

Cdc14a Cas9-KO Strategy

Designer:

Huan Wang

Design Date:

2019-7-22

Project Overview

Project Name

Cdc14a

Project type

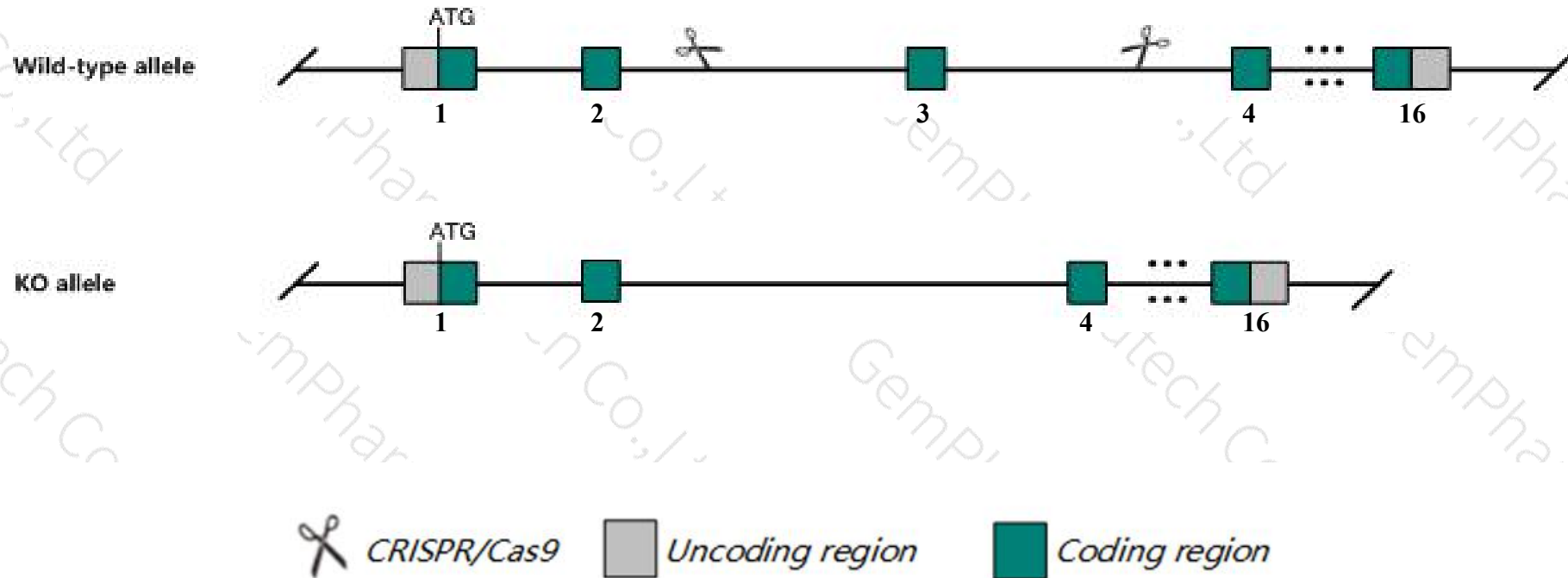
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cdc14a* gene. The schematic diagram is as follows:



- The *Cdc14a* gene has 7 transcripts. According to the structure of *Cdc14a* gene, exon3 of *Cdc14a-201* (ENSMUST00000090464.6) transcript is recommended as the knockout region. The region contains 76bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Cdc14a* gene. The brief process is as follows: CRISPR/Cas9 system

- The *Cdc14a* gene is located on the Chr3. 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.

