Kcnk6 Cas9-KO Strategy

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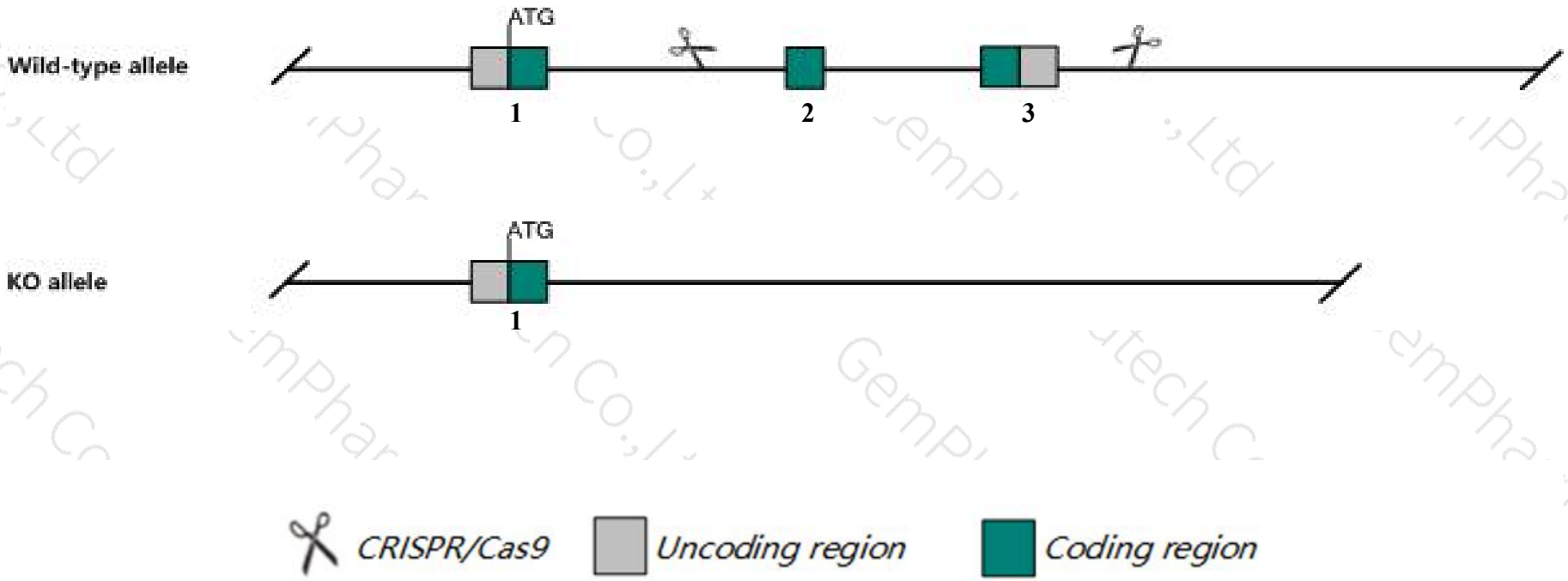
Reviewer:Jia Yu

Project Overview

Project Name	***Kcnk6***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Kcnk6* gene. The schematic diagram is as follows:



Technical routes

➢ The *Kcnk6* gene has 2 transcripts. According to the structure of *Kcnk6* gene, exon2-exon3 of *Kcnk6-201* (ENSMUST00000085818.5) transcript is recommended as the knockout region.The region contains 620bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Kcnk6* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

➢ According to the existing MGI data,Male mice homozygous for a knock-out allele exhibit vascular dysfunction and hypertension.

➢ The *Kcnk6* gene is located on the Chr7. 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）

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Kcnk6 potassium inwardly-rectifying channel, subfamily K, member 6 [*Mus musculus* (house mouse)]

Gene ID: 52150, updated on 12-Aug-2019

Summary

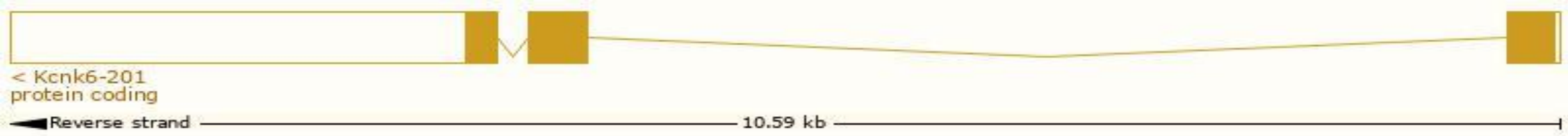
Official Symbol	Kcnk6 provided by MGI
Official Full Name	potassium inwardly-rectifying channel, subfamily K, member 6 provided by MGI
Primary source	MGI:MGI:1891291
See related	Ensembl:ENSMUSG00000046410
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Toss; Twik2; D7Ertd764e
Expression	Broad expression in colon adult (RPKM 24.4), stomach adult (RPKM 11.1) and 18 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

