

Clk3 Cas9-CKO Strategy

Designer:

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Design Date:

2019-7-24

Project Overview

Project Name

Clk3

Project type

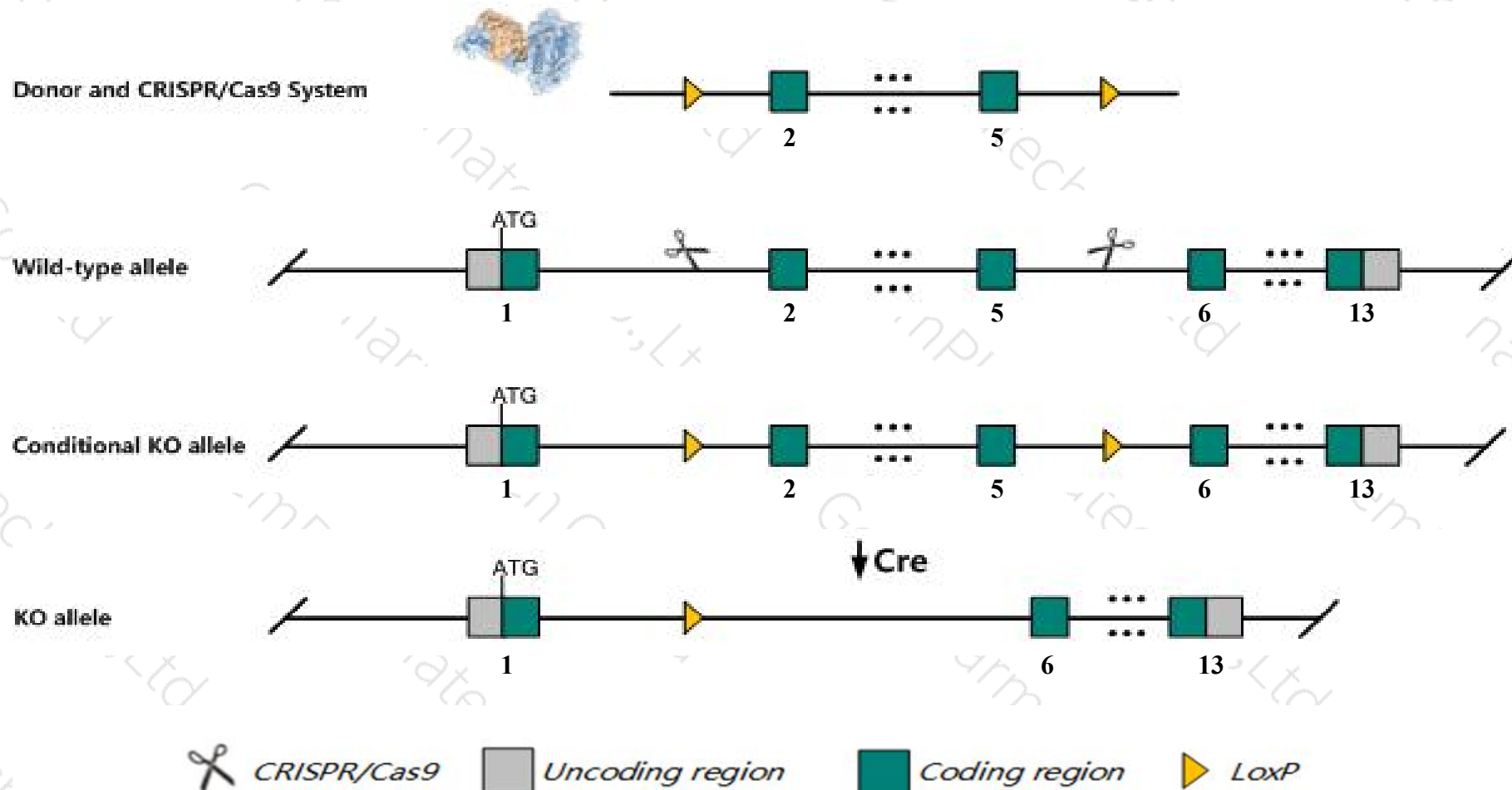
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Clk3* gene. The schematic diagram is as follows:



Technical routes

- The *Clk3* gene has 9 transcripts. According to the structure of *Clk3* gene, exon2-exon5 of *Clk3-201* (ENSMUST00000065330.7) transcript is recommended as the knockout region. The region contains 533bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Clk3* 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.

