

Clic4 Cas9-KO Strategy

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Reviewer:

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Project Overview

Project Name

Clic4

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Clic4* gene. The schematic diagram is as follows:



- The *Clic4* gene has 2 transcripts. According to the structure of *Clic4* gene, exon2 of *Clic4-201* (ENSMUST00000037099.8) transcript is recommended as the knockout region. The region contains 110bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Clic4* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for null mutations may display decreased survival, body weight and female fertility, impaired angiogenesis, increased susceptibility to *Listeria* infection, increased resistance to LPS treatment, skin erosions and/or delayed wound healing.
- The *Clic4* gene is located on the Chr4. 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)

Clic4 chloride intracellular channel 4 (mitochondrial) [Mus musculus (house mouse)]

Gene ID: 29876, updated on 31-Jan-2019

Summary



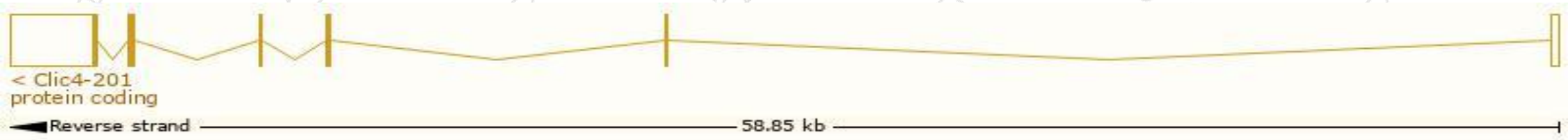
Official Symbol	Clic4 provided by MGI
Official Full Name	chloride intracellular channel 4 (mitochondrial) provided by MGI
Primary source	MGI:MGI:1352754
See related	Ensembl:ENSMUSG000000037242
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	D0Jmb3, TU-74, mc3s5, mtCLIC
Expression	Ubiquitous expression in lung adult (RPKM 93.5), bladder adult (RPKM 63.6) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

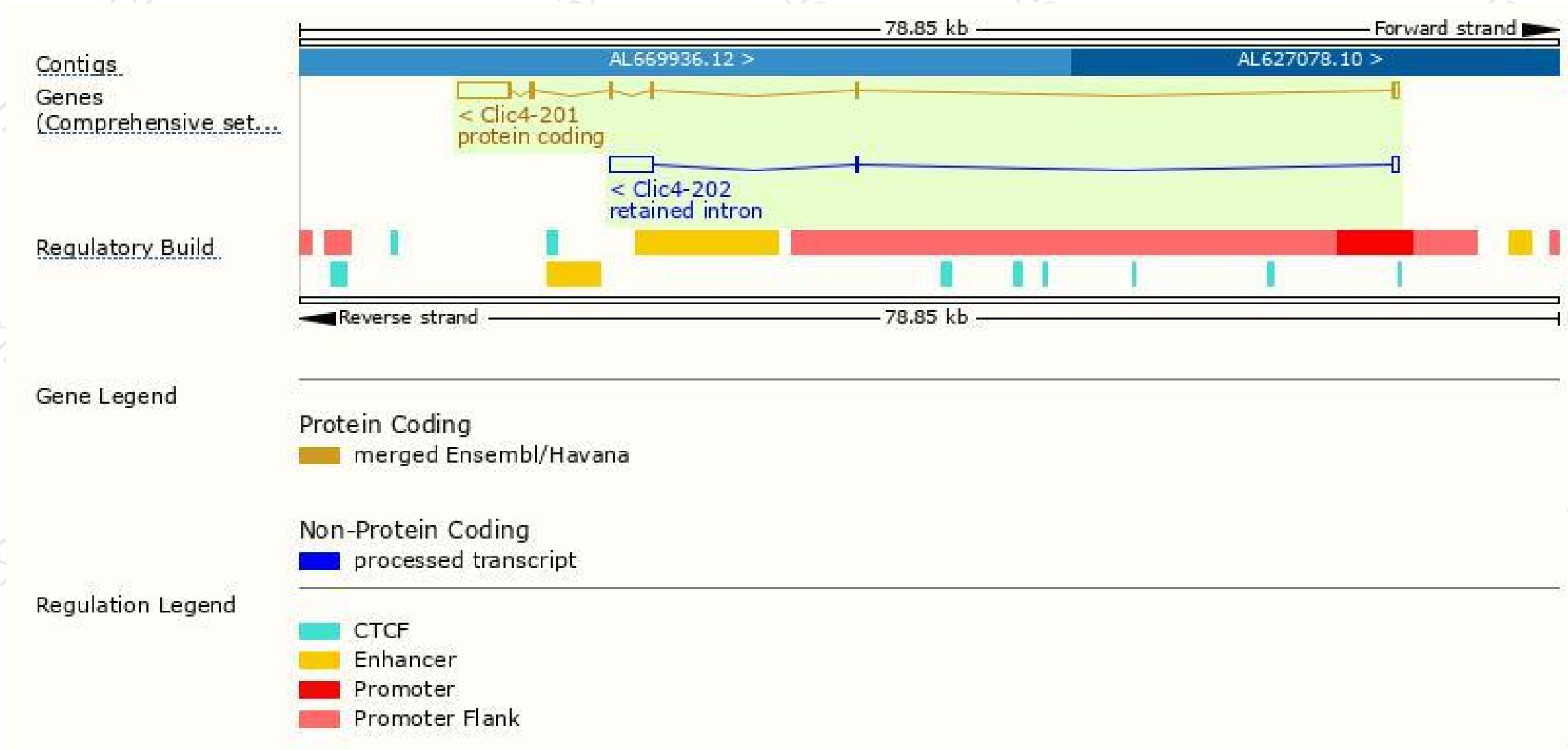
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Clic4-201	ENSMUST00000037099.8	4119	253aa	Protein coding	CCDS18783	Q543N5 Q9QYB1	TSL:1 GENCODE basic APPRIS P1
Clic4-202	ENSMUST00000143370.1	3093	No protein	Retained intron	-	-	TSL:1

