Cdkl4 Cas9-KO Strategy

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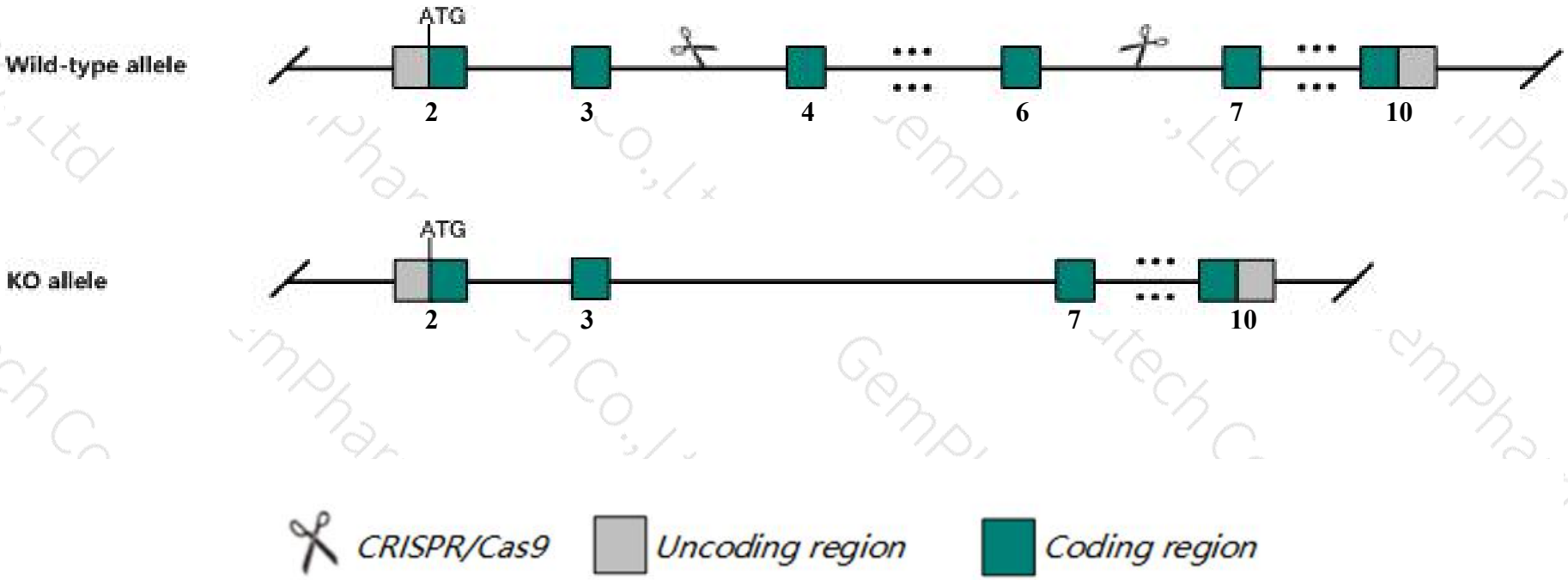
Reviewer:JiaYu

Project Overview

Project Name	***Cdkl4***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cdkl4* gene. The schematic diagram is as follows:



Technical routes

➢ The *Cdkl4* gene has 3 transcripts. According to the structure of *Cdkl4* gene, exon4-exon6 of *Cdkl4-203* (ENSMUST00000234602.1) transcript is recommended as the knockout region.The region contains 362bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Cdkl4* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

➢ The *Cdkl4* gene is located on the Chr17. 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）

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Cdkl4 cyclin-dependent kinase-like 4 [*Mus musculus* (house mouse)]

Gene ID: 381113, updated on 24-Oct-2019

Summary

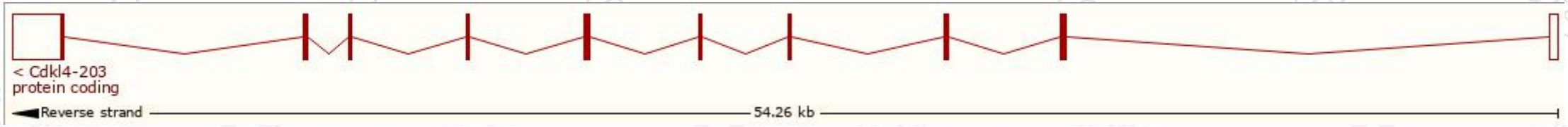
Official Symbol	Cdkl4 provided by MGI
Official Full Name	cyclin-dependent kinase-like 4 provided by MGI
Primary source	MGI:MGI:3587025
See related	Ensembl:ENSMUSG00000033966
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Gm942; AU067824
Expression	Biased expression in testis adult (RPKM 4.7), cortex adult (RPKM 1.8) and 11 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