Gene information (NCBI)

Cdc14a CDC14 cell division cycle 14A [Mus musculus (house mouse)]

Gene ID: 229776, updated on 19-Mar-2019

Summary



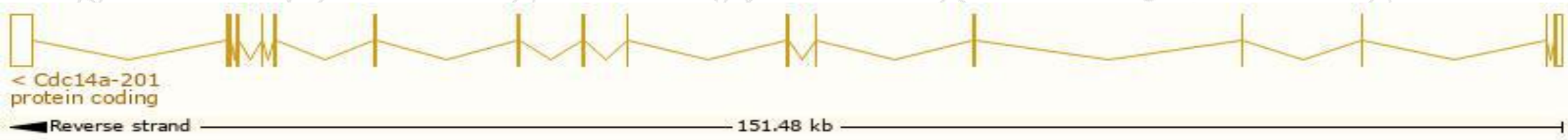
Official Symbol	Cdc14a provided by MGI
Official Full Name	CDC14 cell division cycle 14A provided by MGI
Primary source	MGI:MGI:2442676
See related	Ensembl:ENSMUSG00000033502
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	A830059A17Rik, CDC14A2, CDC14a1, Cdc14
Expression	Broad expression in testis adult (RPKM 22.3), CNS E11.5 (RPKM 3.0) and 15 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

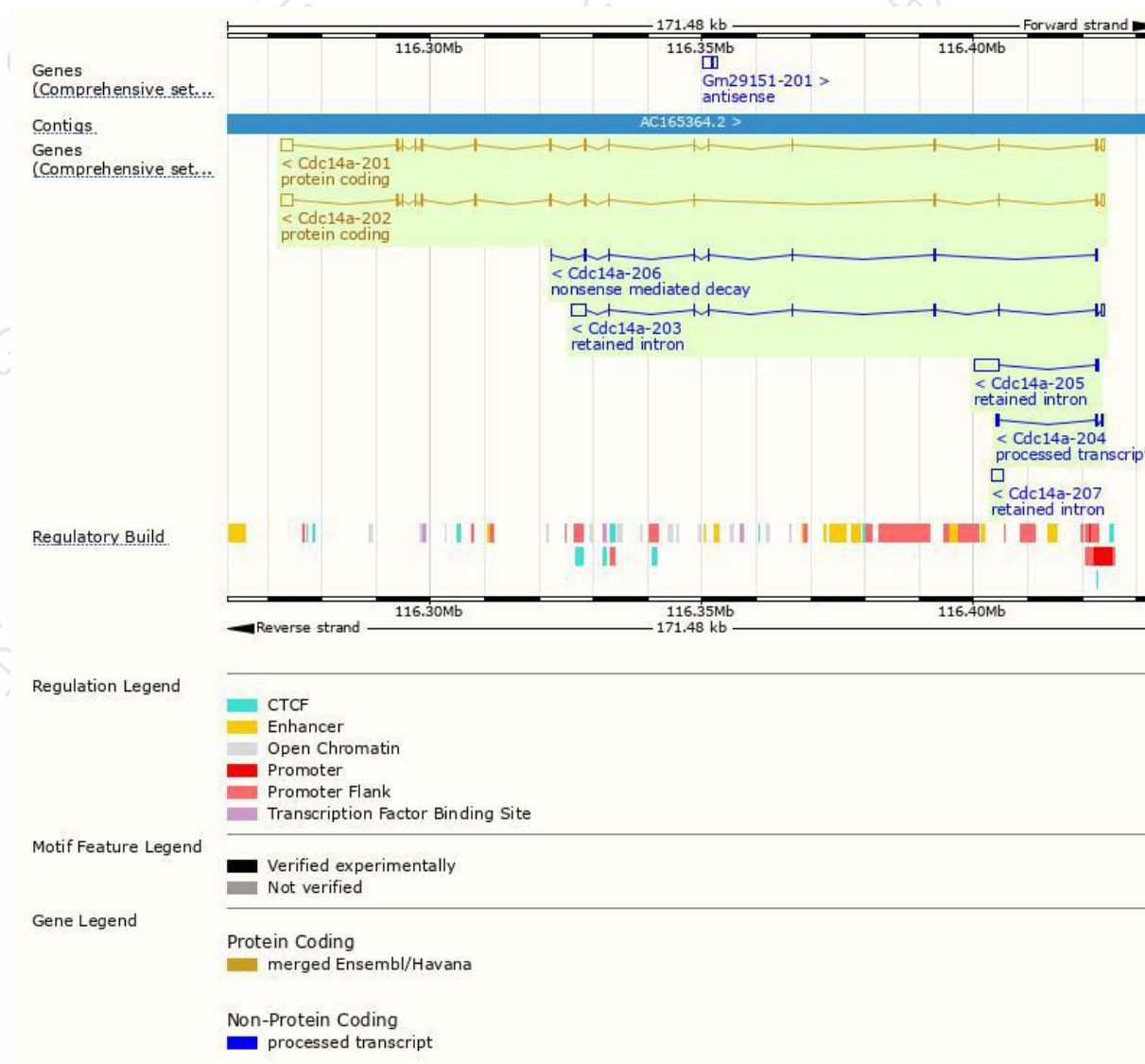
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cdc14a-201	ENSMUST00000090464.6	4485	603aa	Protein coding	CCDS38611	Q6GQT0	TSL:1 GENCODE basic APPRIS P1
Cdc14a-202	ENSMUST00000106491.6	4292	554aa	Protein coding	CCDS51058	Q6GQT0	TSL:1 GENCODE basic
Cdc14a-206	ENSMUST00000197830.4	716	36aa	Nonsense mediated decay	-	A0A0G2JDS3	CDS 5' incomplete TSL:5
Cdc14a-204	ENSMUST00000136994.1	863	No protein	Processed transcript	-	-	TSL:3
Cdc14a-205	ENSMUST00000148857.7	4577	No protein	Retained intron	-	-	TSL:1
Cdc14a-203	ENSMUST00000127704.7	3825	No protein	Retained intron	-	-	TSL:2
Cdc14a-207	ENSMUST00000199454.1	2102	No protein	Retained intron	-	-	TSL:NA