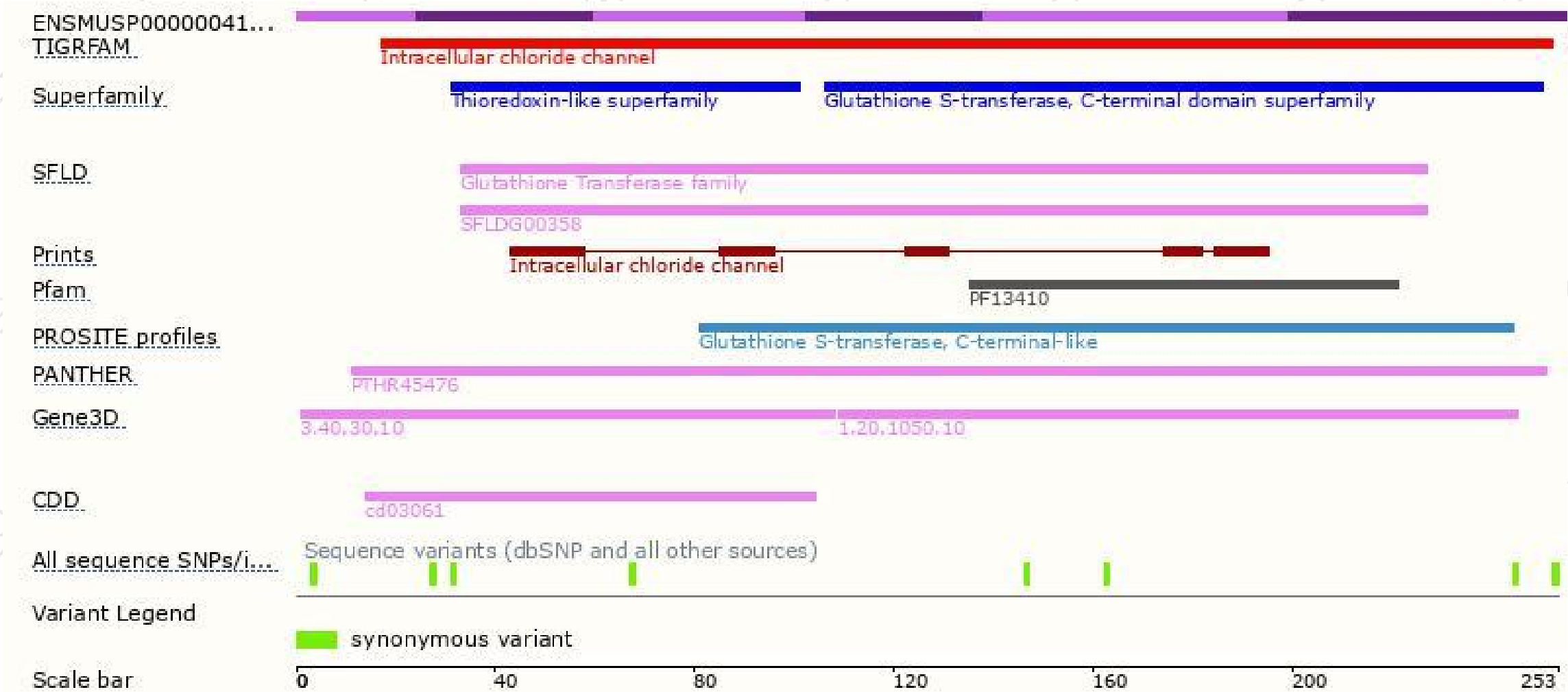
The strategy is based on the design of *Clic4-201* transcript,The transcription is shown below