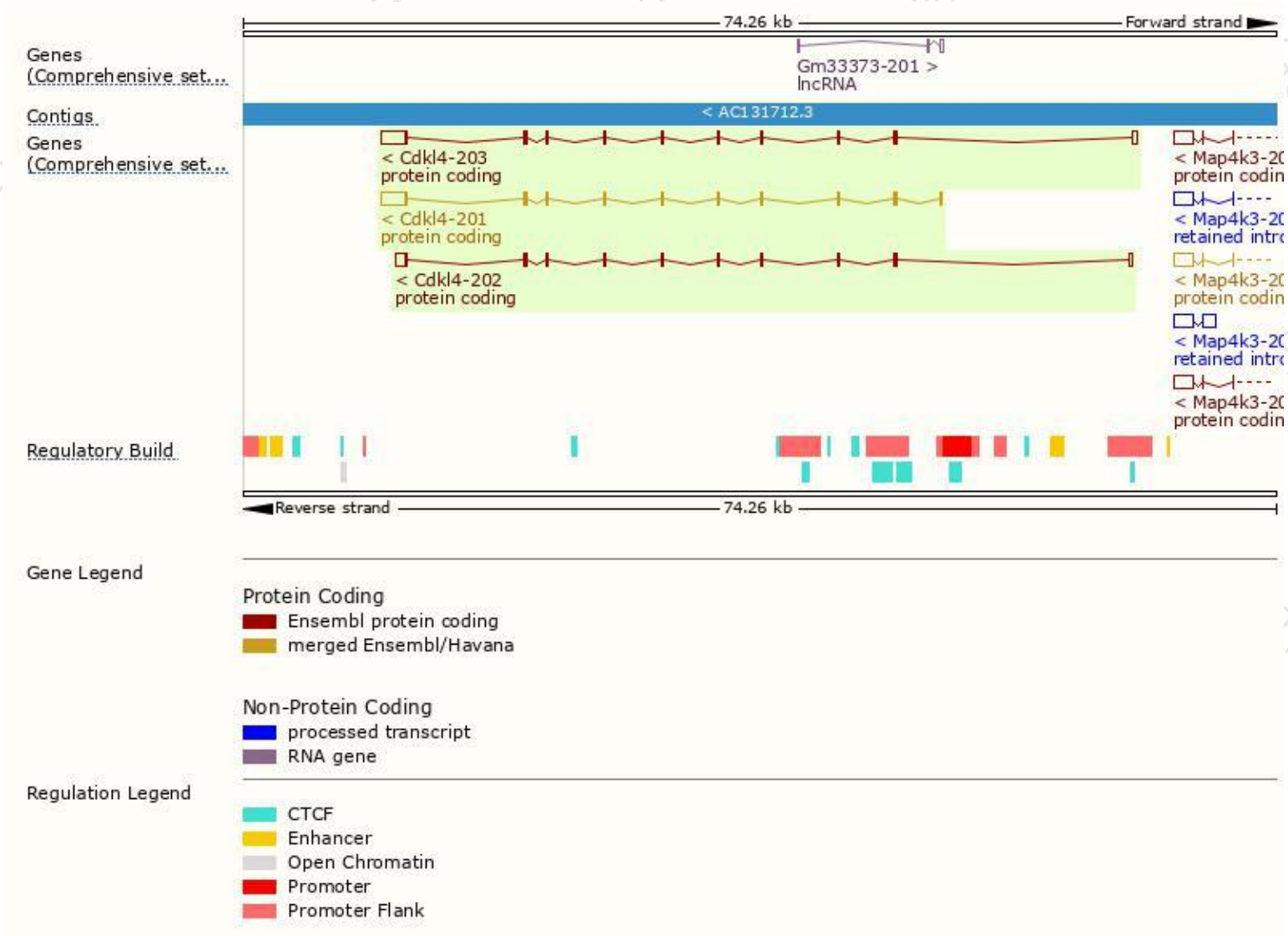
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cdkl4-203	ENSMUST00000234602.1	3078	342aa	Protein coding	CCDS28992	-	GENCODE basic APPRIS P1
Cdkl4-201	ENSMUST00000086545.4	2931	342aa	Protein coding	CCDS28992	Q3TZA2	TSL:1 GENCODE basic APPRIS P1
Cdkl4-202	ENSMUST00000234349.1	1991	342aa	Protein coding	CCDS28992	-	GENCODE basic APPRIS P1