Notice

- The *Clk3* gene is located on the Chr9. 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)

Clk3 CDC-like kinase 3 [Mus musculus (house mouse)]

Gene ID: 102414, updated on 31-Jan-2019

Summary



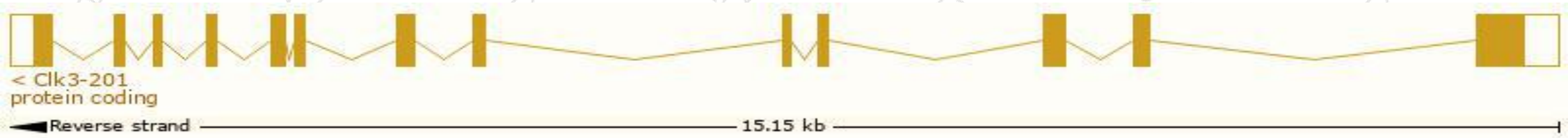
Official Symbol	Clk3 provided by MGI
Official Full Name	CDC-like kinase 3 provided by MGI
Primary source	MGI:MGI:1098670
See related	Ensembl:ENSMUSG00000032316
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI256811
Expression	Ubiquitous expression in thymus adult (RPKM 73.1), liver E14.5 (RPKM 33.5) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

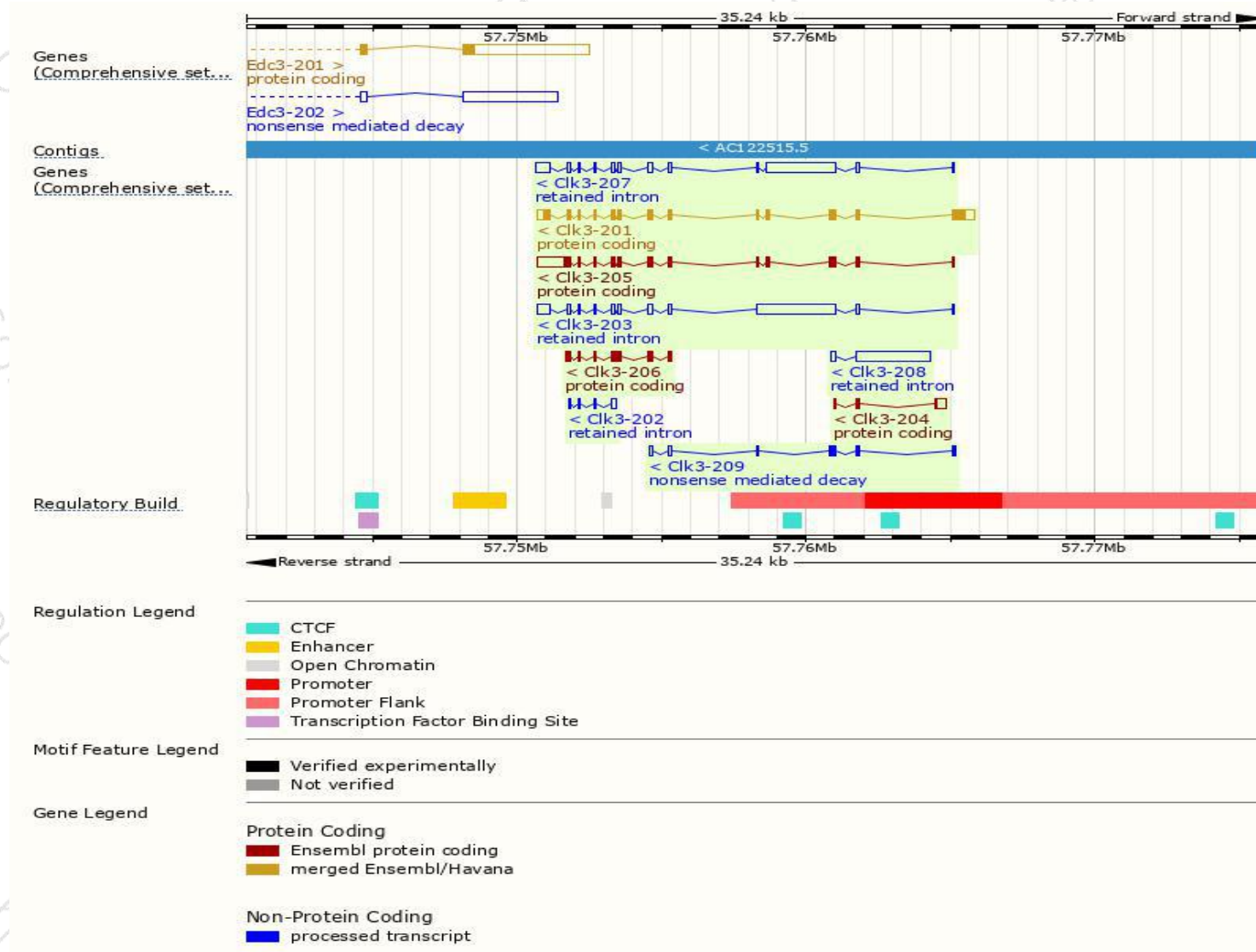
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Clk3-201	ENSMUST00000065330.7	2496	638aa	Protein coding	CCDS23232	Q35492	TSL:1 GENCODE basic APPRIS P1
Clk3-205	ENSMUST00000215233.1	2363	478aa	Protein coding	-	A0A1L1SST3	CDS 5' incomplete TSL:1
Clk3-206	ENSMUST00000215333.1	789	263aa	Protein coding	-	A0A1L1SQZ6	5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete TSL:5
Clk3-204	ENSMUST00000215158.1	576	90aa	Protein coding	-	A0A1L1STP6	CDS 3' incomplete TSL:3
Clk3-209	ENSMUST00000217409.1	764	191aa	Nonsense mediated decay	-	A0A1L1SQT5	CDS 5' incomplete TSL:3
Clk3-203	ENSMUST00000215109.1	4130	No protein	Retained intron	-	-	TSL:1
Clk3-207	ENSMUST00000216095.1	3924	No protein	Retained intron	-	-	TSL:1
Clk3-208	ENSMUST00000216192.1	2755	No protein	Retained intron	-	-	TSL:1
Clk3-202	ENSMUST00000213417.1	389	No protein	Retained intron	-	-	TSL:1

