

Cdca2 Cas9-KO Strategy

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Project Overview

Project Name

Cdca2

Project type

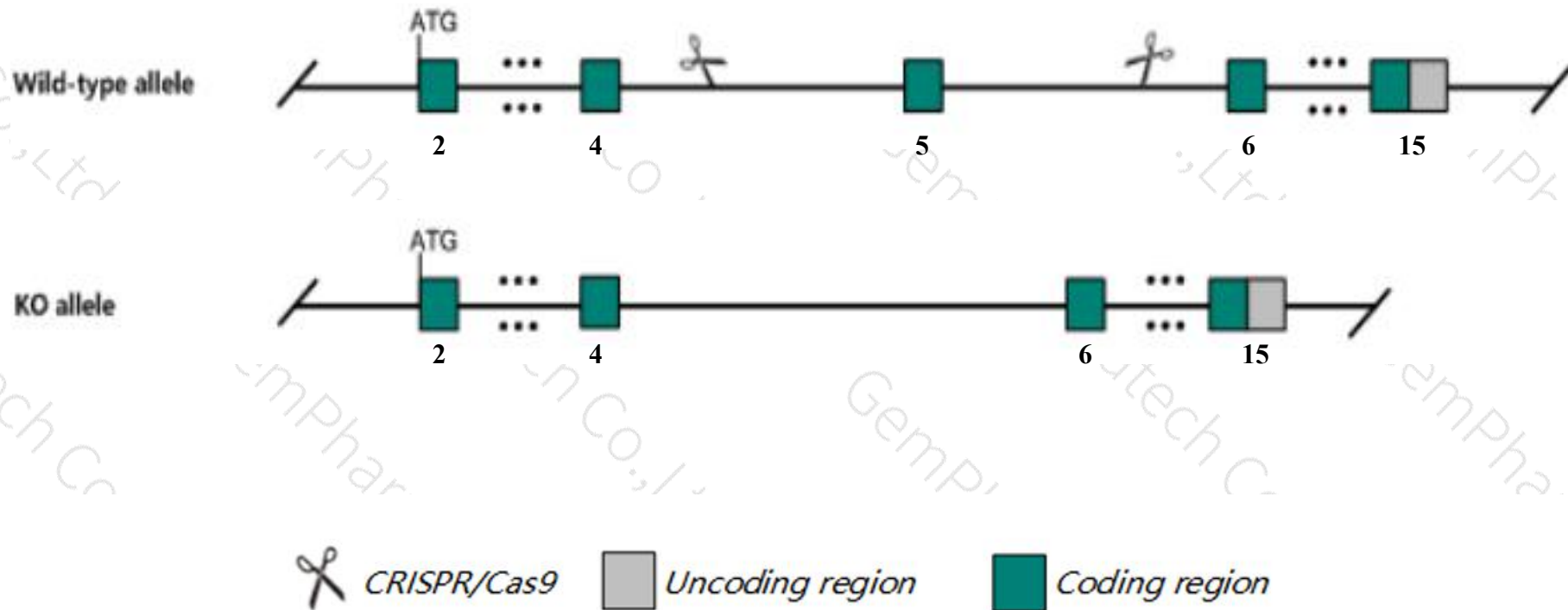
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cdca2* gene. The schematic diagram is as follows:



- The *Cdca2* gene has 7 transcripts. According to the structure of *Cdca2* gene, exon5 of *Cdca2*-207(ENSMUST00000163100.7) transcript is recommended as the knockout region. The region contains 148bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Cdca2* 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 *Cdca2* 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.
- Transcript *Cdca2*-202 may not be affected.
- The effect on transcript *Cdca2*-203 is unknown.
- 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)

Cdca2 cell division cycle associated 2 [Mus musculus (house mouse)]

