

Cdc73 Cas9-CKO Strategy

Designer: Huan Wang
Reviewer: Huan Fan
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Project Overview

Project Name

Cdc73

Project type

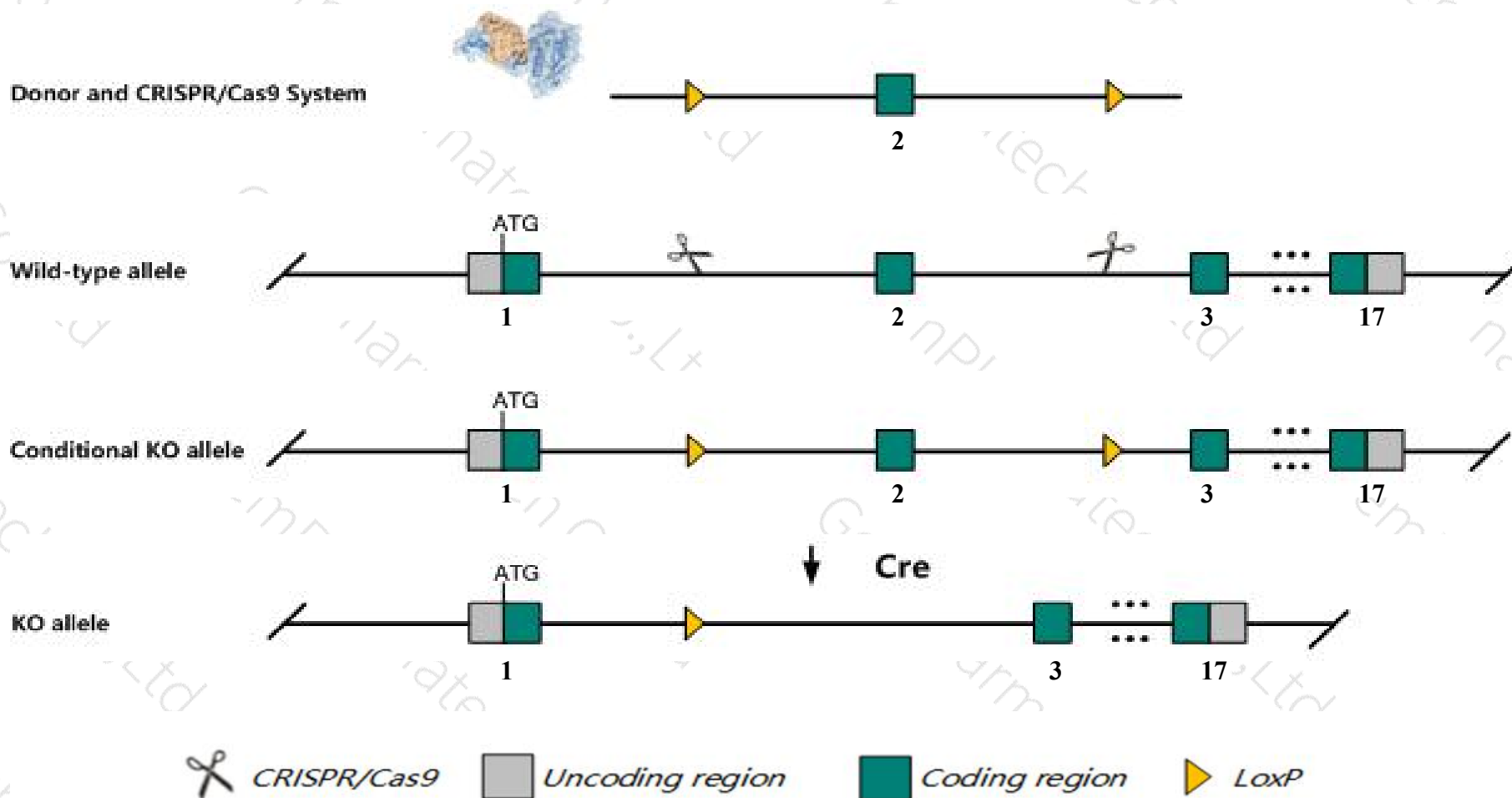
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cdc73* gene. The schematic diagram is as follows:



- The *Cdc73* gene has 6 transcripts. According to the structure of *Cdc73* gene, exon2 of *Cdc73-201* (ENSMUST00000018337.8) transcript is recommended as the knockout region. The region contains 106bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Cdc73* 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.

