

Kcnk9 Cas9-CKO Strategy

Designer:

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Project Overview



Project Name

Kcnk9

Project type

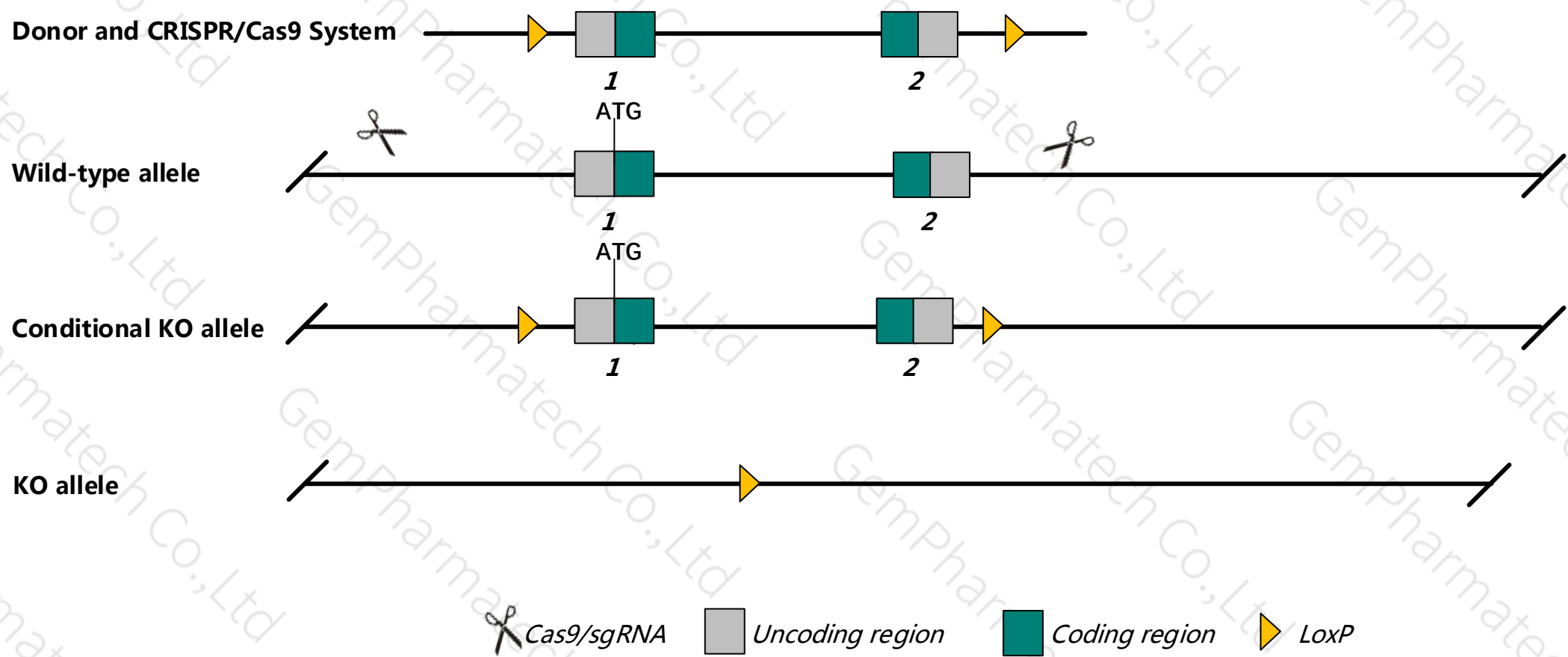
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Kcnk9* gene. The schematic diagram is as follows:



Technical routes

- The *Kcnk9* gene has 1 transcript. According to the structure of *Kcnk9* gene, exon1-exon2 of *Kcnk9*-201 (ENSMUST00000044624.7) transcript is recommended as the knockout region. The region contains all coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Kcnk9* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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 was knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues or cell types.