Gene ID: 108912, updated on 13-Mar-2020

Summary



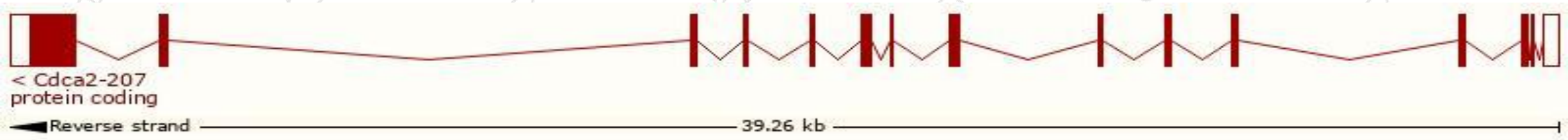
Official Symbol	Cdca2 provided by MGI
Official Full Name	cell division cycle associated 2 provided by MGI
Primary source	MGI:MGI:1919787
See related	Ensembl:ENSMUSG00000048922
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2610311M19Rik, AI586158
Expression	Biased expression in testis adult (RPKM 12.3), CNS E11.5 (RPKM 7.2) and 12 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

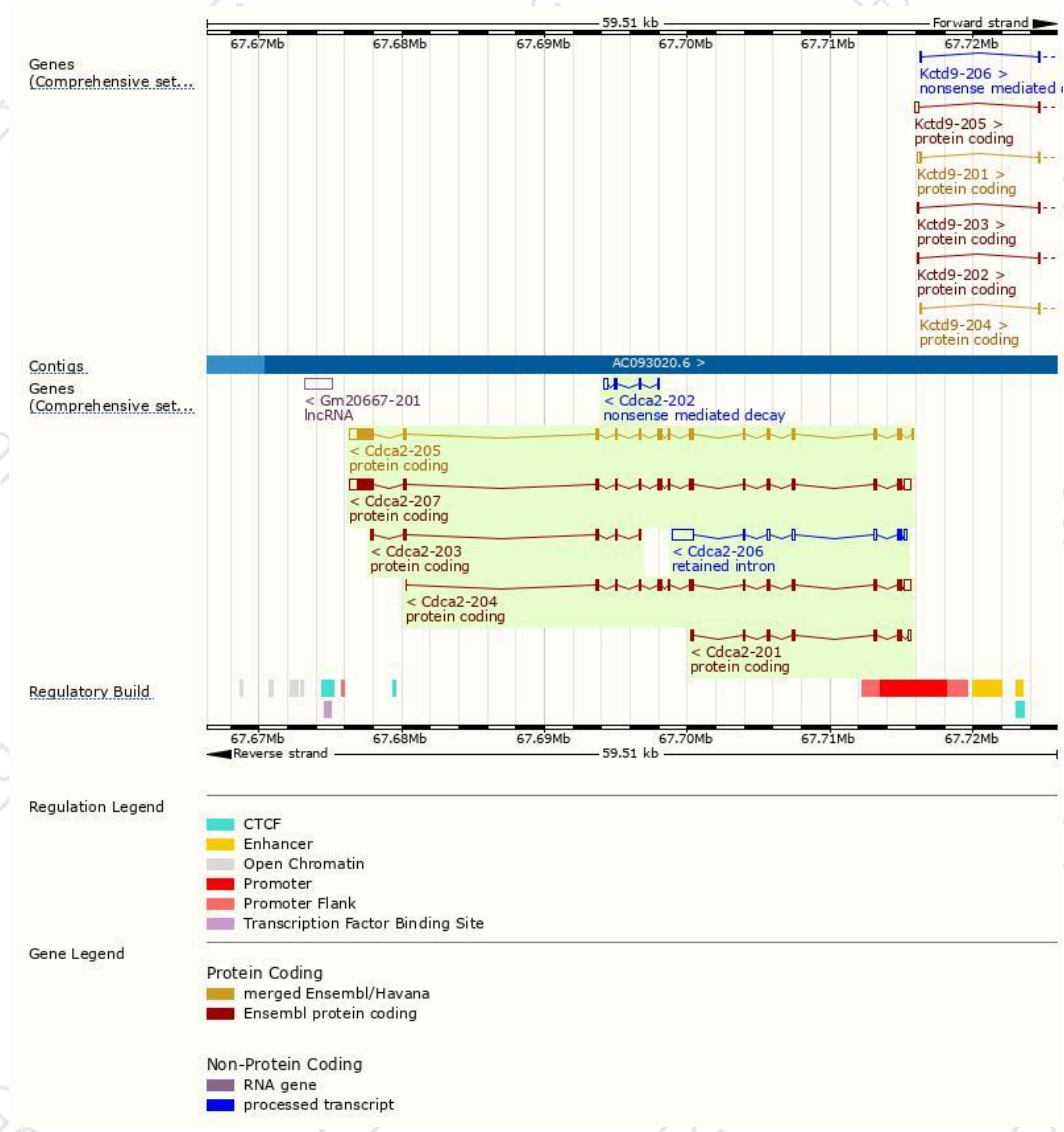
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cdca2-207	ENSMUST00000163100.7	3841	982aa	Protein coding	CCDS36962	Q14B71	TSL:5 GENCODE basic APPRIS P1
Cdca2-205	ENSMUST00000150006.8	3568	982aa	Protein coding	CCDS36962	Q14B71	TSL:1 GENCODE basic APPRIS P1
Cdca2-204	ENSMUST00000132705.7	2034	549aa	Protein coding	-	D3YZE8	CDS 3' incomplete TSL:5
Cdca2-201	ENSMUST00000124045.2	1124	310aa	Protein coding	-	D3Z5P7	CDS 3' incomplete TSL:3
Cdca2-203	ENSMUST00000131179.7	676	226aa	Protein coding	-	F6VP65	CDS 5' and 3' incomplete TSL:3
Cdca2-202	ENSMUST00000130922.1	647	87aa	Nonsense mediated decay	-	F6RTJ7	CDS 5' incomplete TSL:5
Cdca2-206	ENSMUST00000155312.1	2419	No protein	Retained intron	-	-	TSL:2

