

# *Kcnip1* Cas9-KO Strategy

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**Reviewer:**

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# Project Overview

**Project Name**

***Kcnip1***

**Project type**

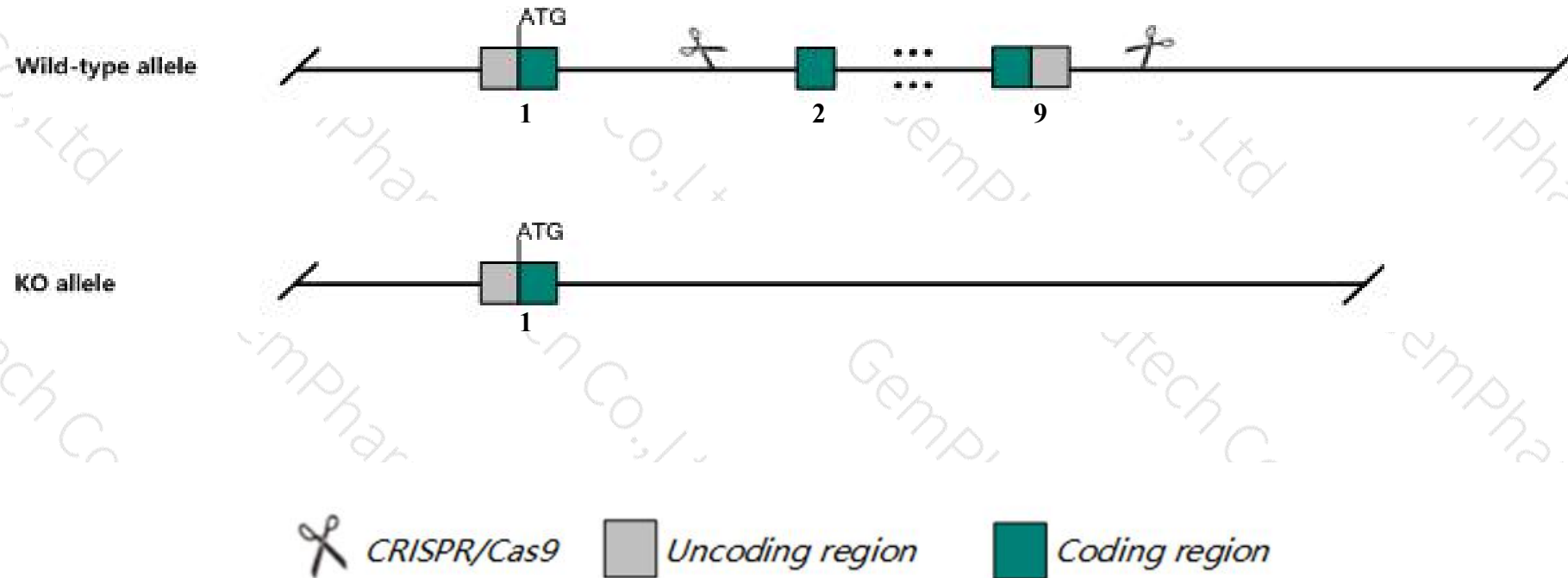
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

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



- The *Kcnip1* gene has 6 transcripts. According to the structure of *Kcnip1* gene, exon3-exon8 of *Kcnip1*-203 (ENSMUST00000109340.8) transcript is recommended as the knockout region. The region contains most of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Kcnip1* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for a knock-out allele exhibit increase susceptibility to pentylenetetrazole-induced seizures.
- The *Kcnipl* 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 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)

## Kcnp1 Kv channel-interacting protein 1 [Mus musculus (house mouse)]

Gene ID: 70357, updated on 5-Mar-2019

### Summary



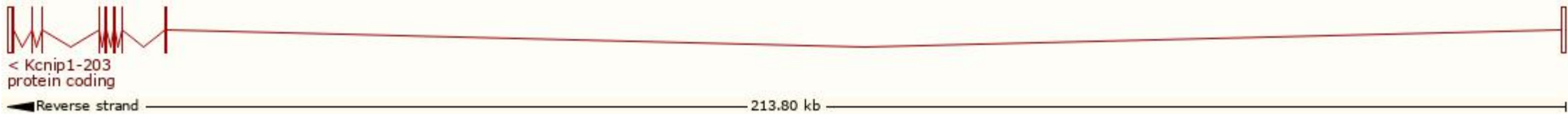
<b>Official Symbol</b>	Kcnp1 provided by <a href="#">MGI</a>
<b>Official Full Name</b>	Kv channel-interacting protein 1 provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:1917607</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000053519</a>
<b>Gene type</b>	protein coding
<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>	KCHIP1, Kchip1.2
<b>Expression</b>	Biased expression in cerebellum adult (RPKM 12.1), CNS E18 (RPKM 11.7) and 8 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