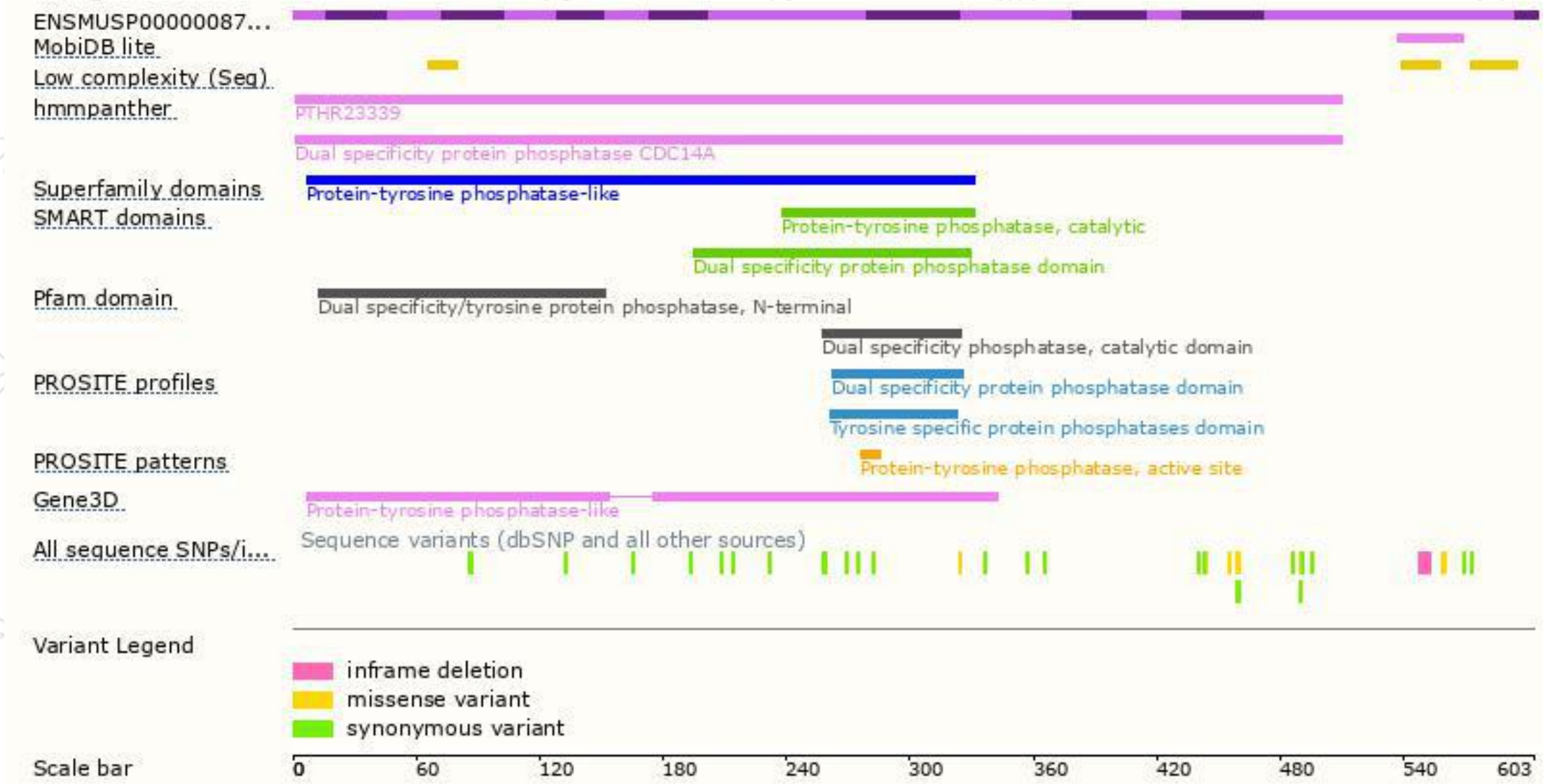
The strategy is based on the design of *Cdc14a-201* transcript,The transcription is shown below