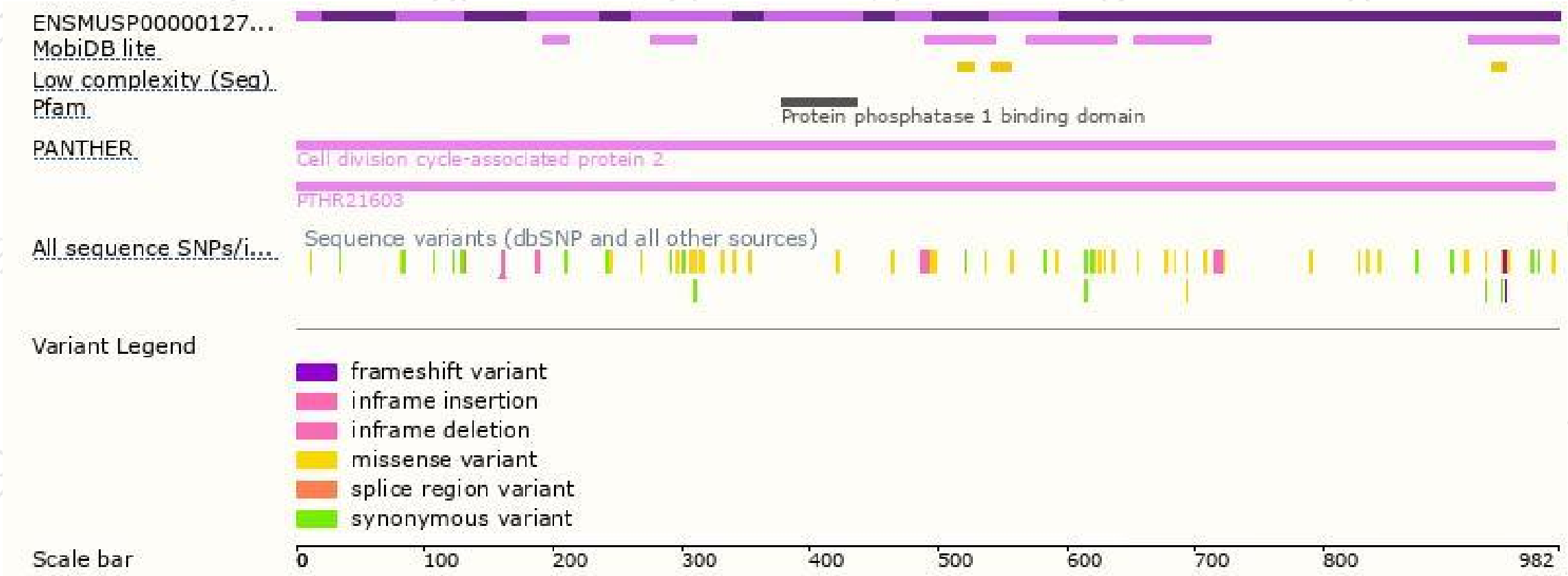
The strategy is based on the design of *Cdca2-207* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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