Kcnmb1 Cas9-CKO *Strategy*

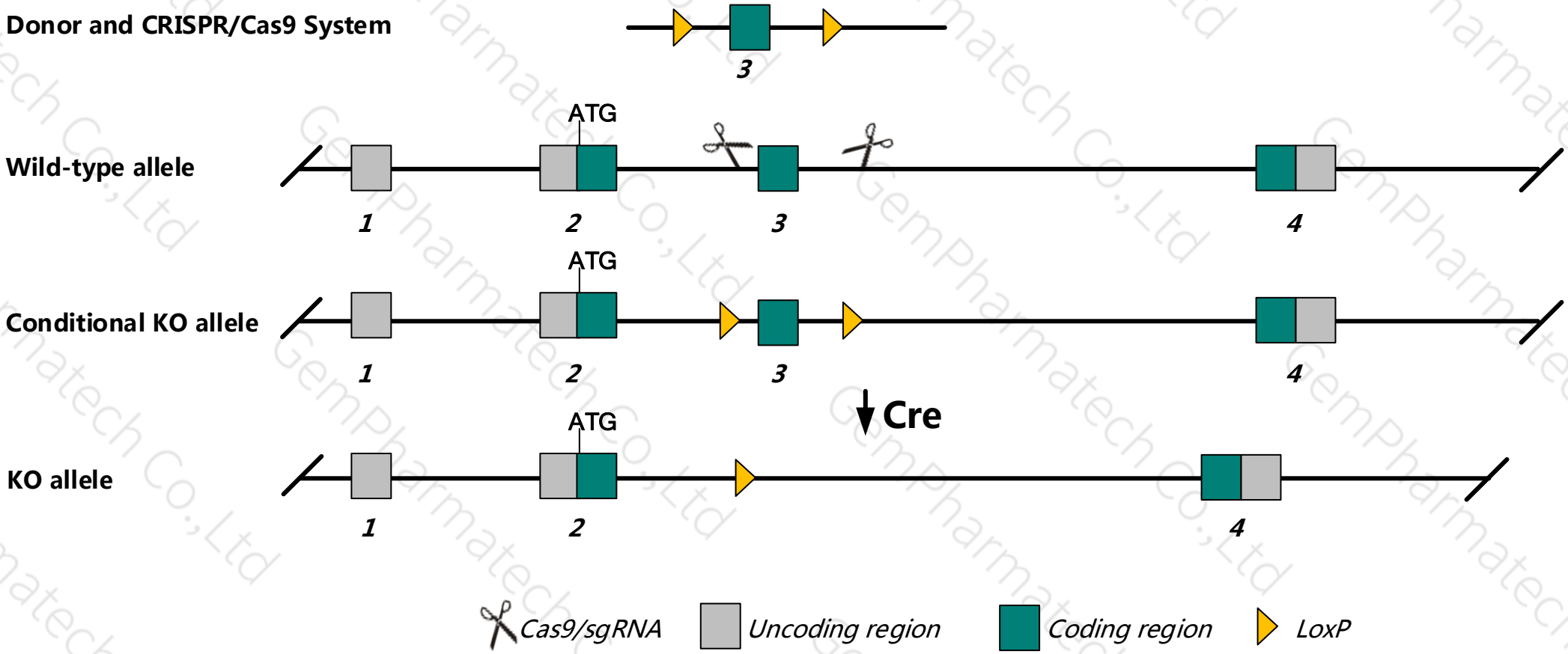
Designer: **Daohua Xu**

Project Overview

Project Name	***Kcnmb1***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Kcnmb1* gene. The schematic diagram is as follows:



Technical routes

- The *Kcnmb1* gene has 1 transcript.According to the structure of *Kcnmb1* gene, exon3 of *Kcnmb1*-201 transcript is recommended as the knockout region.The region contains 172bp coding sequence.Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Kcnmb1* 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.

Notice

- The KO region contains a partial intron of the *Kcnip1* gene.Knockout the region may affect its function of *Kcnip1* gene.
- The *Kcnmb1* 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 gene transcription and translation processes, all risks cannot be predicted under existing information.

