

Clk4 Cas9-KO Strategy

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Project Overview



Project Name

Clk4

Project type

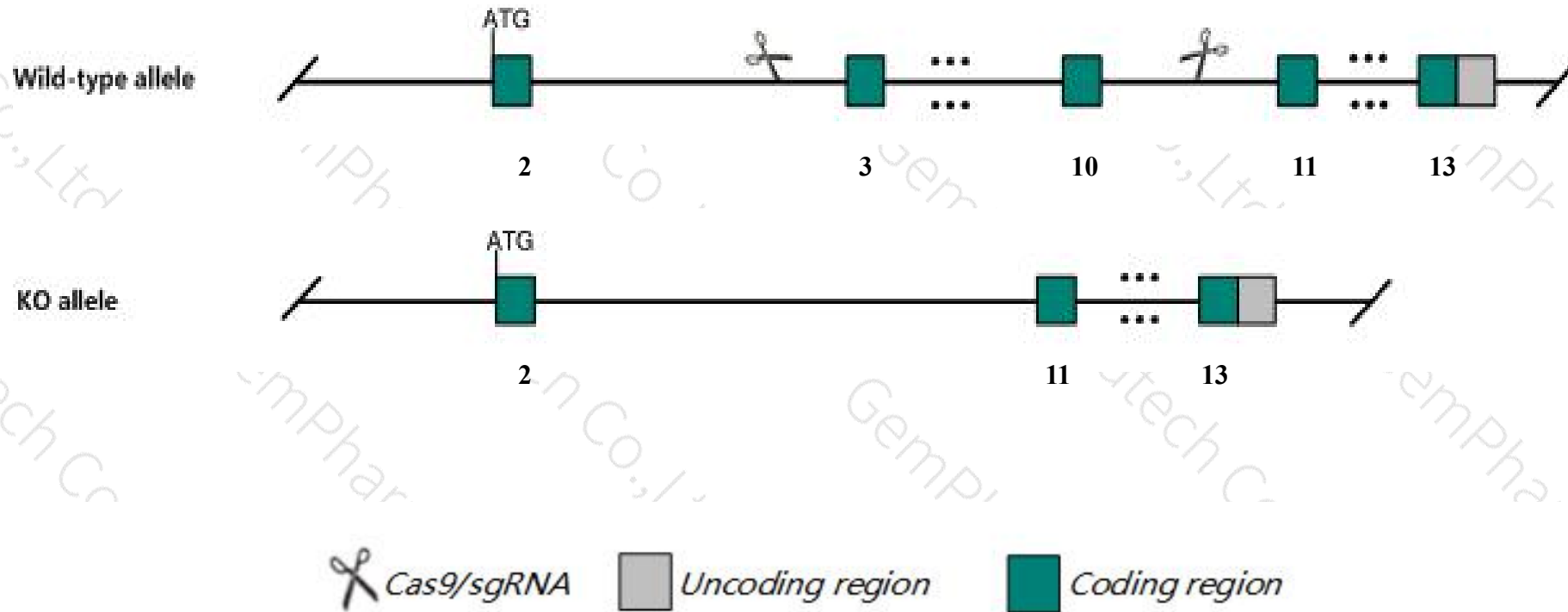
Cas9-KO

Strain background

C57BL/6J

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Clk4* gene. The schematic diagram is as follows:



- The *Clk4* gene has 14 transcripts. According to the structure of *Clk4* gene, exon3-exon10 of *Clk4-201* (ENSMUST00000093132.12) transcript is recommended as the knockout region. The region contains 973bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Clk4* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6J 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/6J mice.

- The *Clk4* gene is located on the Chr11. 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 gene transcription and translation processes, all risks cannot be predicted under existing information.

Gene information (NCBI)

Clk4 CDC like kinase 4 [Mus musculus (house mouse)]

Gene ID: 12750, updated on 31-Jan-2019

Summary

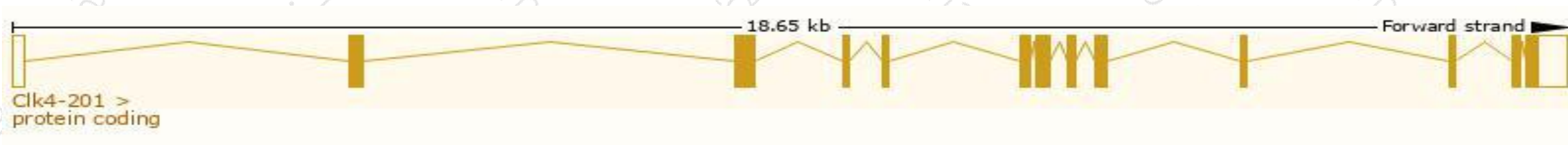
Official Symbol	Clk4 provided by MGI
Official Full Name	CDC like kinase 4 provided by MGI
Primary source	MGI:MGI:1098551
See related	Ensembl:ENSMUSG00000020385
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI987988, C85119
Expression	Ubiquitous expression in CNS E14 (RPKM 17.6), CNS E11.5 (RPKM 16.5) and 26 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

