

Dcaf1 Cas9-KO Strategy

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Project Overview

Project Name

Dcaf1

Project type

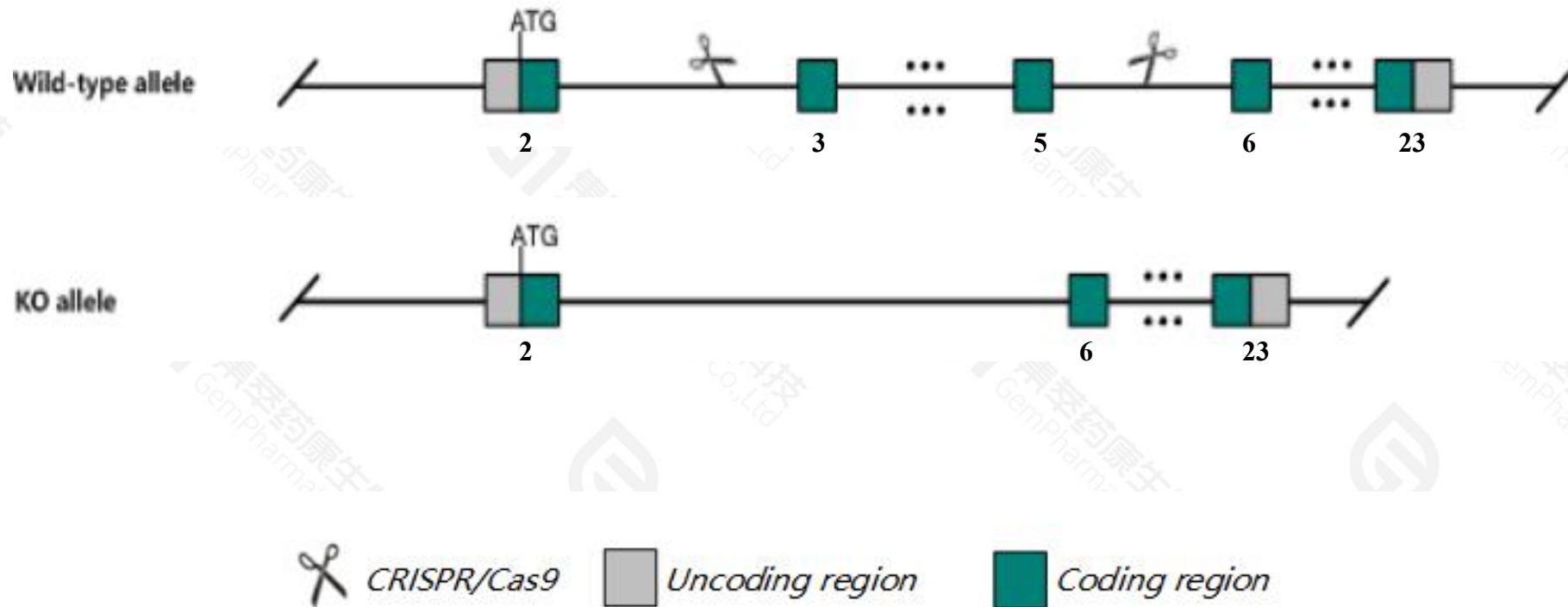
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dcaf1* gene. The schematic diagram is as follows:



- The *Dcaf1* gene has 5 transcripts. According to the structure of *Dcaf1* gene, exon3-exon5 of *Dcaf1*-202(ENSMUST00000159645.8) transcript is recommended as the knockout region. The region contains 265bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Dcaf1* 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.