Gene information （NCBI）

Kcnmb1 potassium large conductance calcium-activated channel, subfamily M, beta member 1 [*Mus musculus* (house mouse)]

Gene ID: 16533, updated on 31-Jan-2019

Summary

Official Symbol	Kcnmb1 provided by MGI
Official Full Name	potassium large conductance calcium-activated channel, subfamily M, beta member 1 provided by MGI
Primary source	MGI:MGI:1334203
See related	Ensembl:ENSMUSG00000020155
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	BKbeta1
Expression	Biased expression in bladder adult (RPKM 14.4), ovary adult (RPKM 3.3) and 9 other tissues See more
Orthologs	human all

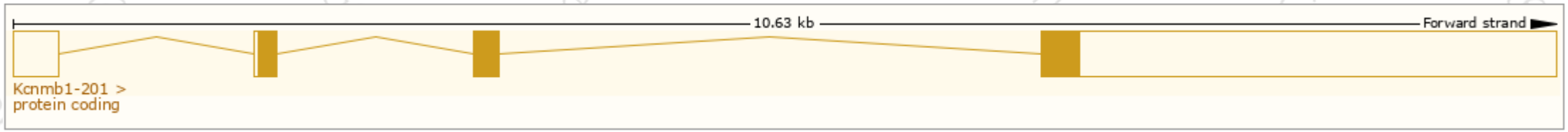
Transcript information（ Ensembl ）

The gene has 1 transcript, and all transcripts are shown below ：

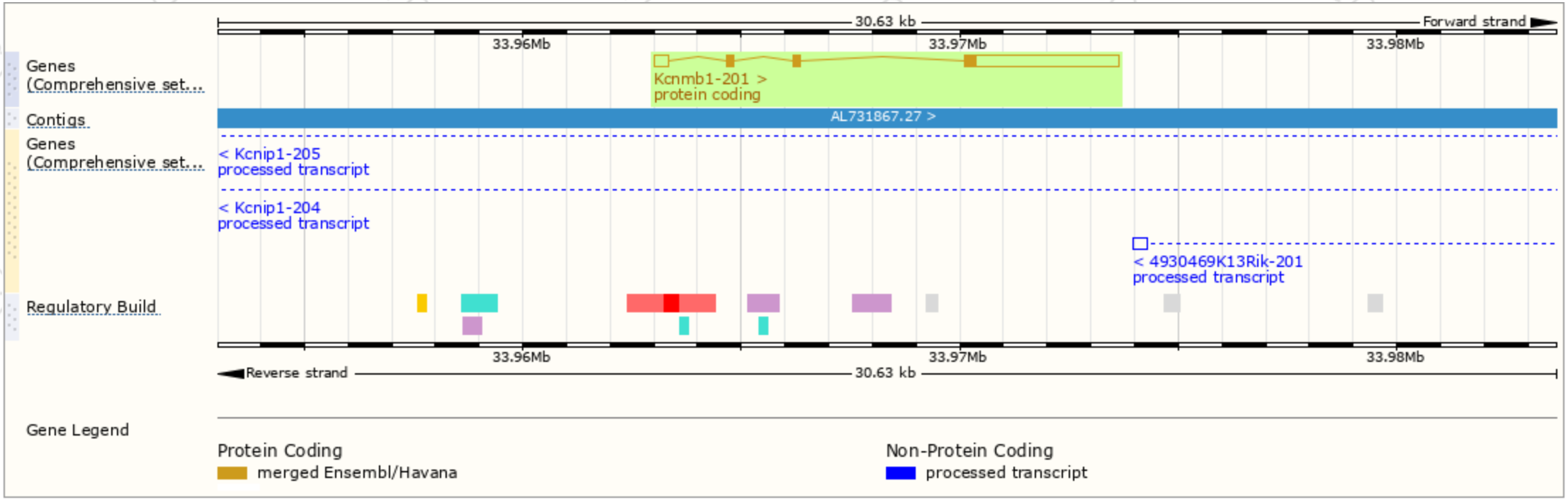
Show/hide columns (1 hidden) Filter

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Kcnmb1-201	ENSMUST00000020362.2	4191	191aa	Protein coding	CCDS24538	Q5SQK1	TSL:1 GENCODE basic APPRIS P1

