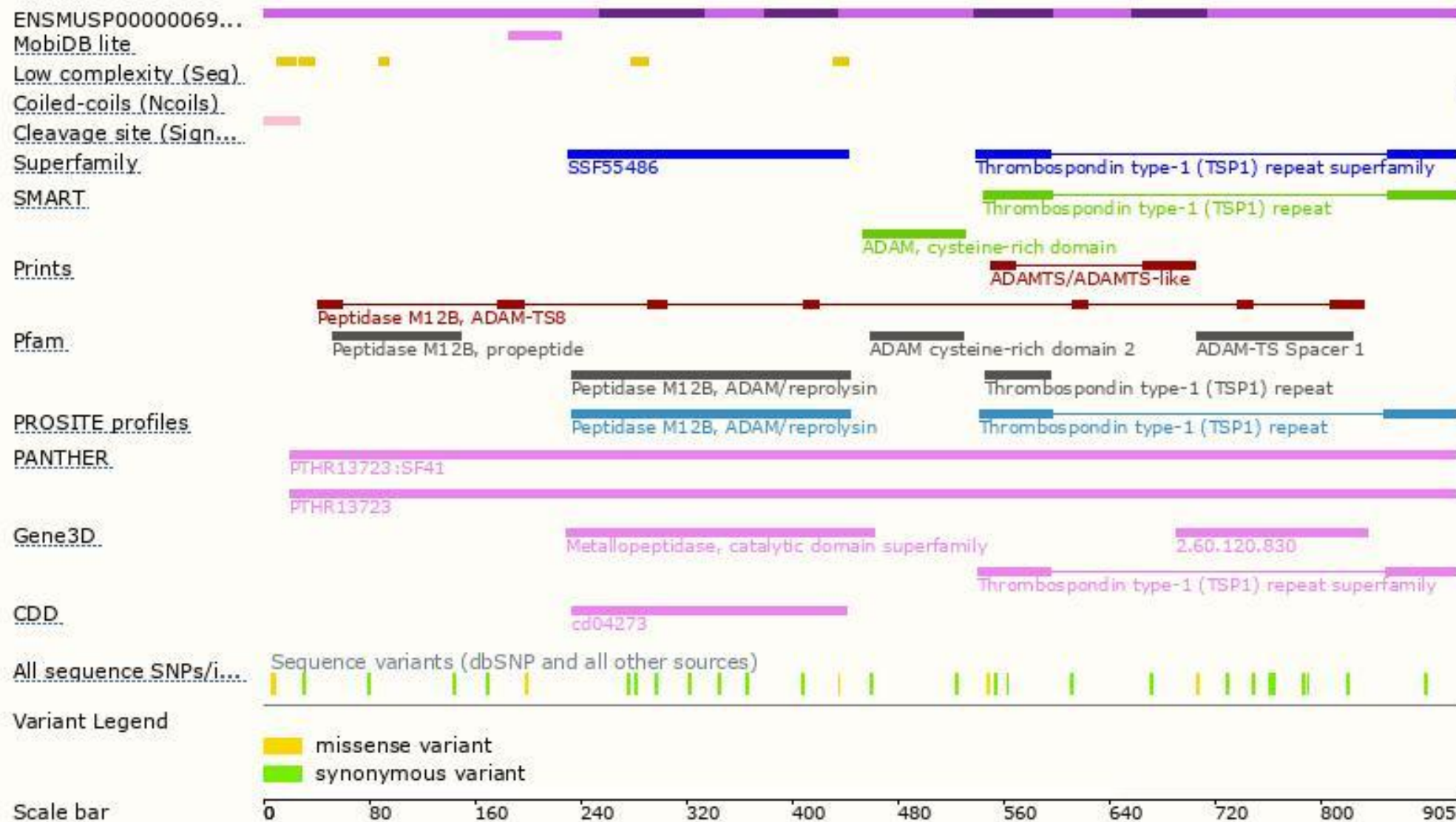
The strategy is based on the design of *Adamts8-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

Tel: 400-9660890

