

Pick1 Cas9-KO Strategy

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Project Overview

Project Name

Pick1

Project type

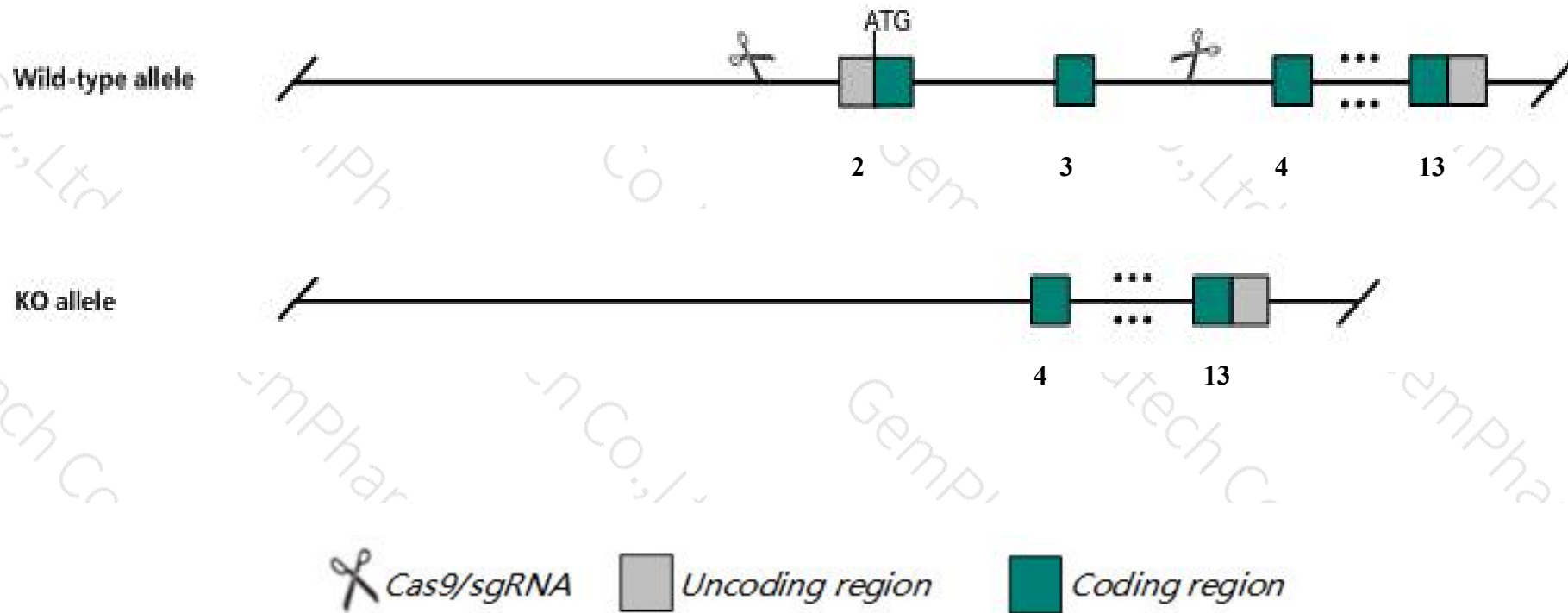
Cas9-KO

Strain background

C57BL/6J

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pick1* gene. The schematic diagram is as follows:



- The *Pick1* gene has 11 transcripts. According to the structure of *Pick1* gene, exon2-exon3 of *Pick1*-203 (ENSMUST00000163571.7) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Pick1* 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.

- According to the existing MGI data, Mice homozygous for a null allele show impaired synaptic plasticity and lack of long-term depression; males are infertile due to reduced sperm count and impaired sperm motility, and display small testes and seminiferous tubules, malformed acrosomes, globozoospermia, and male germ cell apoptosis.
- The *Pick1* gene is located on the Chr15. 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)

Pick1 protein interacting with C kinase 1 [Mus musculus (house mouse)]

