

Ceacam19 Cas9-KO Strategy

Designer: Zihe Cui

Reviewer: Daohua Xu

Design Date: 2020-10-14

Project Overview

Project Name

Ceacam19

Project type

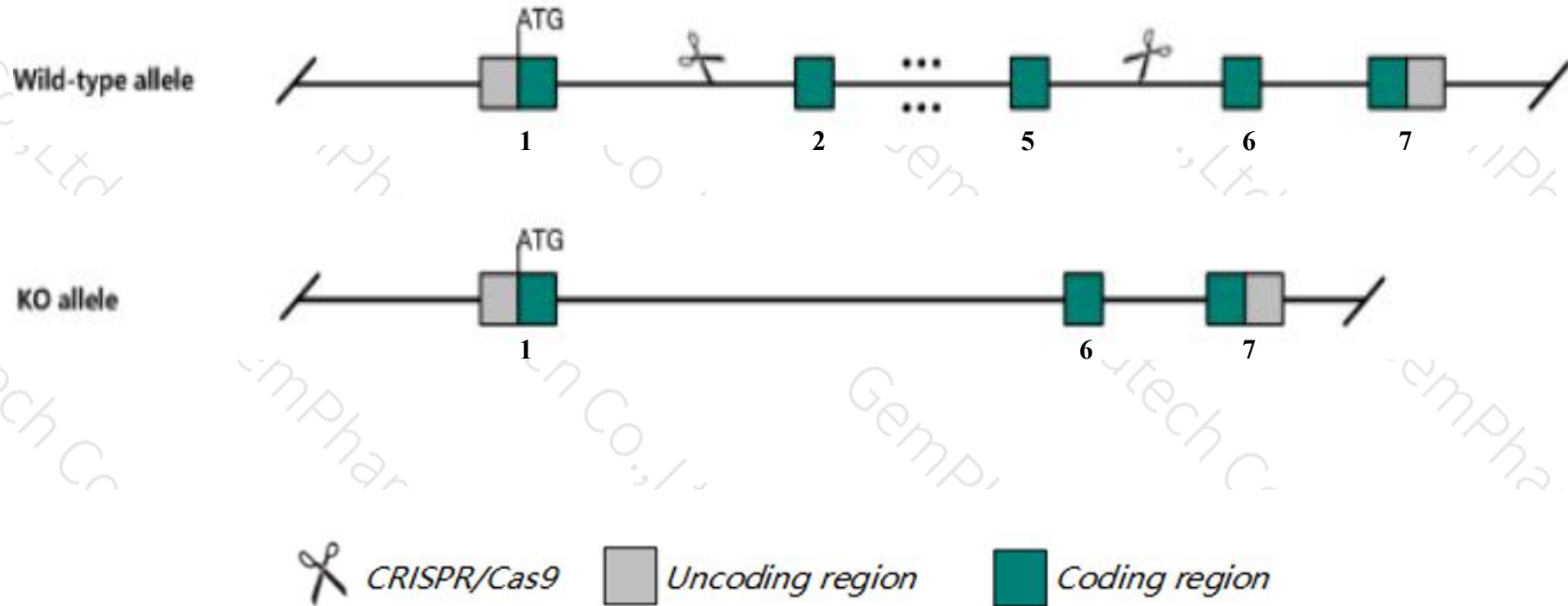
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ceacam19* gene. The schematic diagram is as follows:



Technical routes

- The *Ceacam19* gene has 1 transcript. According to the structure of *Ceacam19* gene, exon2-exon5 of *Ceacam19*-201(ENSMUST00000052605.7) transcript is recommended as the knockout region. The region contains 647bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ceacam19* gene. The brief process is as follows: CRISPR/Cas9 system 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 *Ceacam19* gene is located on the Chr7. 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Ceacam19 carcinoembryonic antigen-related cell adhesion molecule 19 [*Mus musculus* (house mouse)]

