

Dcaf4 Cas9-KO Strategy

Designer: Jia Yu

Reviewer: Xiaojing Li

Design Date: 2020-9-24

Project Overview

Project Name

Dcaf4

Project type

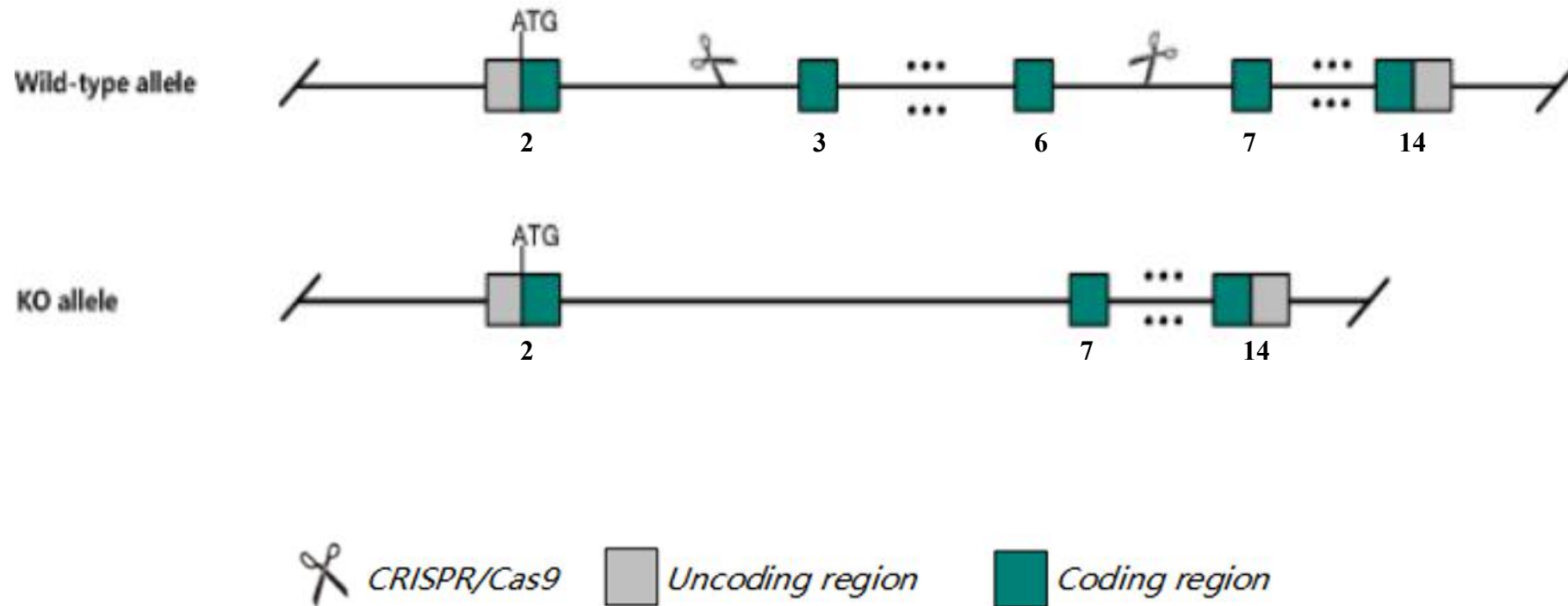
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dcaf4* gene. The schematic diagram is as follows:



The *Dcaf4* gene has 8 transcripts. According to the structure of *Dcaf4* gene, exon3-exon6 of *Dcaf4-201*(ENSMUST00000021645.8) transcript is recommended as the knockout region. The region contains 445bp coding sequence. Knock out the region will result in disruption of protein function.

In this project we use CRISPR/Cas9 technology to modify *Dcaf4* 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 *Dcaf4* gene is located on the Chr12. 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.

Dcaf4 DDB1 and CUL4 associated factor 4 [Mus musculus (house mouse)]

Gene ID: 73828, updated on 13-Mar-2020

Summary

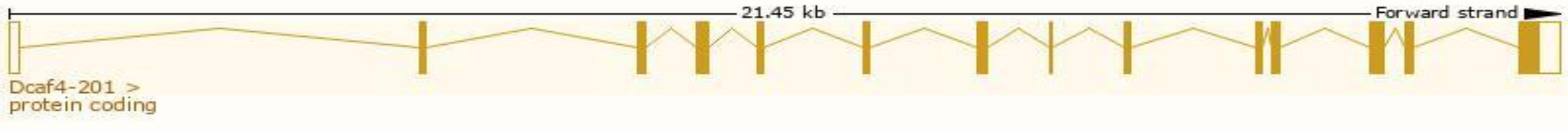
Official Symbol	Dcaf4 provided by MGI
Official Full Name	DDB1 and CUL4 associated factor 4 provided by MGI
Primary source	MGI:MGI:1921078
See related	Ensembl:ENSMUSG00000021222
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1110018E21Rik, Wdr21
Expression	Ubiquitous expression in ovary adult (RPKM 8.8), CNS E18 (RPKM 8.8) and 28 other tissues See more
Orthologs	human all

