

Dcaf8 Cas9-CKO Strategy

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Project Overview

Project Name

Dcaf8

Project type

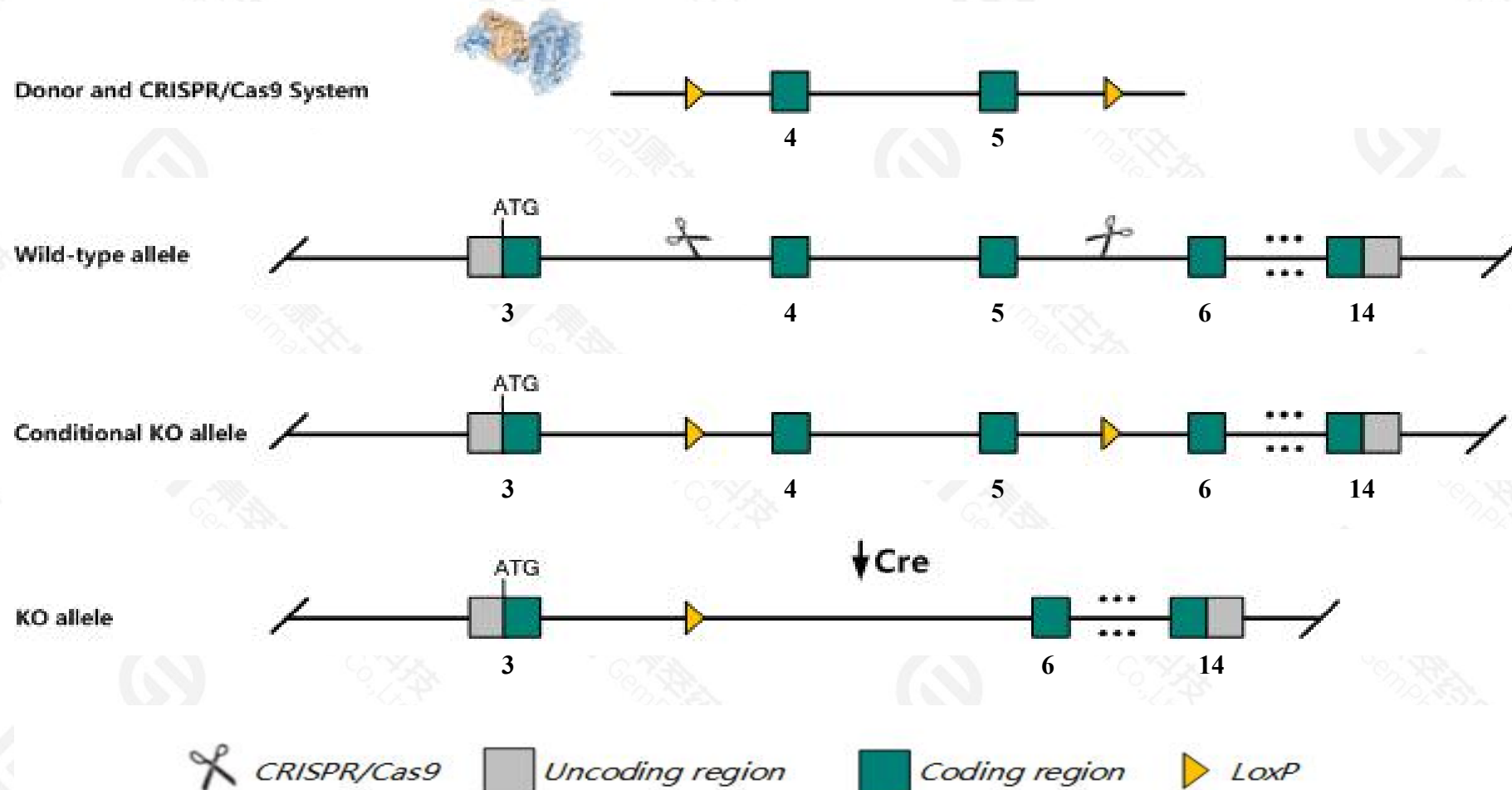
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dcaf8* gene. The schematic diagram is as follows:



- The *Dcaf8* gene has 11 transcripts. According to the structure of *Dcaf8* gene, exon4-exon5 of *Dcaf8*-202(ENSMUST00000191689.6) transcript is recommended as the knockout region. The region contains 794bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Dcaf8* 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.