- According to the existing MGI data, Mice homozygous for a null allele exhibit embryonic lethality around hatching or implantation.
- The *Cdc73* 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)

Cdc73 cell division cycle 73, Paf1/RNA polymerase II complex component [Mus musculus (house mouse)]

Gene ID: 214498, updated on 31-Jan-2019

Summary



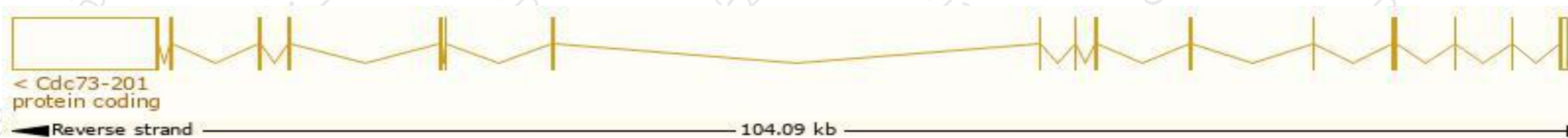
Official Symbol	Cdc73 provided by MGI
Official Full Name	cell division cycle 73, Paf1/RNA polymerase II complex component provided by MGI
Primary source	MGI:MGI:2384876
See related	Ensembl:ENSMUSG00000026361
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	8430414L16Rik, C130030P16Rik, C81219, Hrpt2
Expression	Broad expression in placenta adult (RPKM 8.5), CNS E11.5 (RPKM 3.0) and 19 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