- According to the existing MGI data,embryos homozygous for a knock-out allele die prior to E7.5.
- Transcript *Dcaf1*-204 may not be affected.
- The *Dcaf1* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Dcaf1 DDB1 and CUL4 associated factor 1 [Mus musculus (house mouse)]

Gene ID: 321006, updated on 21-Feb-2021

Summary



Official Symbol Dcaf1 provided by [MGI](#)

Official Full Name DDB1 and CUL4 associated factor 1 provided by [MGI](#)

Primary source [MGI:MGI:2445220](#)

See related [Ensembl:ENSMUSG00000040325](#)

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 AI447437, B930007L02Rik, V, Vprbp, mKIAA0800

Expression Ubiquitous expression in testis adult (RPKM 24.0), CNS E11.5 (RPKM 10.7) and 28 other tissues [See more](#)

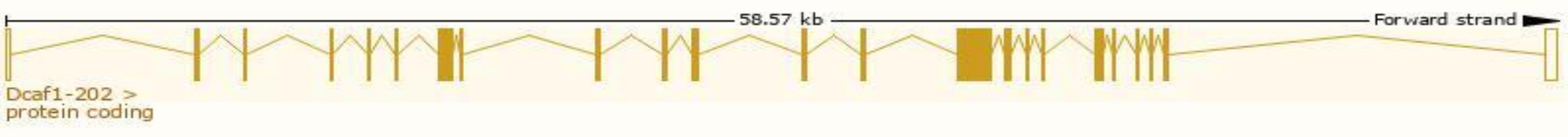
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

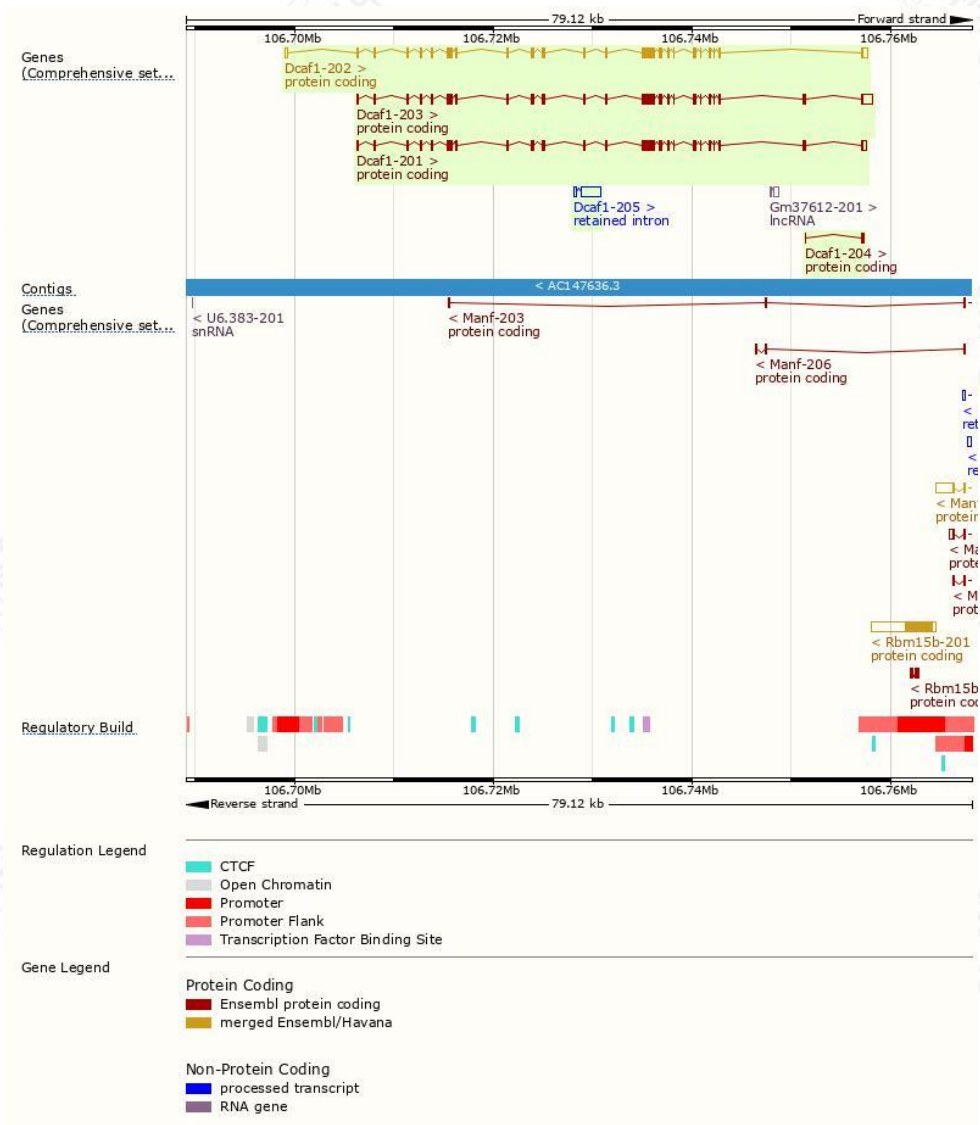
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dcaf1-202	ENSMUST00000159645.8	4945	1419aa	Protein coding	CCDS23485		TSL:1 , GENCODE basic ,
Dcaf1-203	ENSMUST00000161758.3	5539	1512aa	Protein coding	-		TSL:5 , GENCODE basic ,
Dcaf1-201	ENSMUST00000055009.15	4967	1506aa	Protein coding	-		TSL:5 , GENCODE basic , APPRIS P1 ,
Dcaf1-204	ENSMUST00000163657.2	275	36aa	Protein coding	-		CDS 5' incomplete , TSL:5 ,
Dcaf1-205	ENSMUST00000188343.2	2191	No protein	Retained intron	-		TSL:5 ,