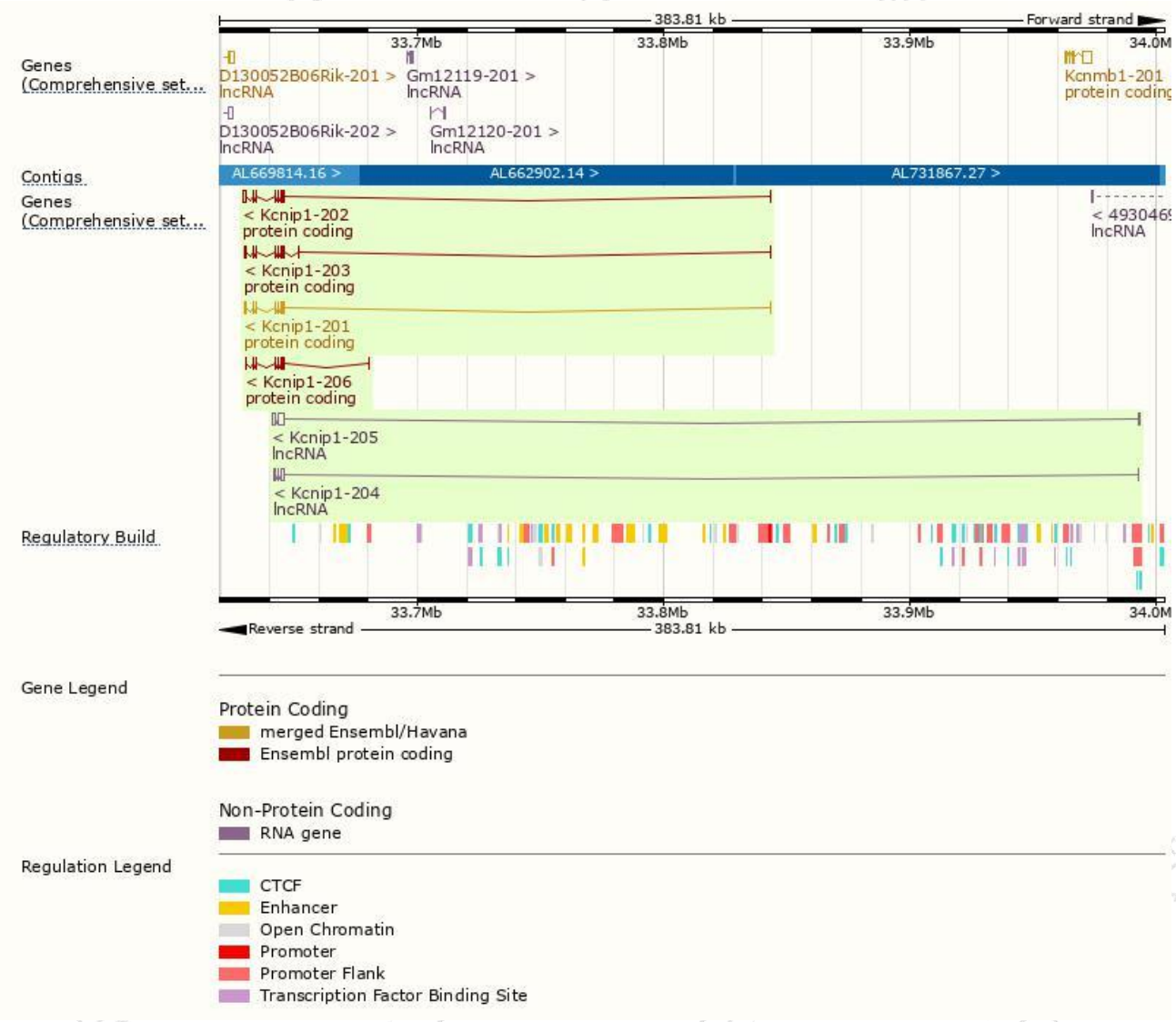
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Kcnip1-202	<a href="#">ENSMUST00000101368.8</a>	2322	<a href="#">188aa</a>	Protein coding	<a href="#">CCDS70160</a>	<a href="#">Q9JJ57</a>	TSL:2 GENCODE basic
Kcnip1-203	<a href="#">ENSMUST00000109340.8</a>	1840	<a href="#">227aa</a>	Protein coding	<a href="#">CCDS56766</a>	<a href="#">Q9JJ57</a>	TSL:1 GENCODE basic APPRIS ALT1
Kcnip1-201	<a href="#">ENSMUST00000065970.5</a>	1749	<a href="#">216aa</a>	Protein coding	<a href="#">CCDS24537</a>	<a href="#">Q3YAB6 Q9JJ57</a>	TSL:1 GENCODE basic APPRIS P3
Kcnip1-206	<a href="#">ENSMUST00000238436.1</a>	699	<a href="#">232aa</a>	Protein coding	-	-	GENCODE basic
Kcnip1-205	<a href="#">ENSMUST00000154760.1</a>	4095	No protein	lncRNA	-	-	TSL:1
Kcnip1-204	<a href="#">ENSMUST00000135034.1</a>	2475	No protein	lncRNA	-	-	TSL:1