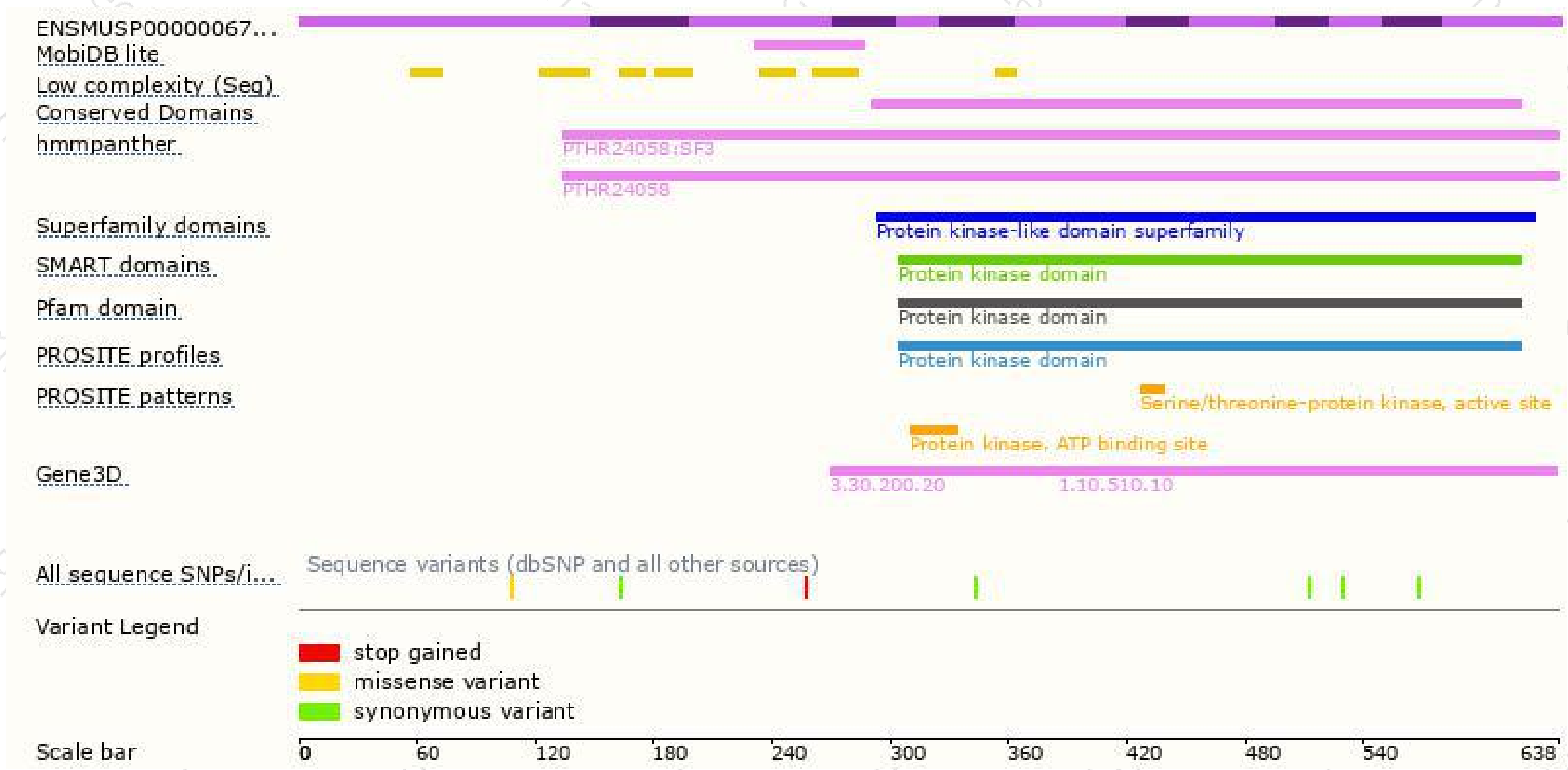
The strategy is based on the design of *Clk3-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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