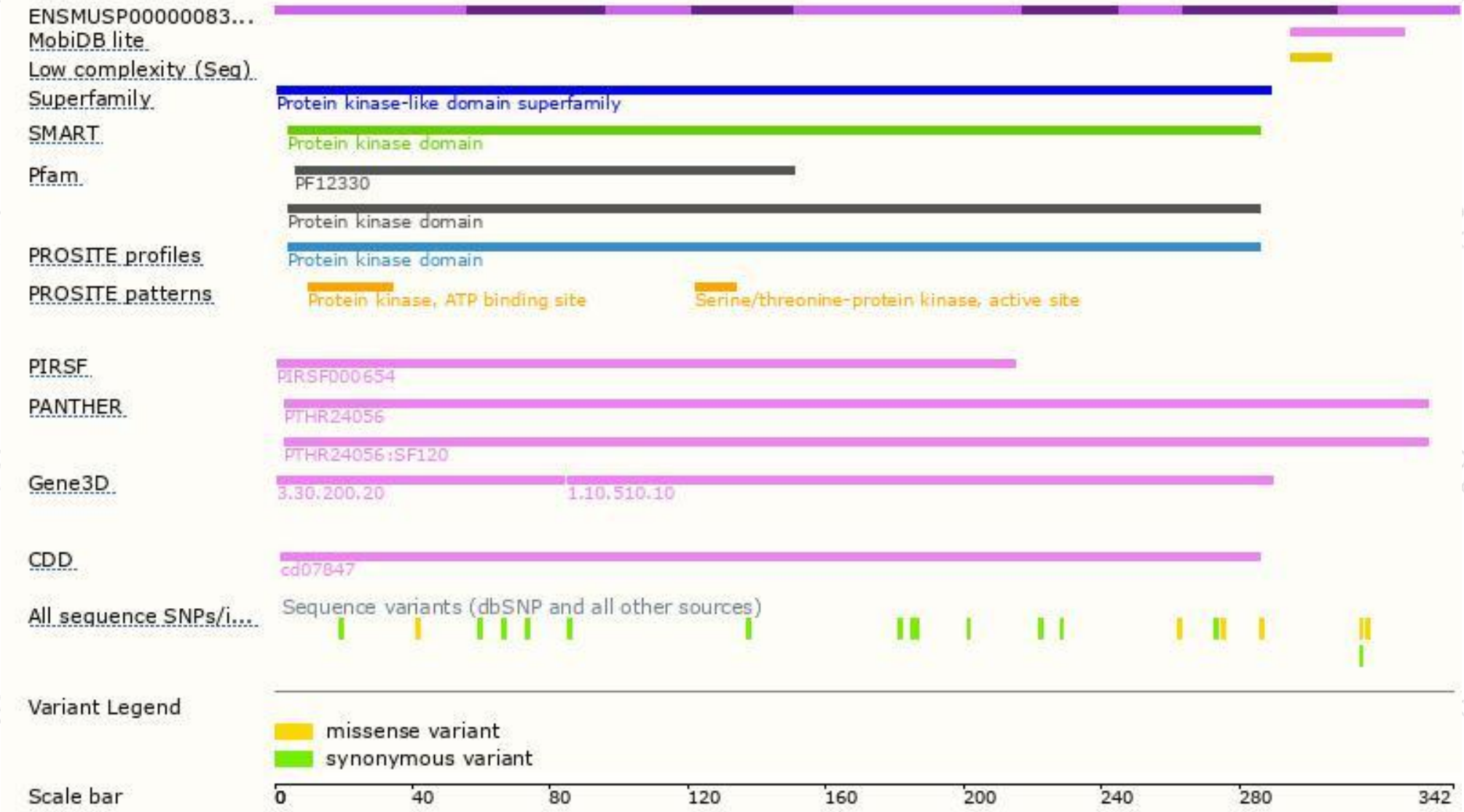
The strategy is based on the design of *Cdkl4-203* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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