

# ***Kcnk10* Cas9-KO Strategy**

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# Project Overview

**Project Name**

***Kcnk10***

**Project type**

**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Kcnk10* gene. The schematic diagram is as follows:



- The *Kcnk10* gene has 4 transcripts. According to the structure of *Kcnk10* gene, exon2 of *Kcnk10-202* (ENSMUST00000221240.1) transcript is recommended as the knockout region. The region contains 335bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Kcnk10* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for a null allele exhibit normal glucose hyperpolarization of hypothalamic neurons in response to glucose.
- The *Kcnk10* gene is located on the Chr12. 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)

## Kcnk10 potassium channel, subfamily K, member 10 [Mus musculus (house mouse)]

Gene ID: 72258, updated on 26-Feb-2019

### Summary



<b>Official Symbol</b>	Kcnk10 provided by <a href="#">MGI</a>
<b>Official Full Name</b>	potassium channel, subfamily K, member 10 provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:1919508</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000033854</a>
<b>Gene type</b>	protein coding
<b>RefSeq status</b>	VALIDATED
<b>Organism</b>	<a href="#">Mus musculus</a>
<b>Lineage</b>	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
<b>Also known as</b>	1700024D23Rik, 3010005K24Rik, Trek2
<b>Expression</b>	Biased expression in cerebellum adult (RPKM 3.9), CNS E18 (RPKM 2.8) and 9 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

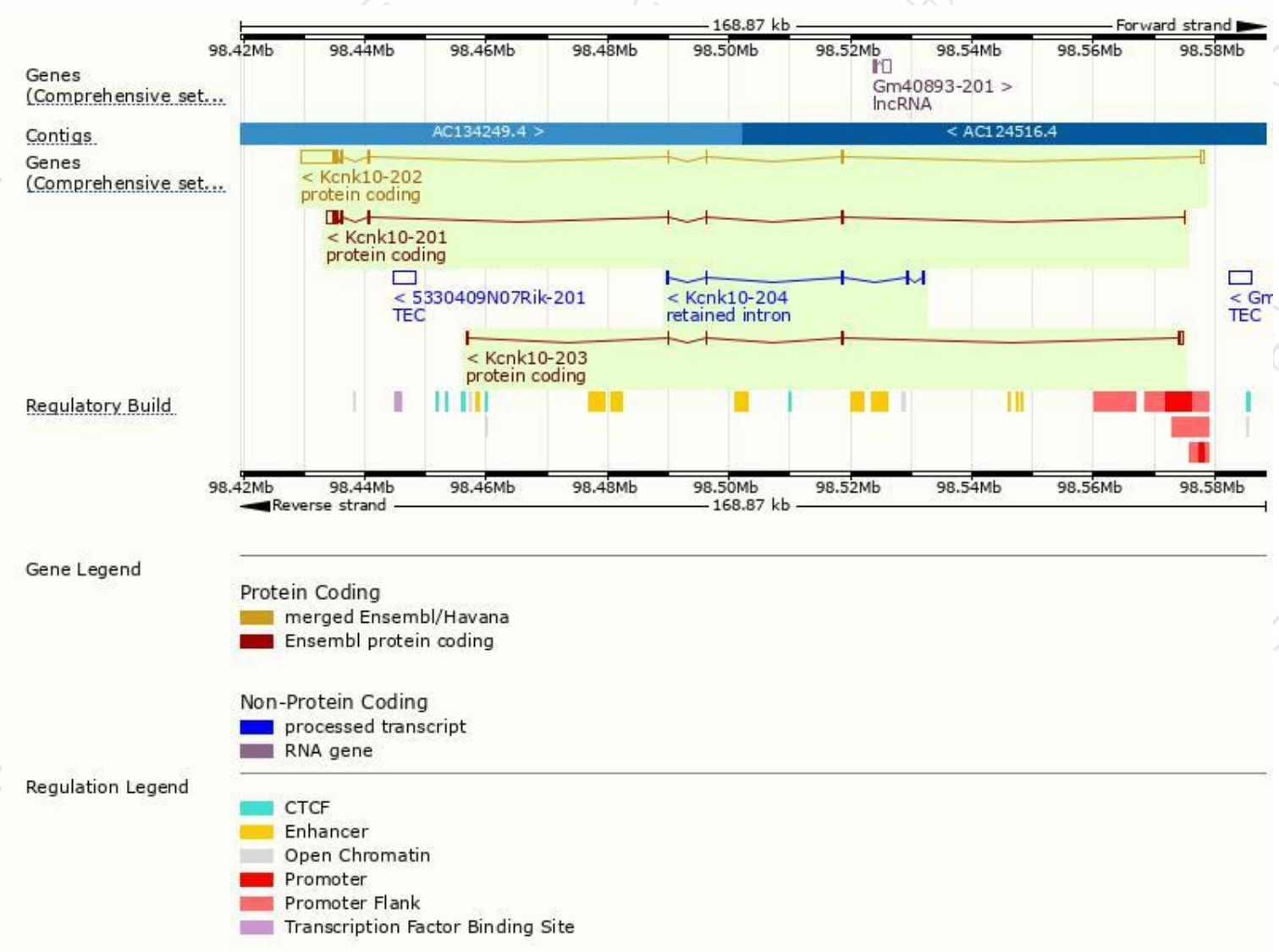
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Kcnk10-202	<a href="#">ENSMUST00000221240.1</a>	7460	<a href="#">535aa</a>	Protein coding	<a href="#">CCDS36518</a>	<a href="#">Q8BUW1</a>	TSL:1 GENCODE basic APPRIS P2
Kcnk10-201	<a href="#">ENSMUST00000110113.2</a>	2629	<a href="#">521aa</a>	Protein coding	-	<a href="#">F6YU65</a>	TSL:1 GENCODE basic APPRIS ALT2
Kcnk10-203	<a href="#">ENSMUST00000221305.1</a>	1357	<a href="#">241aa</a>	Protein coding	-	<a href="#">A0A1Y7VJZ9</a>	TSL:1 GENCODE basic
Kcnk10-204	<a href="#">ENSMUST00000221906.1</a>	1098	No protein	Retained intron	-	-	TSL:1