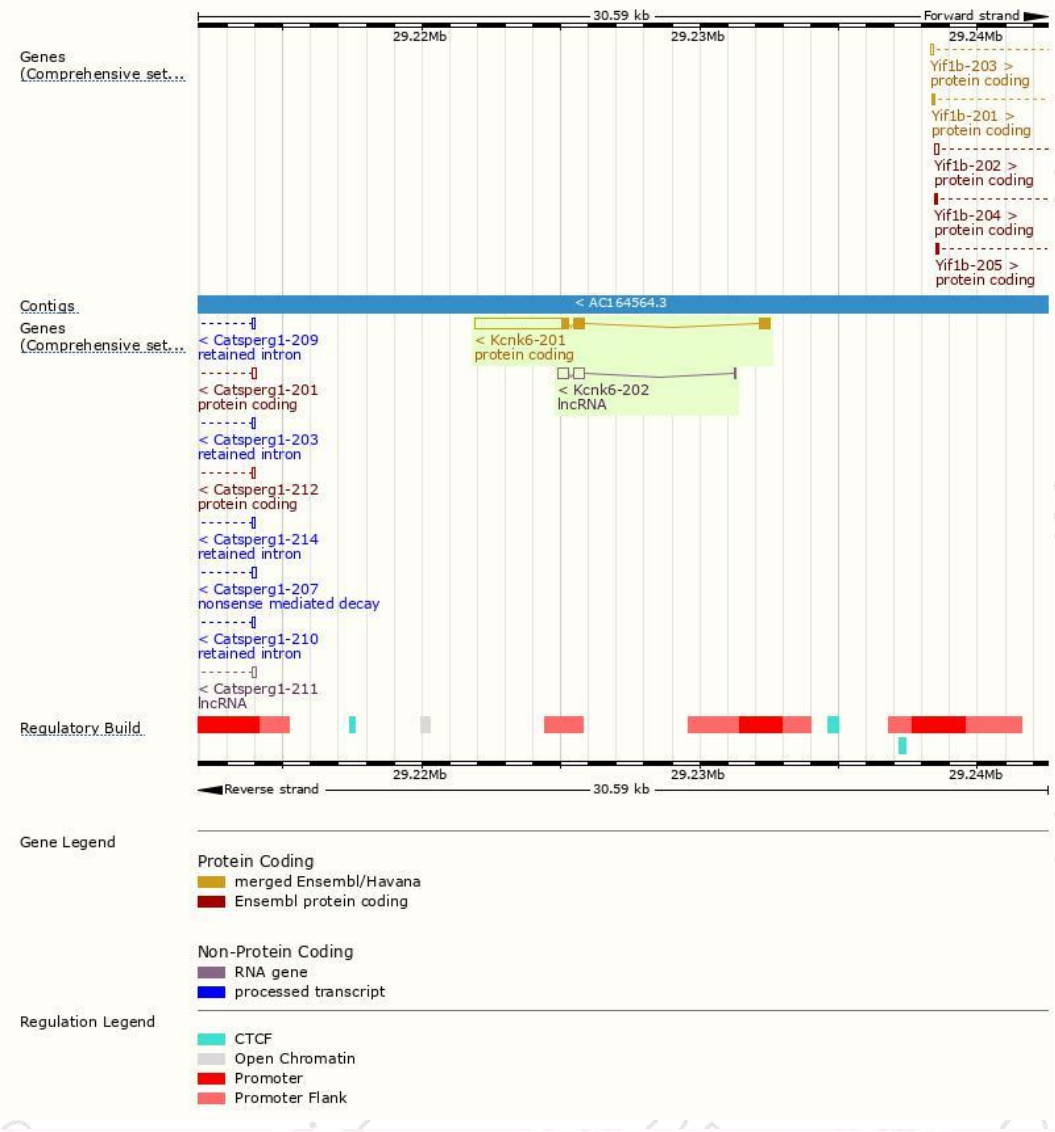
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Kcnk6-201	ENSMUST00000085818.5	4084	313aa	Protein coding	CCDS21068	Q3TBV4	TSL:1 GENCODE basic APPRIS P1
Kcnk6-202	ENSMUST00000208807.1	805	No protein	lncRNA	-	-	TSL:1