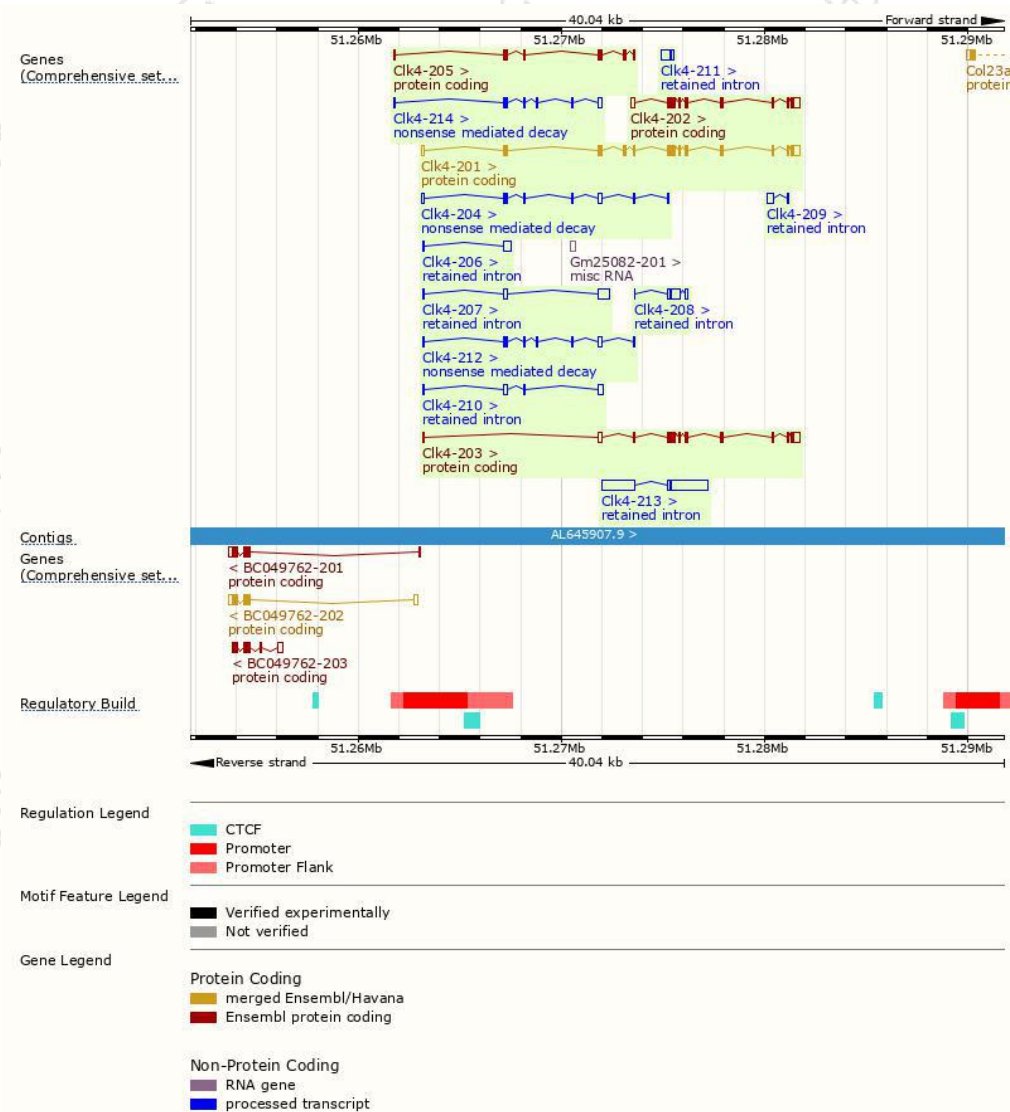
The gene has 14 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Clk4-201	ENSMUST00000093132.12	1949	481aa	Protein coding	CCDS24651	O35493 Q4FJV9	TSL:1 GENCODE basic APPRIS P1
Clk4-203	ENSMUST00000109113.7	1627	301aa	Protein coding	CCDS78942	O35493	TSL:1 GENCODE basic
Clk4-202	ENSMUST00000109111.1	1427	301aa	Protein coding	CCDS78942	O35493	TSL:2 GENCODE basic
Clk4-205	ENSMUST00000130641.7	673	183aa	Protein coding	-	B0QZP9	CDS 3' incomplete TSL:3
Clk4-212	ENSMUST00000148053.1	752	105aa	Nonsense mediated decay	-	F2Z3V2	TSL:3
Clk4-204	ENSMUST00000126131.7	742	79aa	Nonsense mediated decay	-	D6RH46	TSL:5
Clk4-214	ENSMUST00000153414.7	649	105aa	Nonsense mediated decay	-	F2Z3V2	TSL:3
Clk4-213	ENSMUST00000148467.7	3543	No protein	Retained intron	-	-	TSL:2
Clk4-207	ENSMUST00000136587.7	832	No protein	Retained intron	-	-	TSL:2
Clk4-208	ENSMUST00000140628.1	705	No protein	Retained intron	-	-	TSL:5
Clk4-210	ENSMUST00000146776.1	585	No protein	Retained intron	-	-	TSL:2
Clk4-211	ENSMUST00000147007.1	521	No protein	Retained intron	-	-	TSL:3
Clk4-206	ENSMUST00000133200.1	442	No protein	Retained intron	-	-	TSL:2
Clk4-209	ENSMUST00000143468.1	421	No protein	Retained intron	-	-	TSL:3

