

Adam28 Cas9-CKO Strategy

Designer:

Huimin Su

Reviewer:

Ruirui Zhang

Design Date:

2020-2-21

Project Overview

Project Name

Adam28

Project type

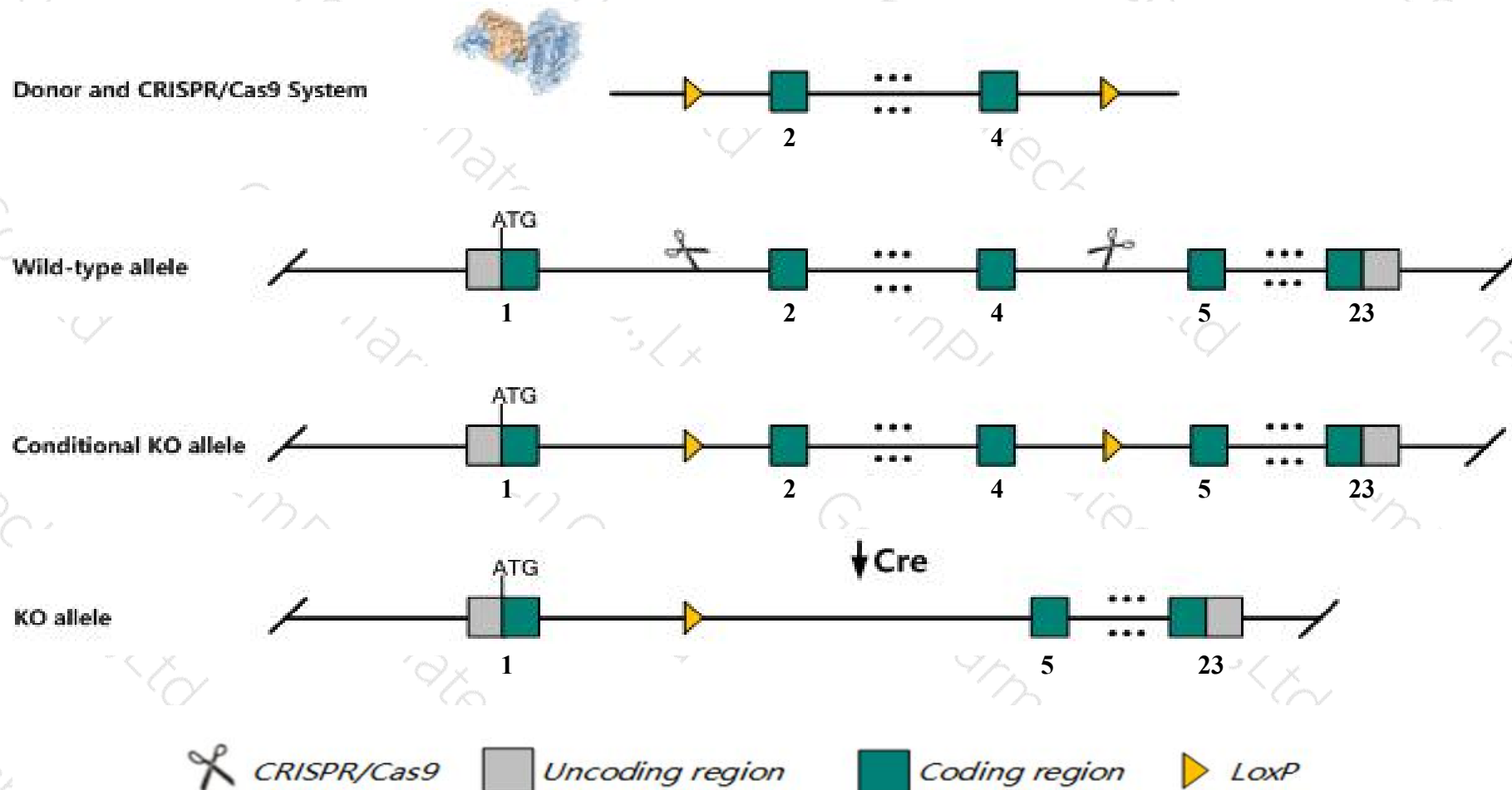
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Adam28* gene. The schematic diagram is as follows:



Technical routes

- The *Adam28* gene has 6 transcripts. According to the structure of *Adam28* gene, exon2-exon4 of *Adam28-201* (ENSMUST00000022642.5) transcript is recommended as the knockout region. The region contains 260bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Adam28* 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 *Adam28* gene is located on the Chr14. 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.