The strategy is based on the design of *Dcaf1-202* transcript,the transcription is shown below:



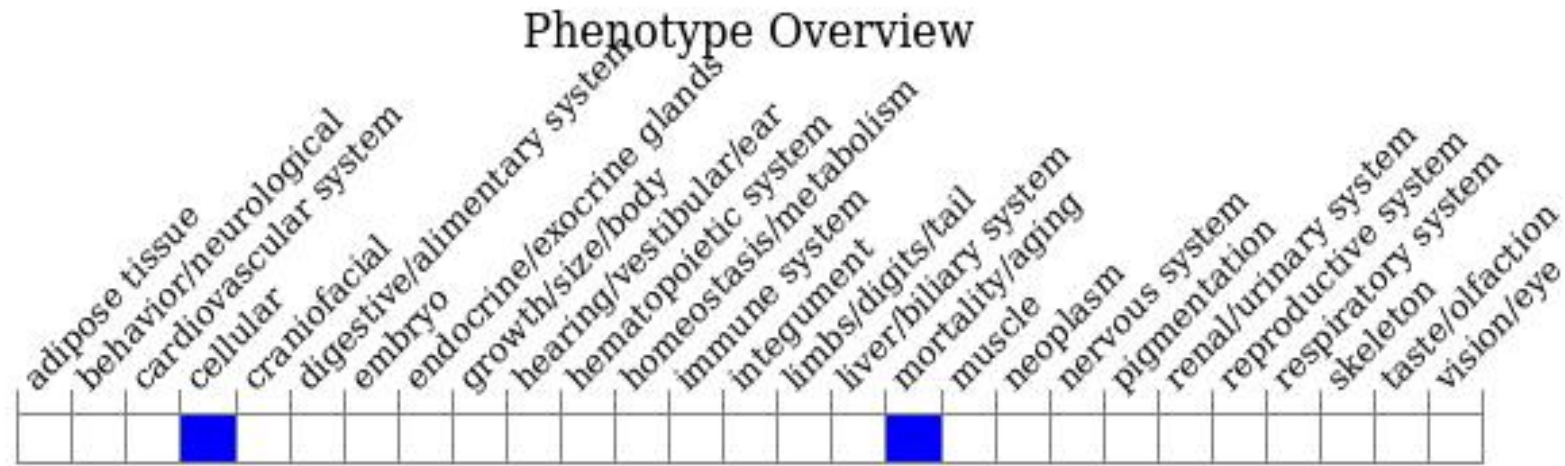
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

According to the existing MGI data, embryos homozygous for a knock-out allele die prior to E7.5.

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