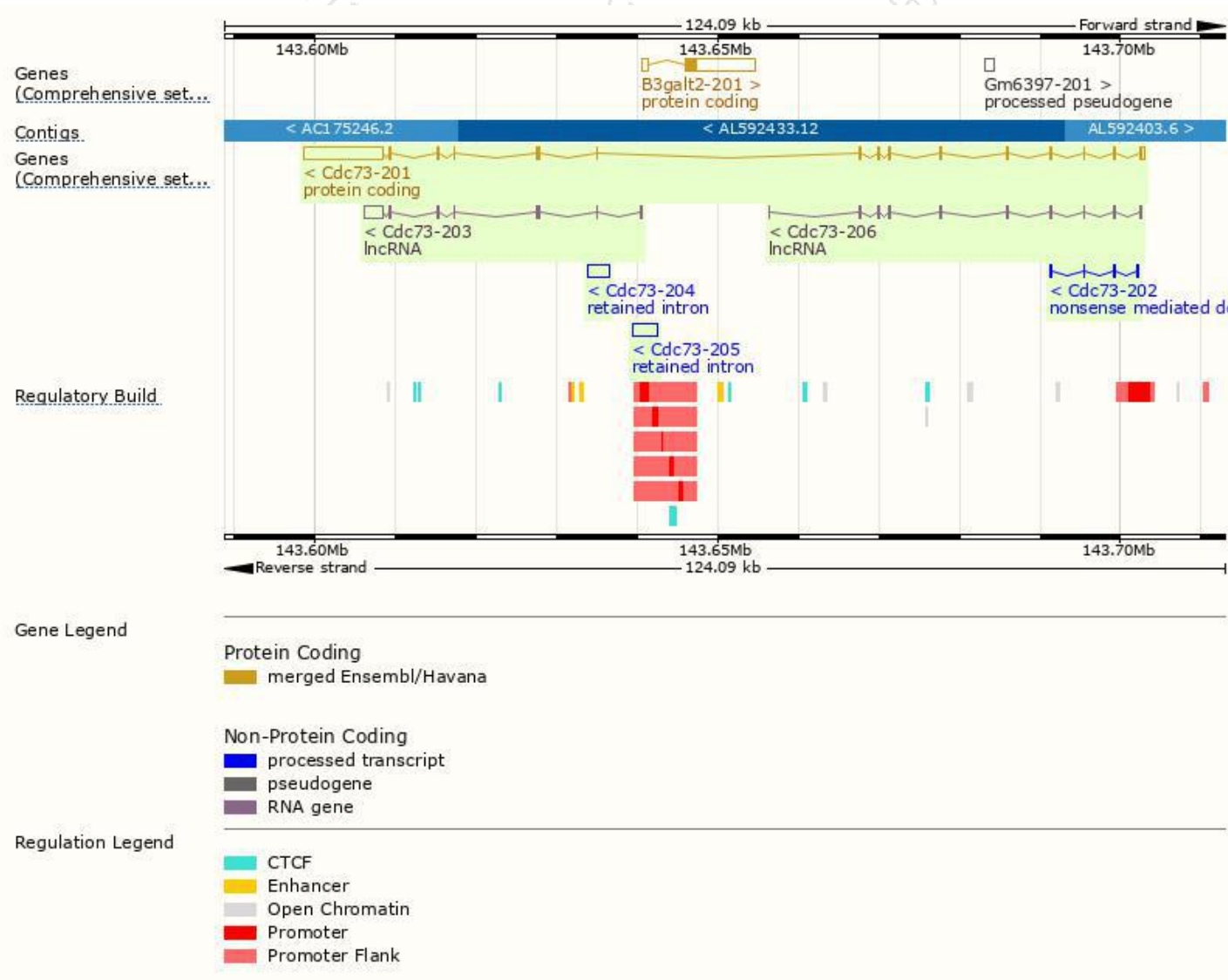
The gene has 6 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cdc73-201	ENSMUST00000018337.8	11586	531aa	Protein coding	CCDS15341	Q8JZM7	TSL:1 GENCODE basic APPRIS P1
Cdc73-202	ENSMUST00000159794.1	479	73aa	Nonsense mediated decay	-	A0A087WPQ2	CDS 5' incomplete TSL:3
Cdc73-205	ENSMUST00000189597.1	3056	No protein	Retained intron	-	-	TSL:NA
Cdc73-204	ENSMUST00000188838.1	2727	No protein	Retained intron	-	-	TSL:NA
Cdc73-203	ENSMUST00000162638.1	3134	No protein	lncRNA	-	-	TSL:1
Cdc73-206	ENSMUST00000212510.1	1047	No protein	lncRNA	-	-	TSL:5

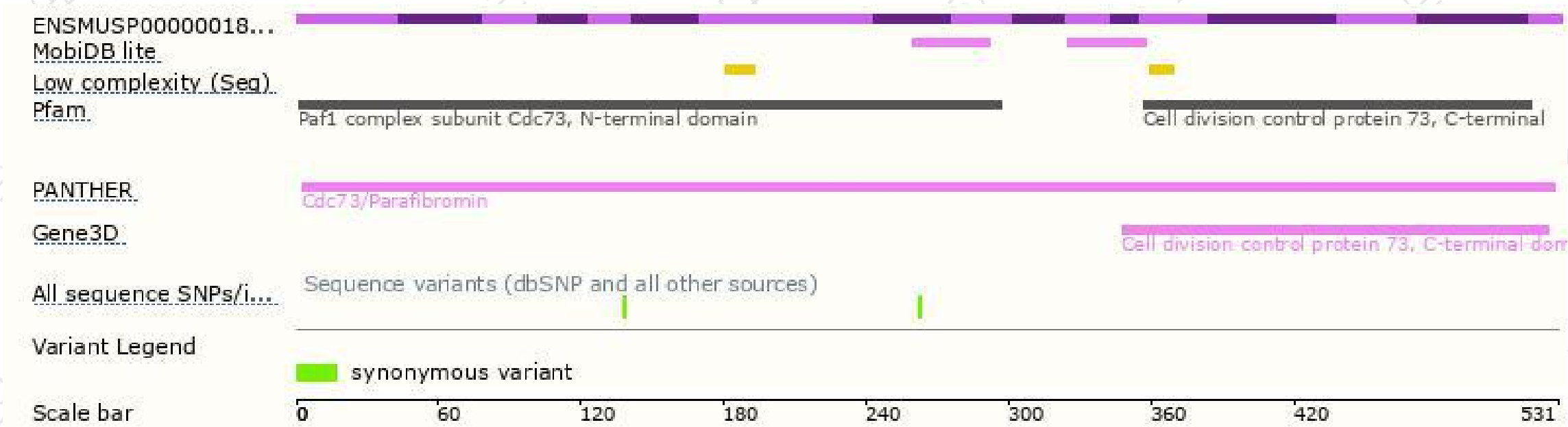
The strategy is based on the design of *Cdc73-201* transcript, The transcription is shown below