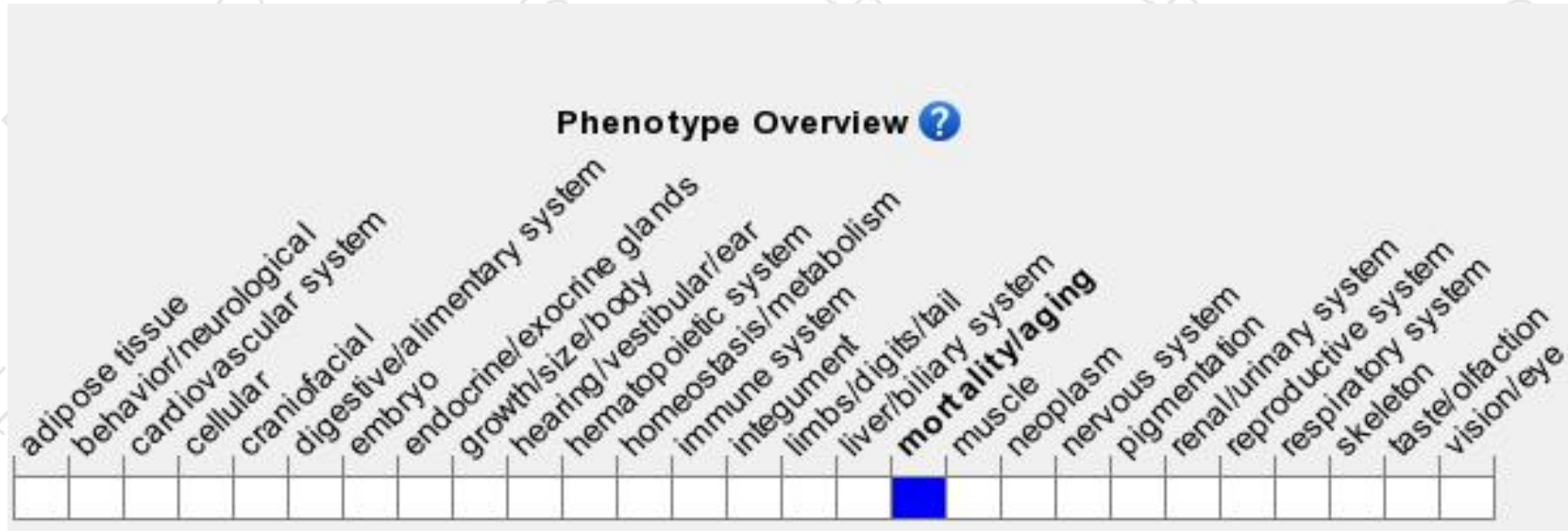
Genomic location distribution



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/>).

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

Tel: 400-9660890