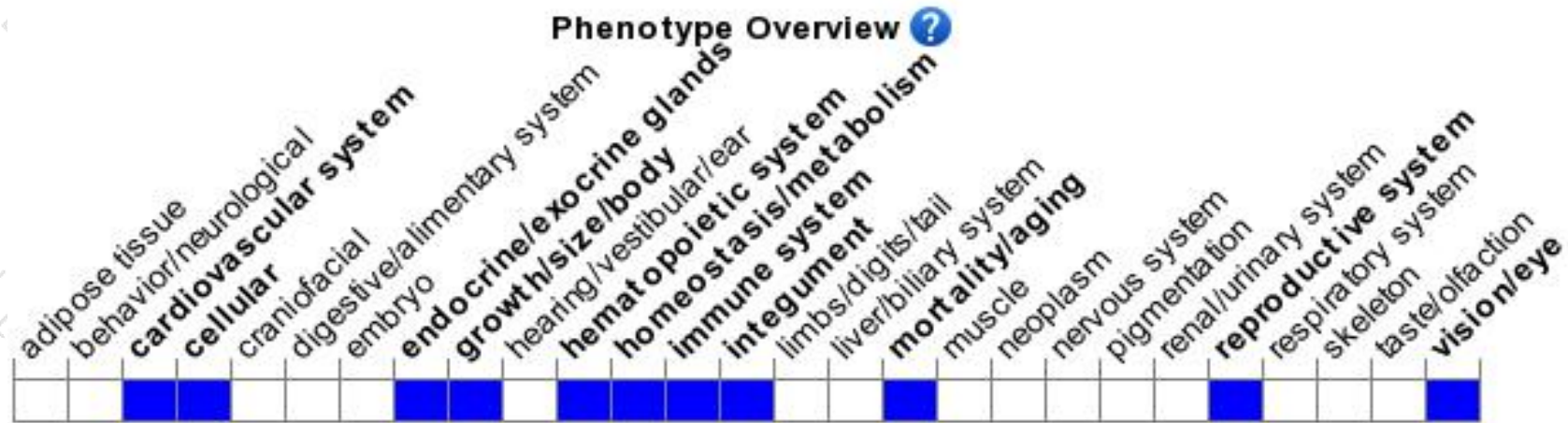
Genomic location distribution



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 null mutations may display decreased survival, body weight and female fertility, impaired angiogenesis, increased susceptibility to *Listeria* infection, increased resistance to LPS treatment, skin erosions and/or delayed wound healing.

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

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