Transcript information Ensembl

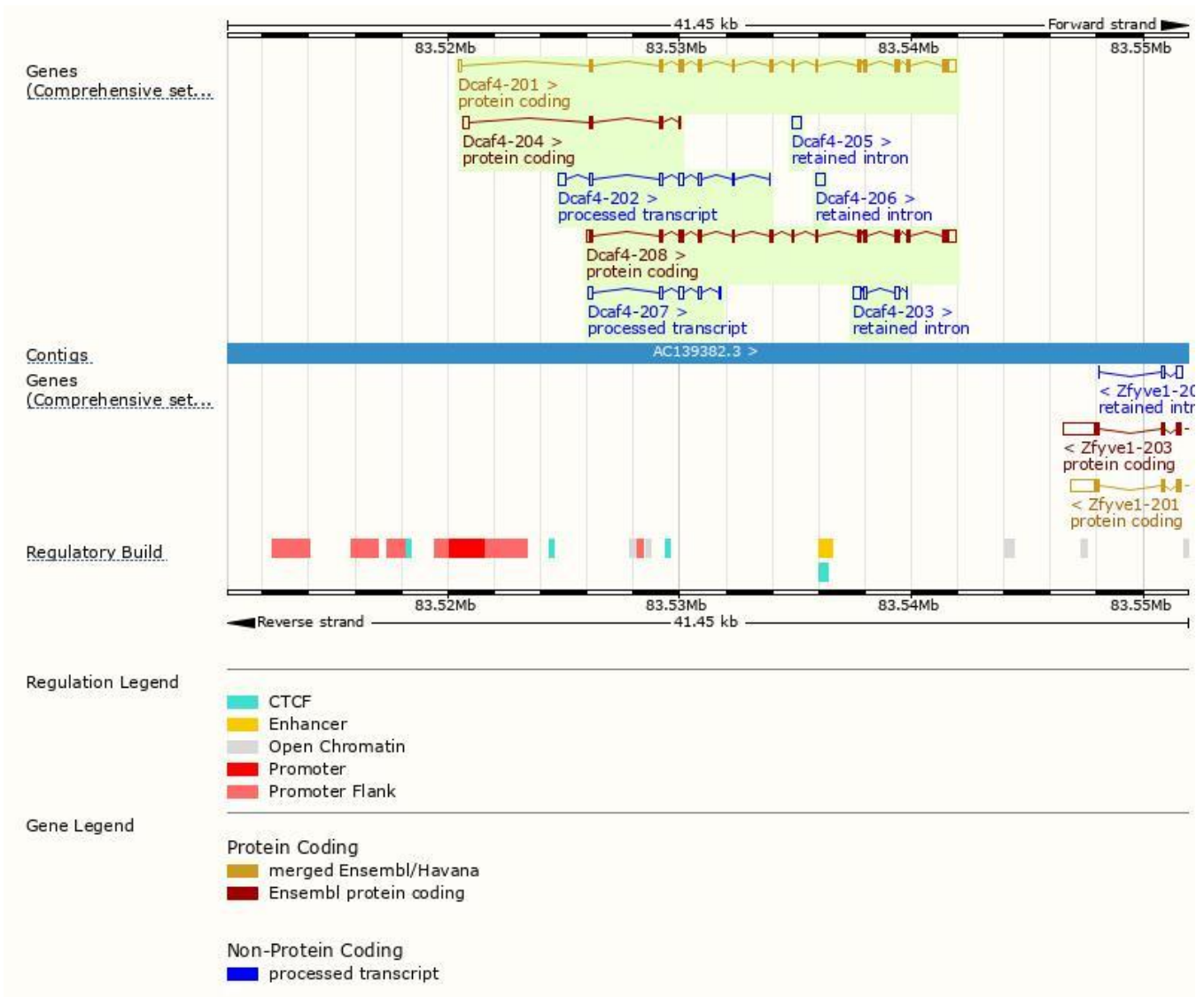
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dcaf4-201	ENSMUST00000021645.8	2008	519aa	Protein coding	CCDS26027	Q99LF7	TSL:5 GENCODE basic APPRIS P2
Dcaf4-208	ENSMUST00000223291.1	2005	532aa	Protein coding	-	A0A1Y7VNZ0	TSL:1 GENCODE basic APPRIS ALT2
Dcaf4-204	ENSMUST00000222502.1	508	84aa	Protein coding	-	A0A1Y7VIR8	CDS 3' incomplete TSL:2
Dcaf4-202	ENSMUST00000221769.1	855	No protein	Processed transcript	-	-	TSL:2
Dcaf4-207	ENSMUST00000222833.1	572	No protein	Processed transcript	-	-	TSL:3
Dcaf4-203	ENSMUST00000221944.1	663	No protein	Retained intron	-	-	TSL:3
Dcaf4-205	ENSMUST00000222607.1	403	No protein	Retained intron	-	-	TSL:NA
Dcaf4-206	ENSMUST00000222725.1	376	No protein	Retained intron	-	-	TSL:NA

The strategy is based on the design of *Dcaf4-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



If you have any questions, you are welcome to inquire.
Tel: 400-9660890