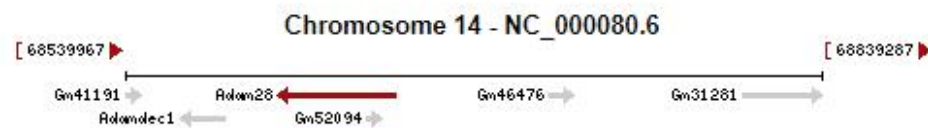
Gene information (NCBI)

Adam28 a disintegrin and metallopeptidase domain 28 [*Mus musculus* (house mouse)]

Gene ID: 13522, updated on 24-Oct-2019

Summary

Official Symbol	Adam28 provided by MGI
Official Full Name	a disintegrin and metallopeptidase domain 28 provided by MGI
Primary source	MGI:MGI:105988
See related	Ensembl:ENSMUSG00000014725
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	MDCL; Dtgn1; MDC-L; eMDCII; TECADAM; C130072N01Rik; D430033C21Rik
Summary	This gene encodes a member of the ADAM (a disintegrin and metalloprotease domain) family. Members of this family are typically membrane-anchored, although a form of this protein may be secreted. Alternative splicing results in multiple transcript variants, at least one of which encodes a preproprotein that is proteolytically processed to generate a mature protein product. This protein may bind to integrins and regulate lymphocyte migration by enhancing cell adhesion. [provided by RefSeq, Aug 2015]
Expression	Restricted expression toward genital fat pad adult (RPKM 58.0) See more
Orthologs	human all



Transcript information (Ensembl)

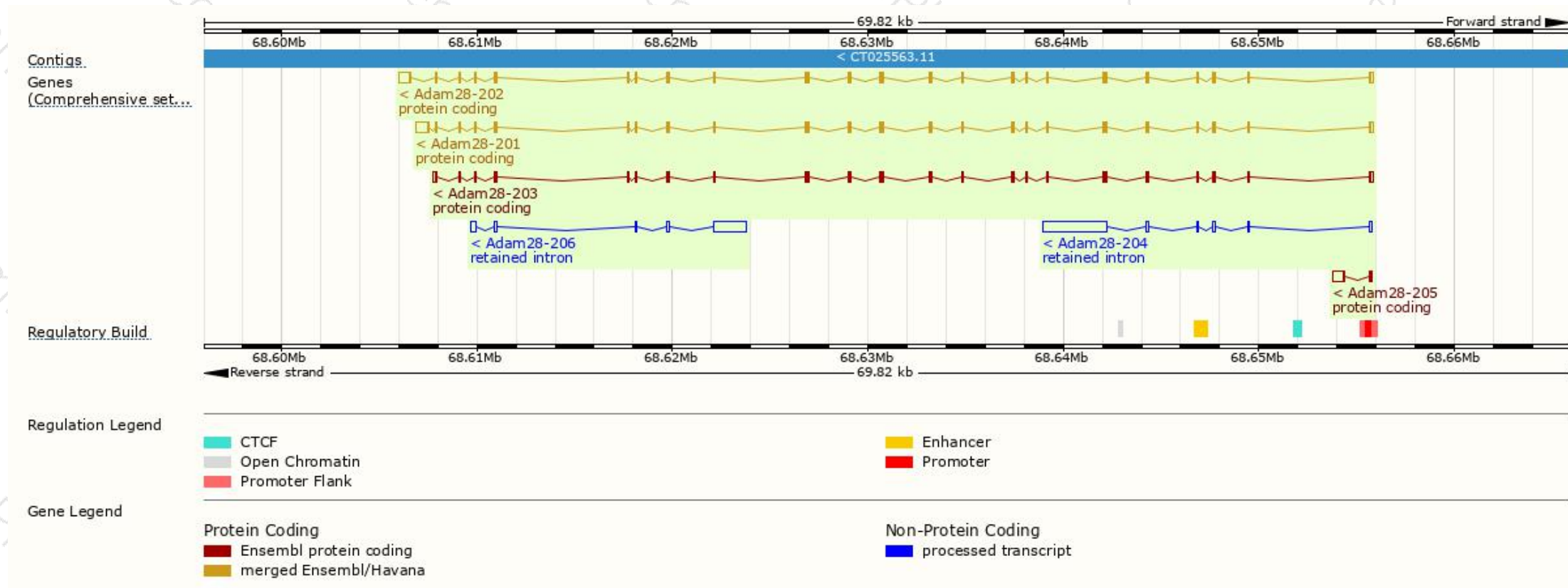
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Adam28-201	ENSMUST00000022642.5	3110	793aa	Protein coding	CCDS36965	Q9JLN6	TSL:1 GENCODE basic APPRIS P4
Adam28-202	ENSMUST00000111072.7	3025	774aa	Protein coding	CCDS36964	Q9JLN6	TSL:1 GENCODE basic APPRIS ALT2
Adam28-203	ENSMUST00000224039.1	2638	768aa	Protein coding	-	Q9JLN6	GENCODE basic APPRIS ALT2
Adam28-205	ENSMUST00000225767.2	778	41aa	Protein coding	-	A0A2R8VHR5	GENCODE basic
Adam28-204	ENSMUST00000224131.1	3713	No protein	Retained intron	-	-	-
Adam28-206	ENSMUST00000230006.1	2286	No protein	Retained intron	-	-	-