Gene ID: 319930, updated on 25-Sep-2020

Summary

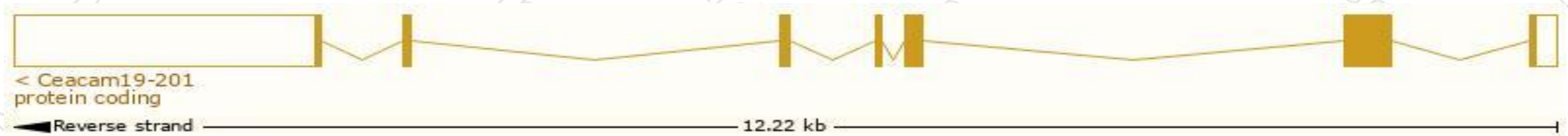
Official Symbol	Ceacam19 provided by MGI
Official Full Name	carcinoembryonic antigen-related cell adhesion molecule 19 provided by MGI
Primary source	MGI:MGI:2443001
See related	Ensembl:ENSMUSG00000049848
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	CEAL1; C130022P09Rik
Expression	Biased expression in stomach adult (RPKM 1.7), limb E14.5 (RPKM 0.7) and 5 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

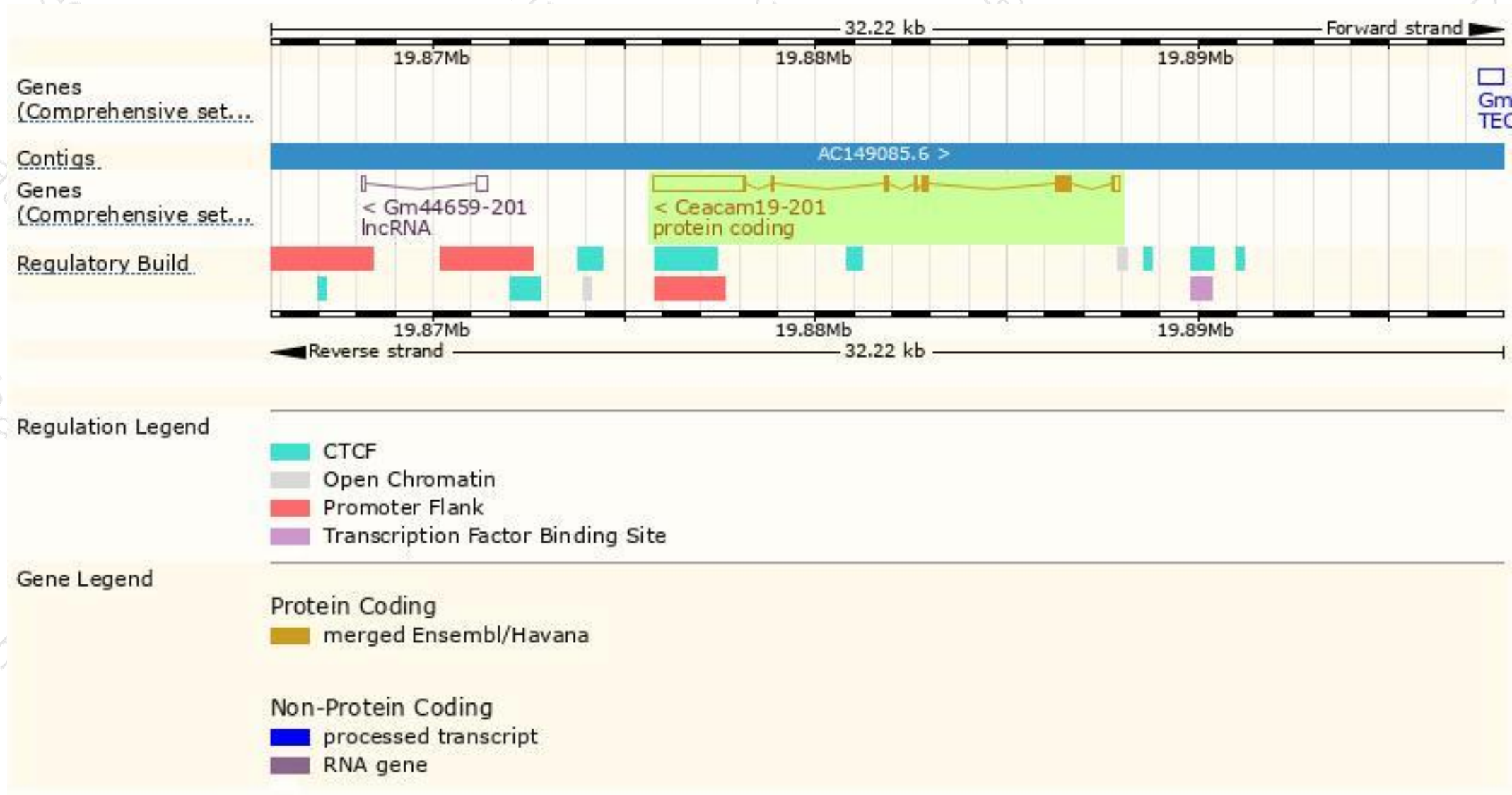
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ceacam19-201	ENSMUST00000052605.7	3361	271aa	Protein coding	CCDS20915	Q3TQ88	TSL:1 GENCODE basic APPRIS P1