Gene ID: 18693, updated on 3-Feb-2019

Summary



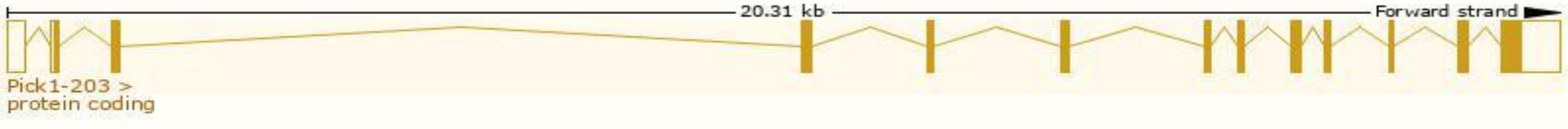
Official Symbol	Pick1 provided by MGI
Official Full Name	protein interacting with C kinase 1 provided by MGI
Primary source	MGI:MGI:894645
See related	Ensembl:ENSMUSG00000068206
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Prkcabp
Expression	Ubiquitous expression in testis adult (RPKM 26.1), CNS E14 (RPKM 24.9) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

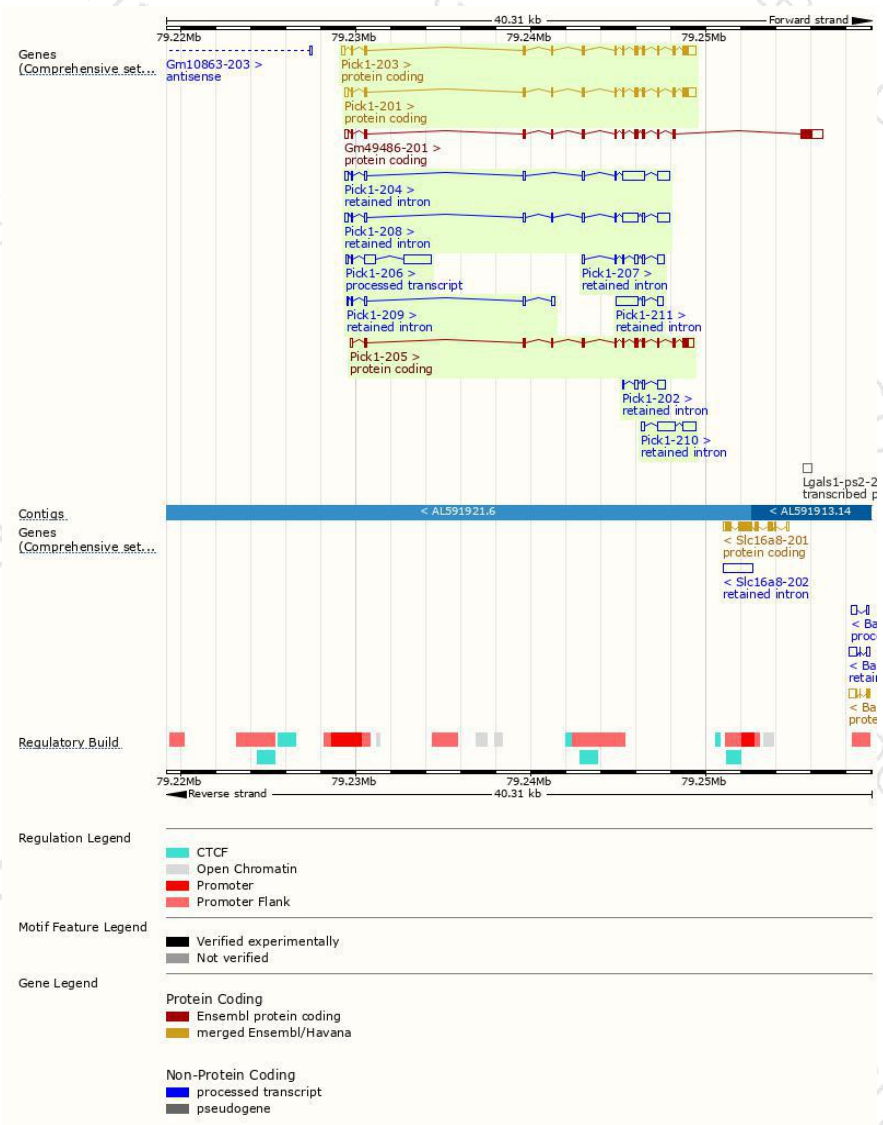
The gene has 11 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pick1-203	ENSMUST00000163571.7	2054	416aa	Protein coding	CCDS27635	E9PUZ5	TSL:5 GENCODE basic APPRIS P1
Pick1-201	ENSMUST00000018295.13	1977	416aa	Protein coding	CCDS27635	E9PUZ5	TSL:1 GENCODE basic APPRIS P1
Pick1-205	ENSMUST00000166155.1	1699	416aa	Protein coding	CCDS27635	E9PUZ5	TSL:1 GENCODE basic APPRIS P1
Pick1-206	ENSMUST00000166417.7	2421	No protein	Processed transcript	-	-	TSL:5
Pick1-204	ENSMUST00000165609.7	2559	No protein	Retained intron	-	-	TSL:1
Pick1-208	ENSMUST00000169548.7	2325	No protein	Retained intron	-	-	TSL:2
Pick1-210	ENSMUST00000171581.1	1944	No protein	Retained intron	-	-	TSL:2
Pick1-211	ENSMUST00000172162.7	1664	No protein	Retained intron	-	-	TSL:2
Pick1-207	ENSMUST00000168513.8	802	No protein	Retained intron	-	-	TSL:3
Pick1-202	ENSMUST00000113954.2	776	No protein	Retained intron	-	-	TSL:3
Pick1-209	ENSMUST00000171365.1	569	No protein	Retained intron	-	-	TSL:2