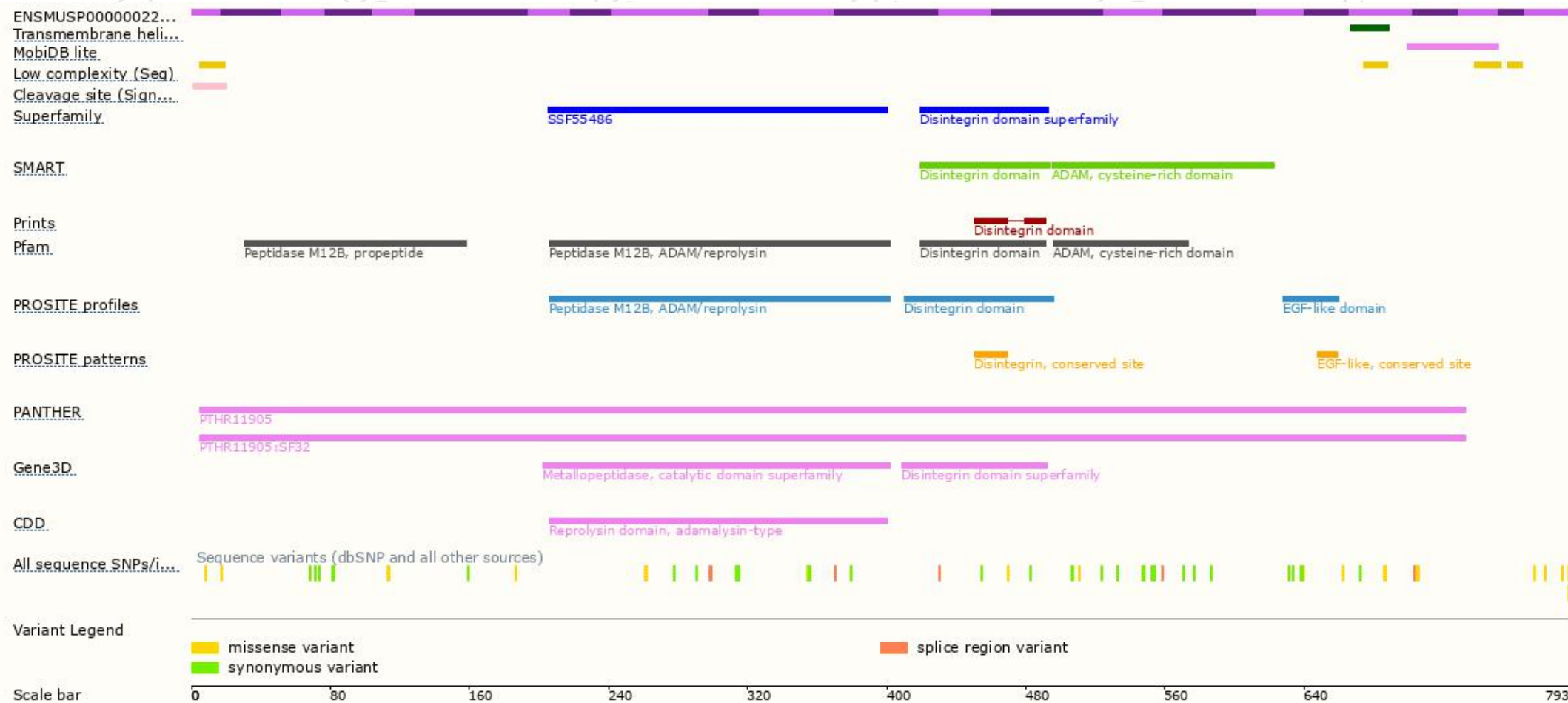
The strategy is based on the design of *Adam28-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

Tel: 400-9660890