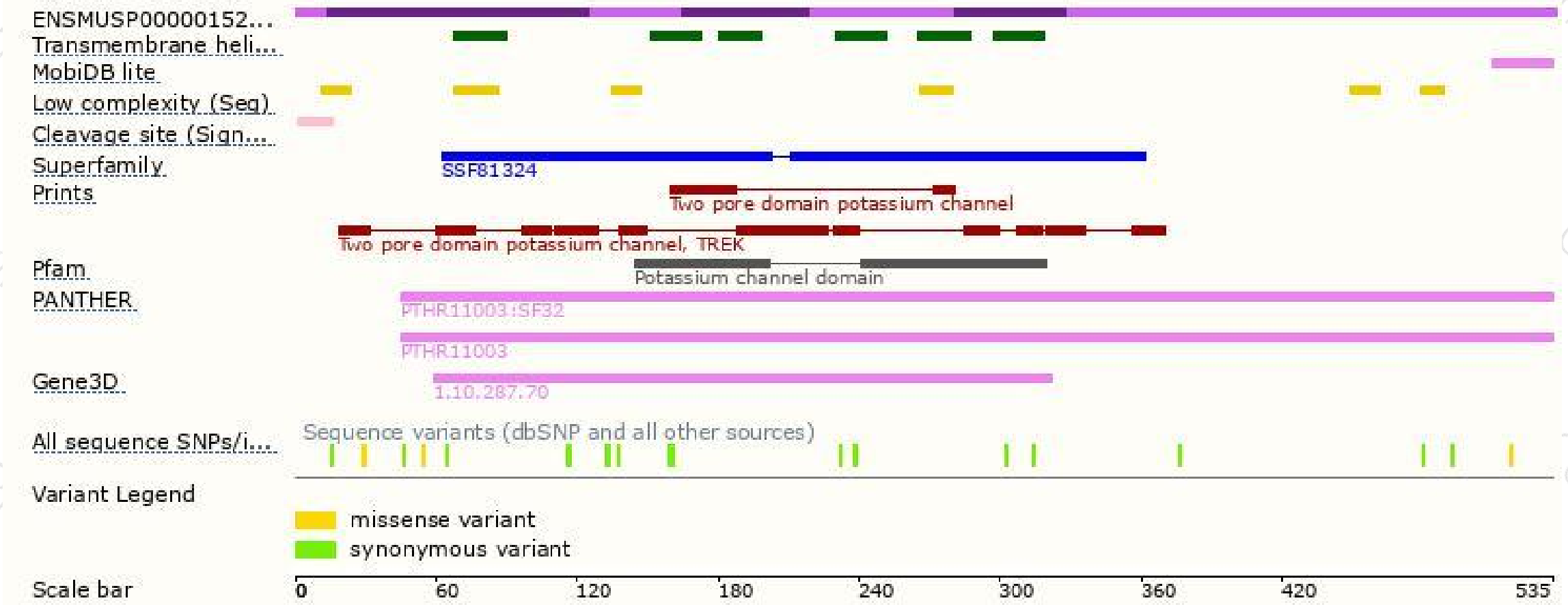
The strategy is based on the design of *Kcnk10-202* transcript,The transcription is shown below



# Genomic location distribution



# Protein domain



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

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