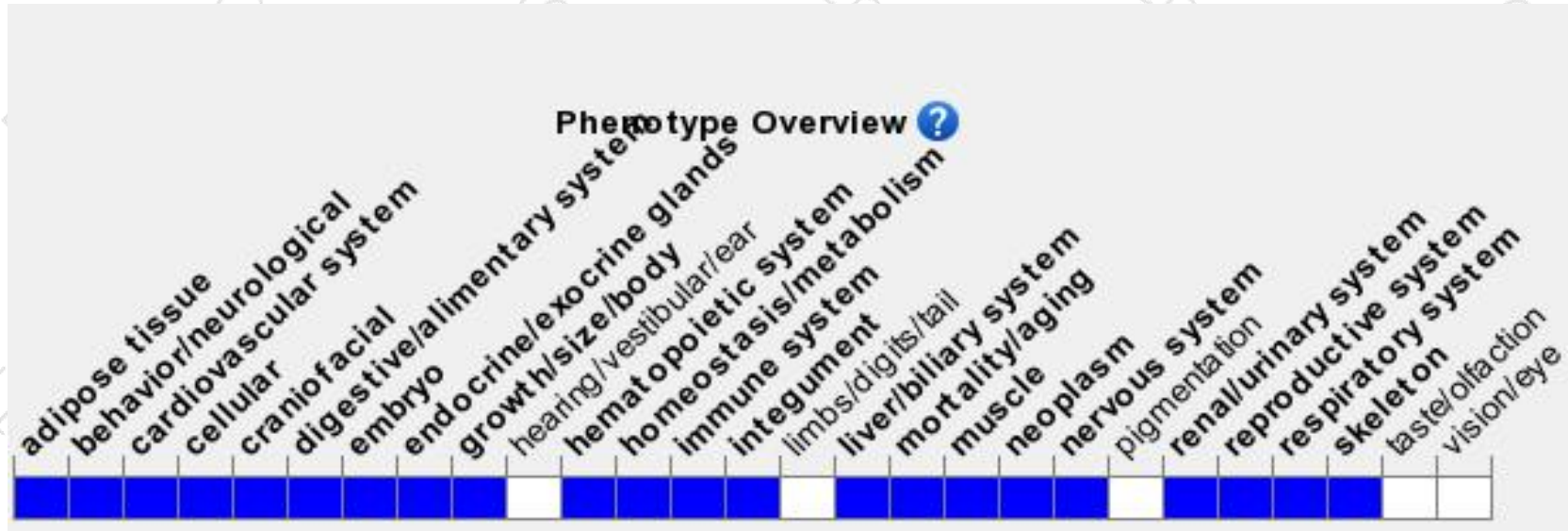
Genomic location distribution



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, Mice homozygous for a null allele exhibit embryonic lethality around hatching or implantation.

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

Tel: 400-9660890