- According to the existing MGI data , Mice homozygous for a null allele exhibit decreased pH sensitive action potential in serotonergic neurons.
- The *Kcnk9* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)



Kcnk9 potassium channel, subfamily K, member 9 [*Mus musculus* (house mouse)]

Gene ID: 223604, updated on 21-Oct-2018

Summary

Official Symbol	Kcnk9 provided by MGI
Official Full Name	potassium channel, subfamily K, member 9 provided by MGI
Primary source	MGI:MGI:3521816
See related	Ensembl:ENSMUSG00000036760
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	Task3; A930009L07Rik
Expression	Biased expression in adrenal adult (RPKM 23.2), cortex adult (RPKM 9.8) and 5 other tissues See more
Orthologs	human all

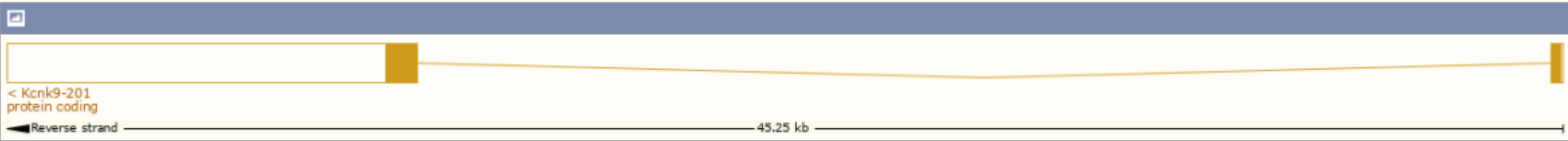
Transcript information (Ensembl)



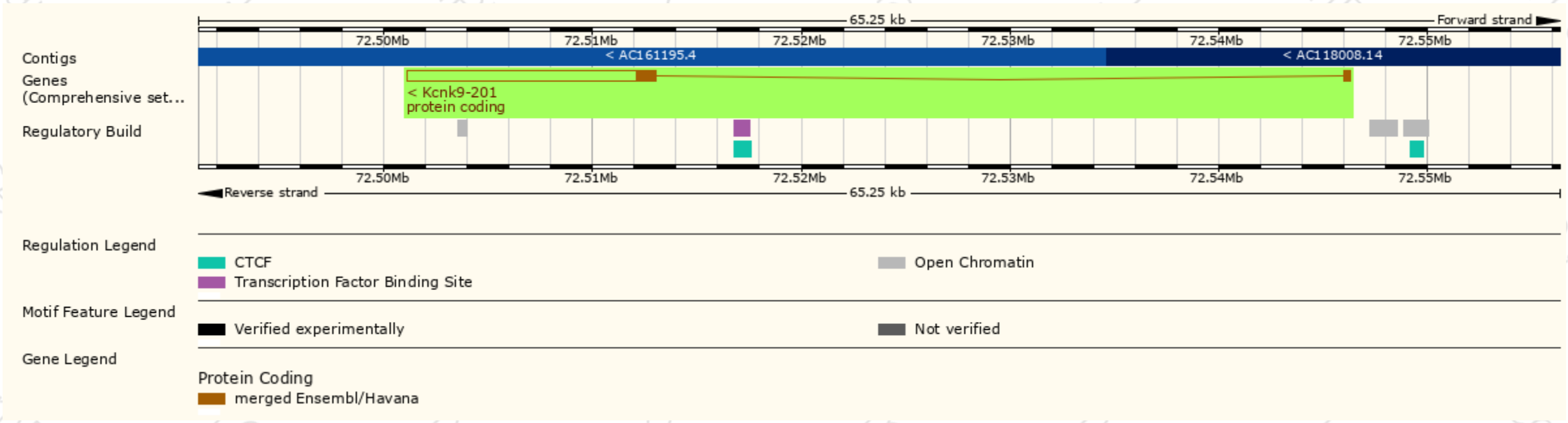
The gene has 1 transcript, and the transcript is shown below:

Show/hide columns (1 hidden)								Filter	
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags	
Kcnk9-201	ENSMUST00000044624.7	12300	402aa	Protein coding	CCDS27515	Q3LS21	NM_001033876 NP_001029048	TSL:1	GENCODE basic APPRIS P1