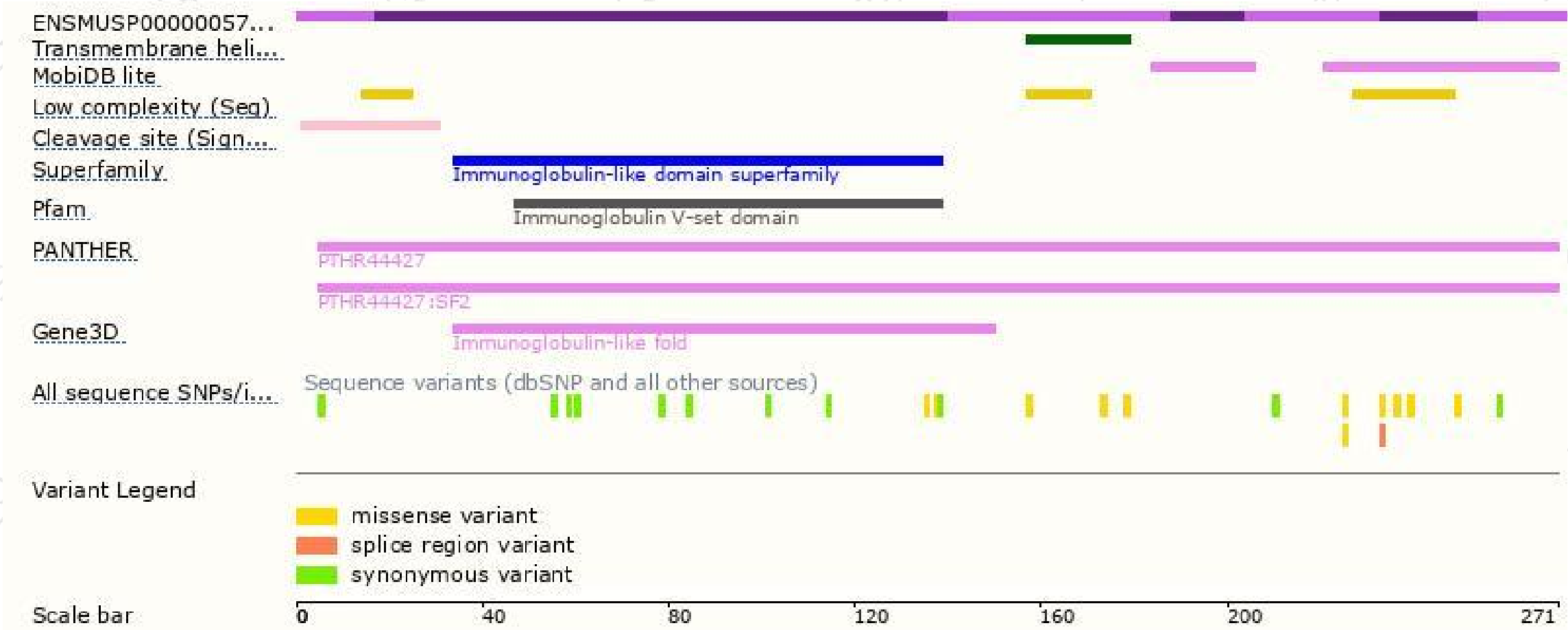
The strategy is based on the design of *Ceacam19-201* transcript, the transcription is shown below:



Genomic location distribution



Protein domain



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

Tel: 400-9660890