- Transcript *Dcaf8-203,205* may not be affected.
- The *Dcaf8* gene is located on the Chr1. 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)

Dcaf8 DDB1 and CUL4 associated factor 8 [Mus musculus (house mouse)]

Gene ID: 98193, updated on 17-Feb-2021

Summary



Official Symbol Dcaf8 provided by [MGI](#)

Official Full Name DDB1 and CUL4 associated factor 8 provided by [MGI](#)

Primary source [MGI:MGI:91860](#)

See related [Ensembl:ENSMUSG00000026554](#)

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 AA408877, AA433120, AA792214, AU018973, C76055, D1Dau35, D1Dau35e, D1Ucl, D1Ucla4, H326, Wdr4, Wdr42a

Expression Ubiquitous expression in bladder adult (RPKM 29.6), kidney adult (RPKM 26.7) and 28 other tissues [See more](#)

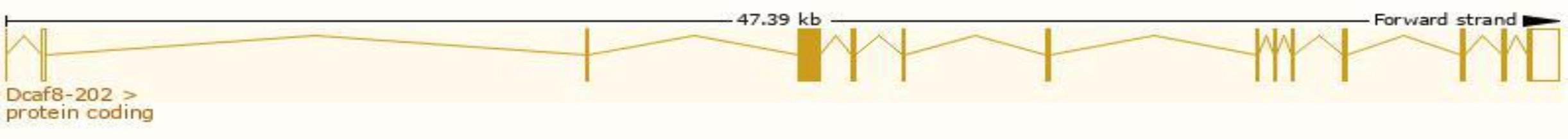
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

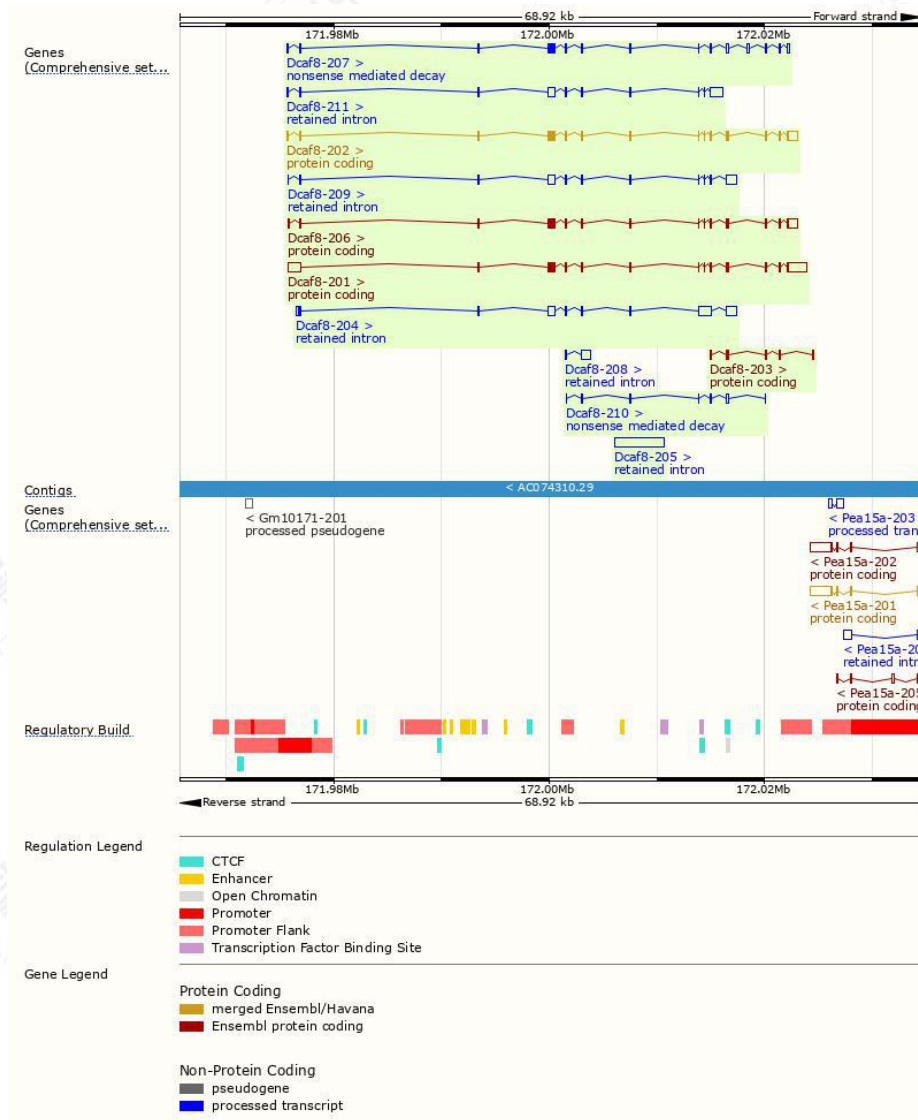
The gene has 11 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dcaf8-201	ENSMUST00000074144.11	4656	591aa	Protein coding	CCDS15509		TSL:1 , GENCODE basic , APPRIS P1 ,
Dcaf8-206	ENSMUST00000192704.6	2859	591aa	Protein coding	CCDS15509		TSL:1 , GENCODE basic , APPRIS P1 ,
Dcaf8-202	ENSMUST00000191689.6	2754	591aa	Protein coding	CCDS15509		TSL:1 , GENCODE basic , APPRIS P1 ,
Dcaf8-203	ENSMUST00000191891.2	571	153aa	Protein coding	-		CDS 5' incomplete , TSL:3 ,
Dcaf8-207	ENSMUST00000193638.6	2253	411aa	Nonsense mediated decay	-		TSL:1 ,
Dcaf8-210	ENSMUST00000195345.2	598	138aa	Nonsense mediated decay	-		CDS 5' incomplete , TSL:5 ,
Dcaf8-205	ENSMUST00000192428.2	4537	No protein	Retained intron	-		TSL:NA ,
Dcaf8-204	ENSMUST00000192031.2	3353	No protein	Retained intron	-		TSL:1 ,
Dcaf8-211	ENSMUST00000195394.6	2584	No protein	Retained intron	-		TSL:1 ,
Dcaf8-209	ENSMUST00000195011.6	2282	No protein	Retained intron	-		TSL:1 ,
Dcaf8-208	ENSMUST00000194972.2	900	No protein	Retained intron	-		TSL:3 ,