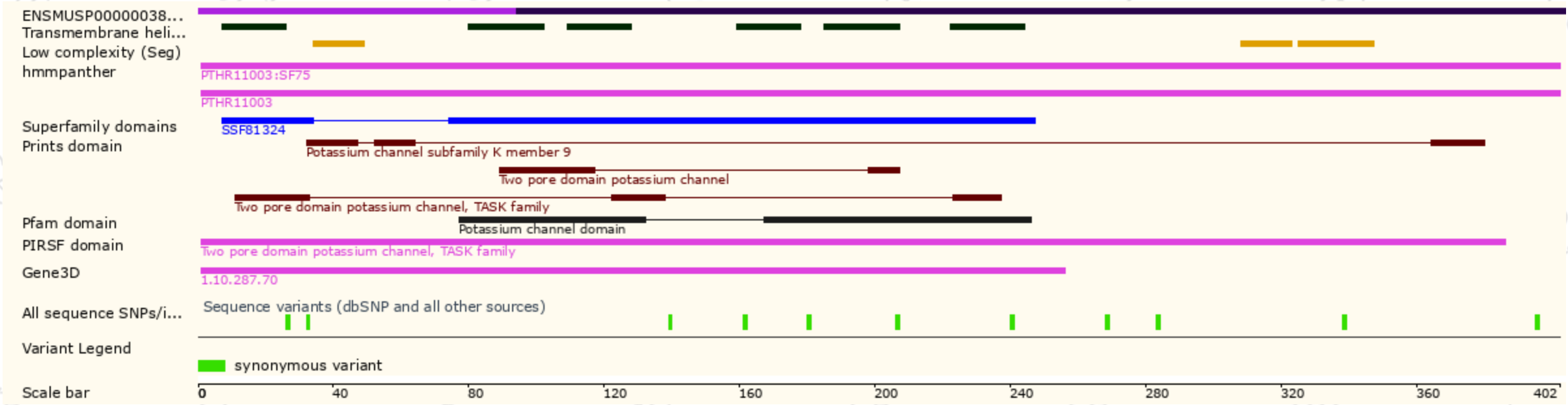
The strategy is based on the design of *Kcnk9-201* transcript, The transcription is shown below



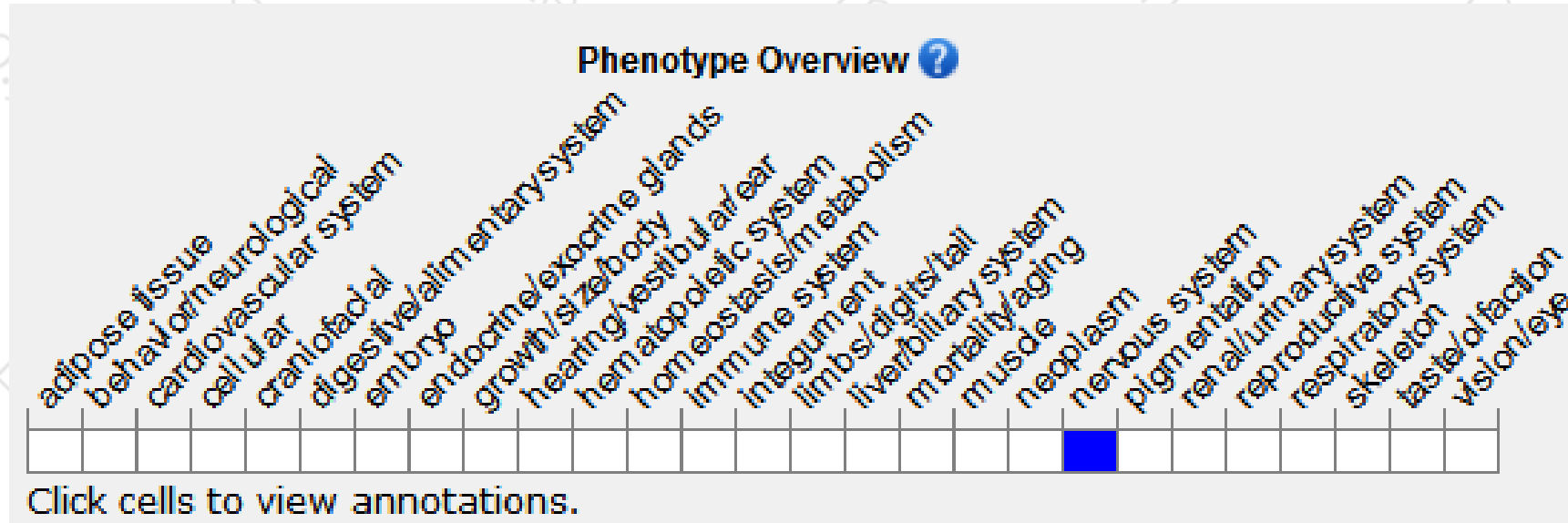
Genomic location distribution



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 a null allele exhibit decreased pH sensitive action potential in serotonergic neurons.

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