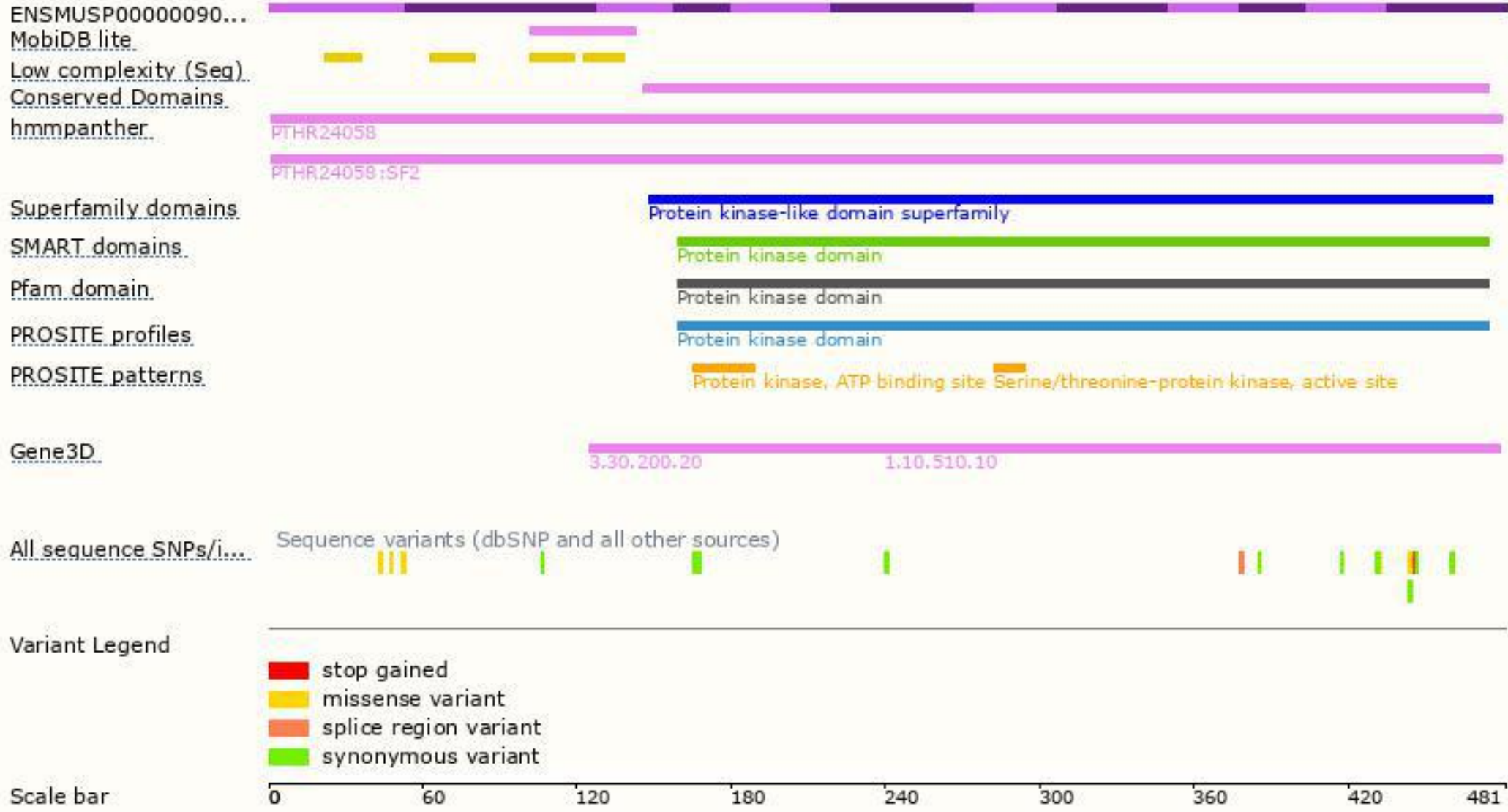
The strategy is based on the design of *Clk4-201* transcript, The transcription is shown below



Genomic location distribution



Protein domain



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

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