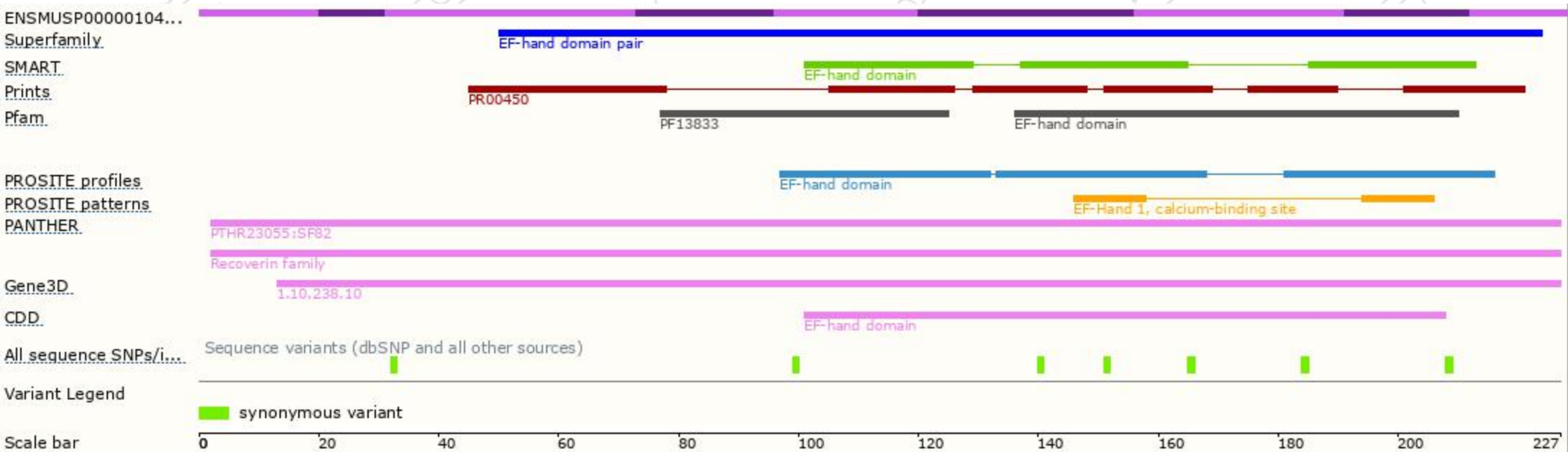
The strategy is based on the design of *Kcnip1-203* transcript,The transcription is shown below



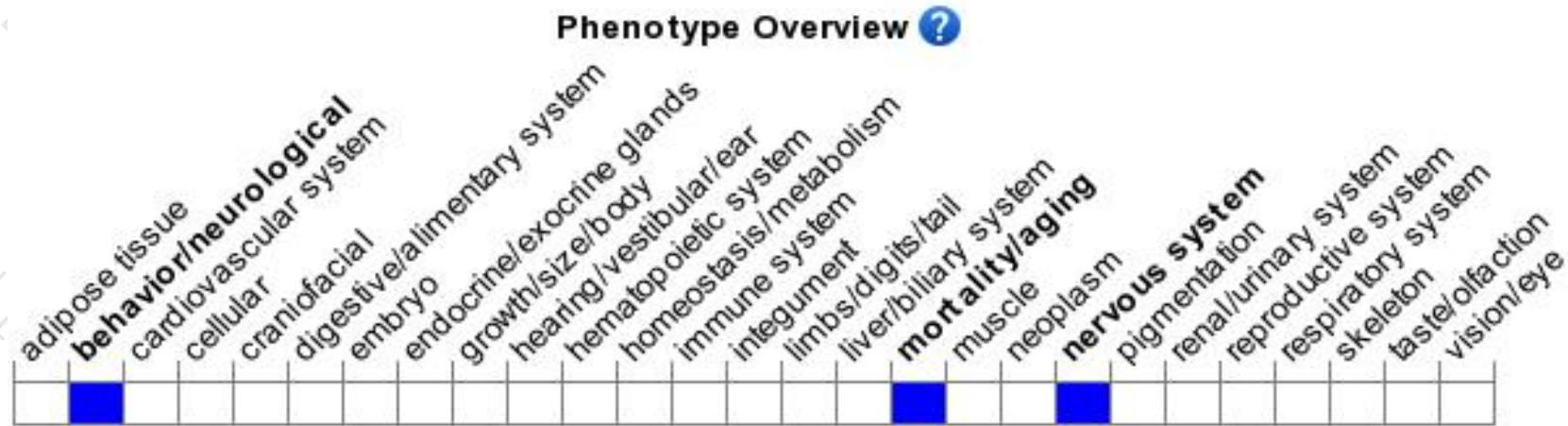
# Genomic location distribution



# 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 knock-out allele exhibit increase susceptibility to pentylenetetrazole-induced seizures.

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

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