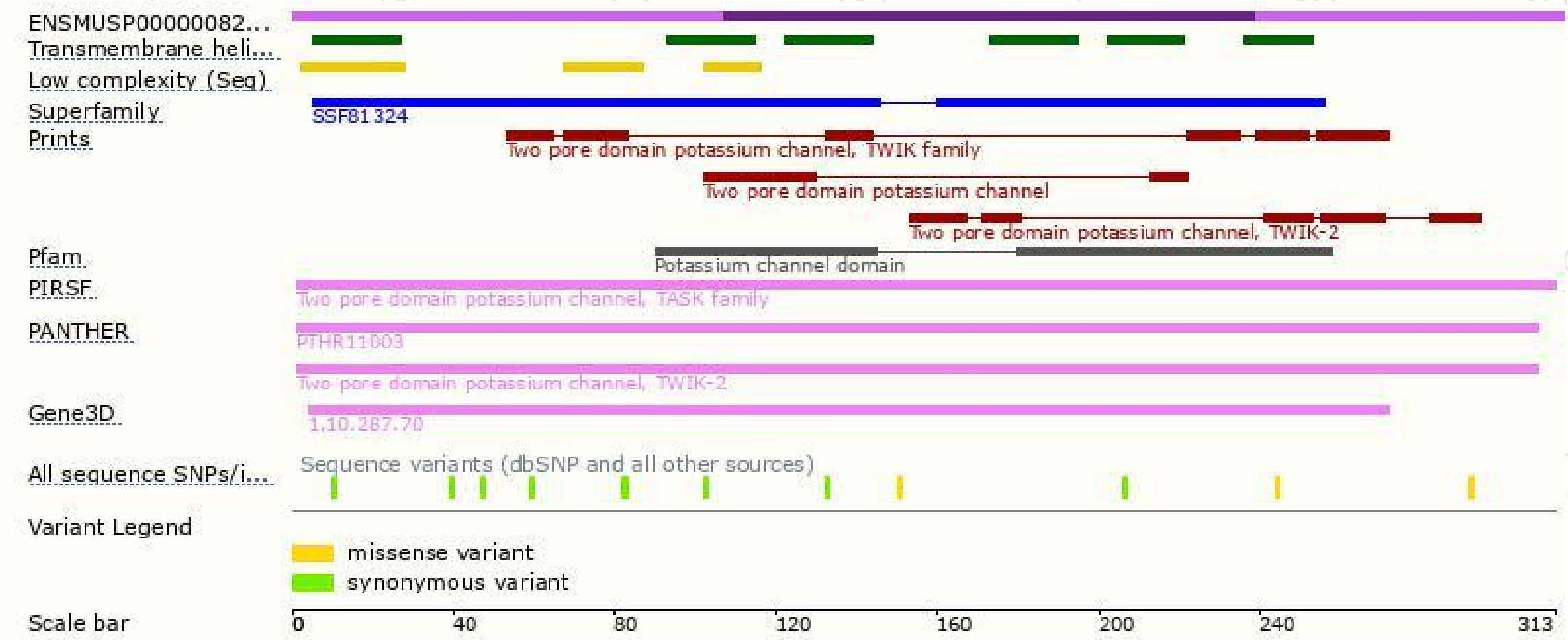
The strategy is based on the design of *Kcnk6-201* transcript,The transcription is shown below



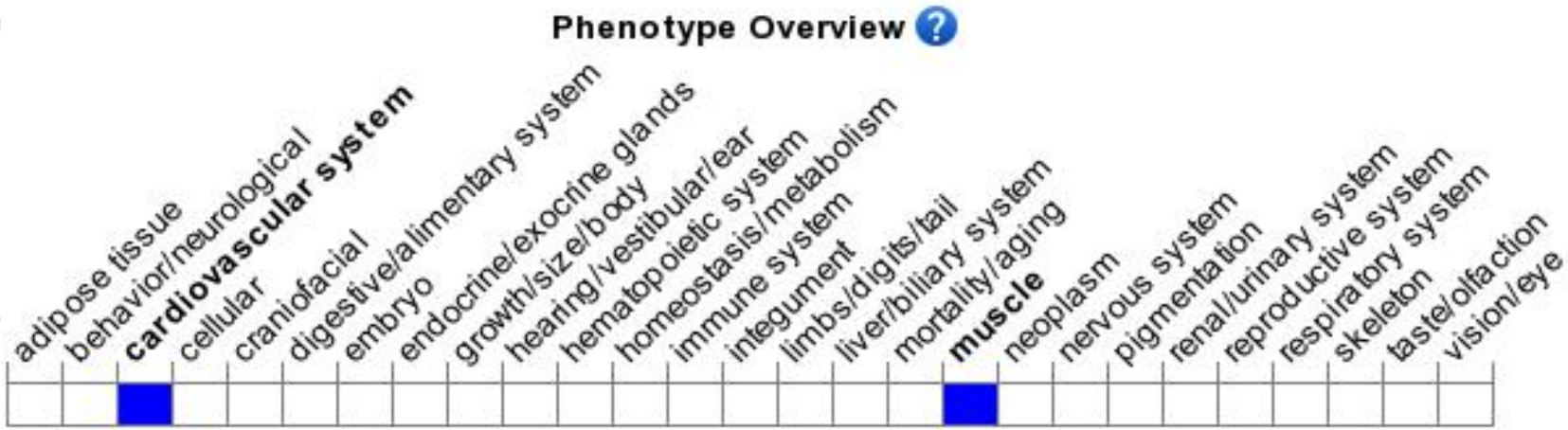
Genomic location distribution



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,Male mice homozygous for a knock-out allele exhibit vascular dysfunction and hypertension.

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

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