The strategy is based on the design of *Pick1-203* transcript,The transcription is shown below



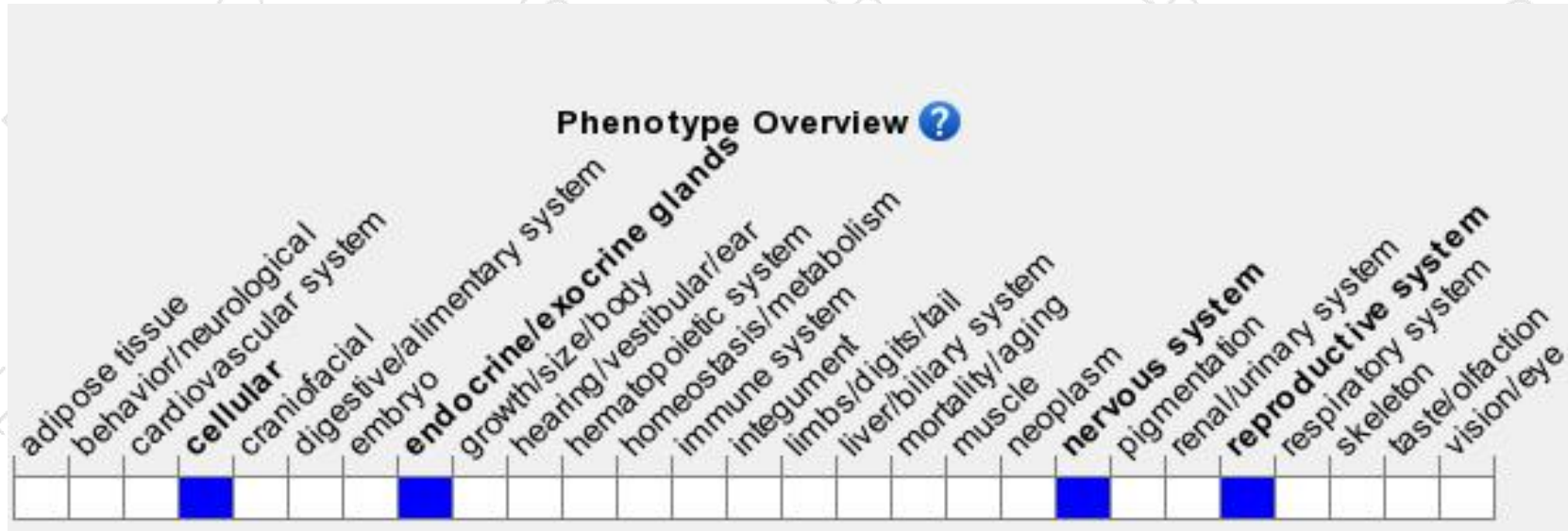
Genomic location distribution



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 a null allele show impaired synaptic plasticity and lack of long-term depression; males are infertile due to reduced sperm count and impaired sperm motility, and display small testes and seminiferous tubules, malformed acrosomes, globozoospermia, and male germ cell apoptosis.

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

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