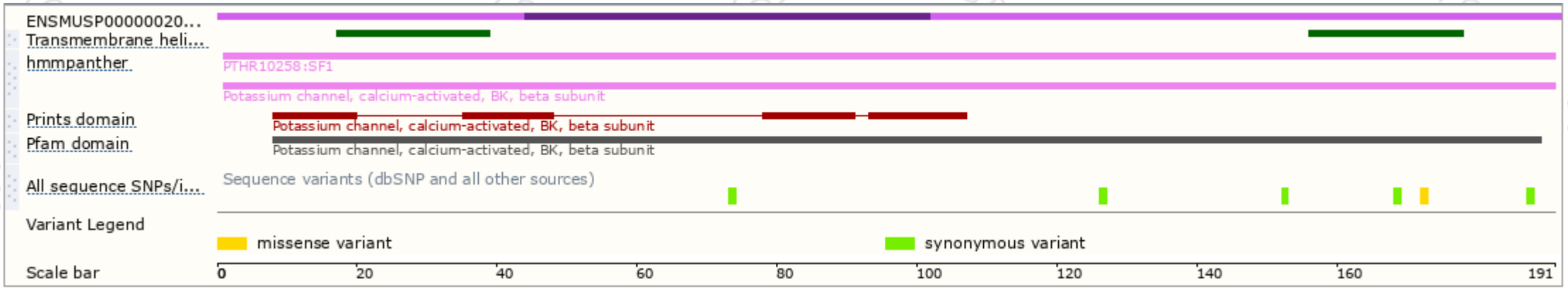
The strategy is based on the design of *Kcnmb1-201* transcript,The transcription is shown below



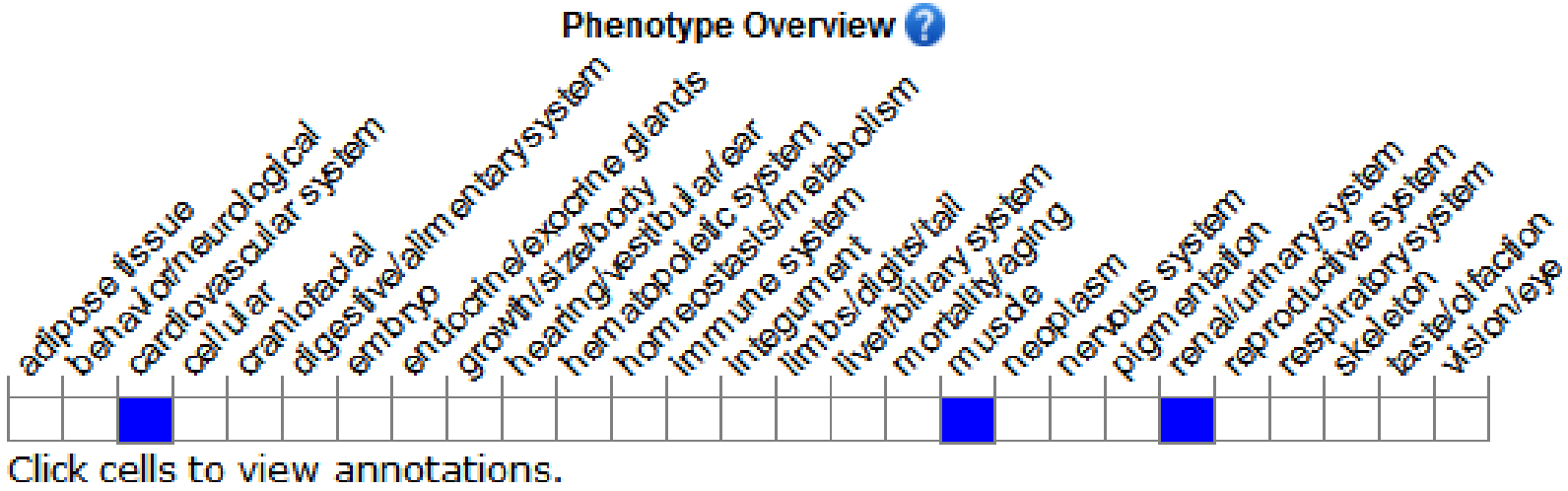
Genomic location distribution



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,Homozygous mutation of this gene results in increased blood pressure, and impaired motor coordination and cerebellar function.

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

Tel: 025-5864 1534

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