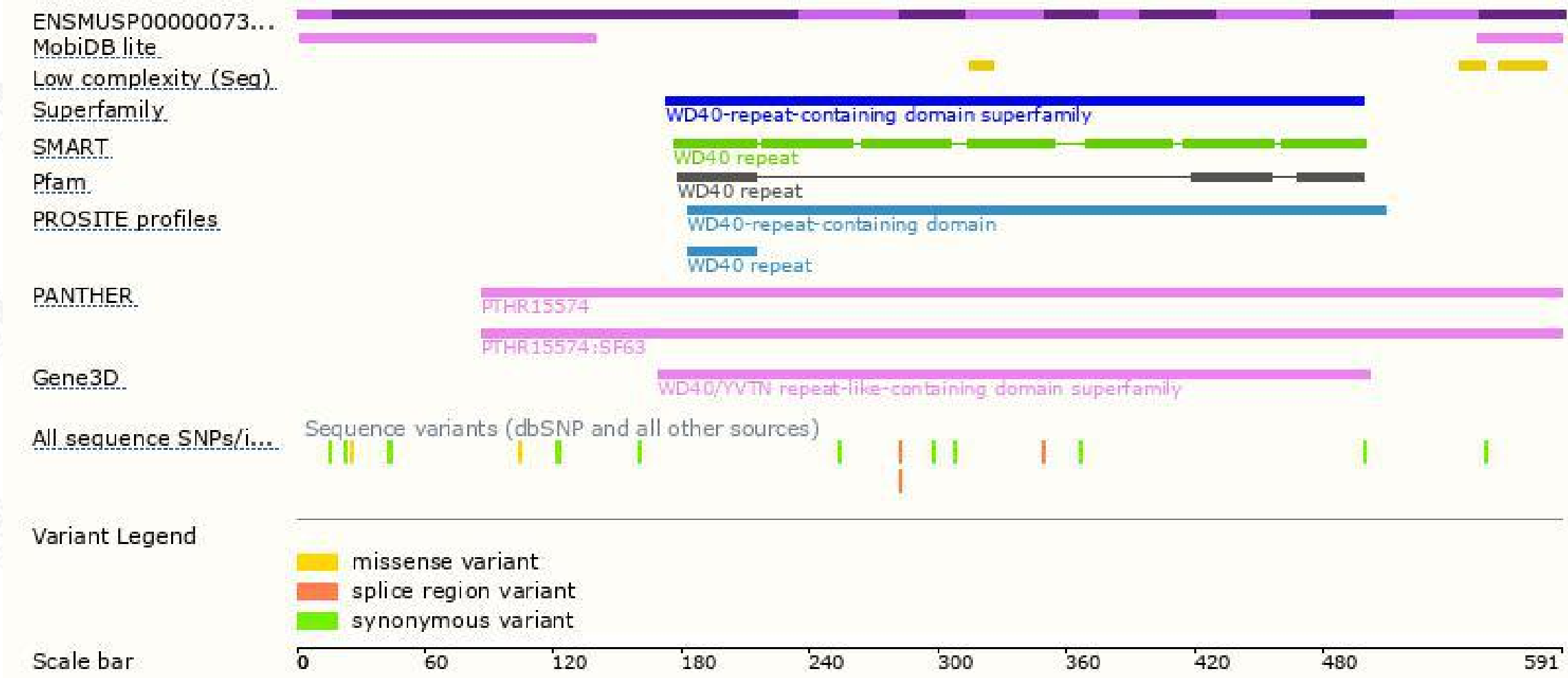
The strategy is based on the design of *Dcaf8-202* transcript,the transcription is shown below:



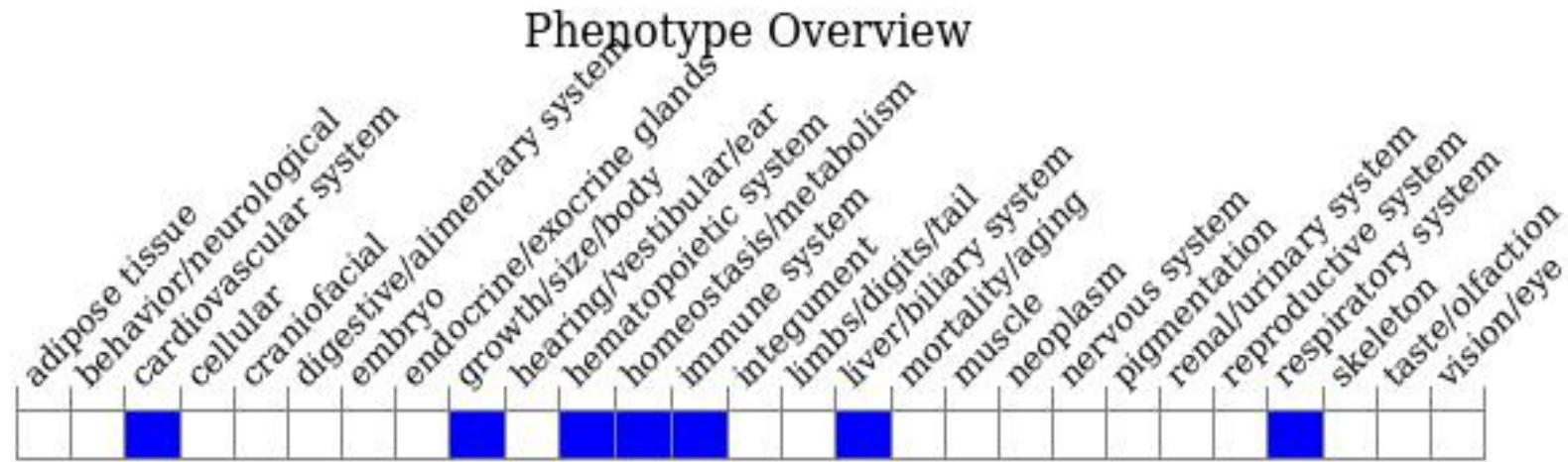
Genomic location distribution



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/>).

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