Pkd2l2 Cas9-KO Strategy

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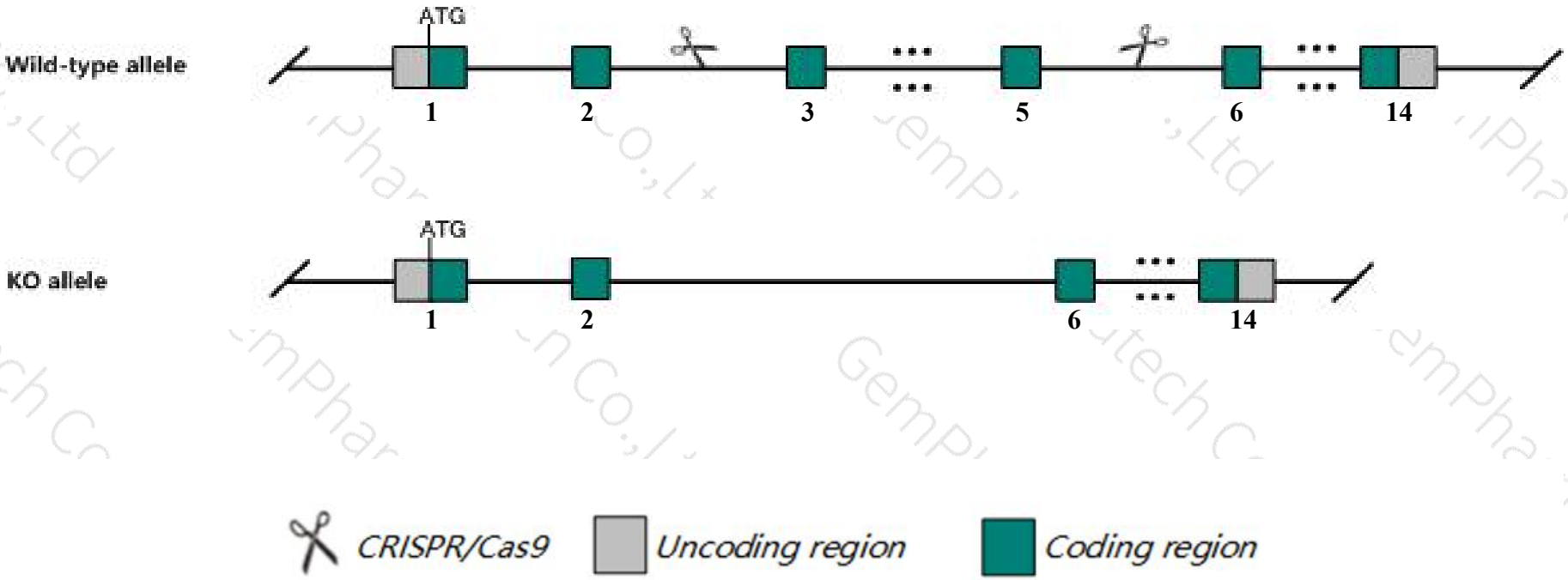
Project Overview

Project Name	***Pkd2l2***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pkd2l2* gene. The schematic diagram is as follows:



Technical routes

➢ The *Pkd2l2* gene has 4 transcripts. According to the structure of *Pkd2l2* gene, exon3-exon5 of *Pkd2l2-201* (ENSMUST00000014647.8) transcript is recommended as the knockout region.The region contains 613bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Pkd2l2* gene. The brief process is as follows: CRISPR/Cas9 systen

Notice

➢ According to the existing MGI data,Mice homozygous for a targeted gene disruption display hyperactivity.

➢ The *Pkd2l2* gene is located on the Chr18. 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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Pkd2l2 polycystic kidney disease 2-like 2 [*Mus musculus* (house mouse)]

Gene ID: 53871, updated on 14-Aug-2019

Summary

Official Symbol	Pkd2l2 provided by MGI
Official Full Name	polycystic kidney disease 2-like 2 provided by MGI
Primary source	MGI:MGI:1858231
See related	Ensembl:ENSMUSG00000014503
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	TRPP5
Expression	Ubiquitous expression in testis adult (RPKM 6.3), CNS E18 (RPKM 6.2) and 28 other tissues See more
Orthologs	human all

Genomic context

Location: 18; 18 B1

See Pkd2l2 in Genome Data Viewer

Exon count: 16

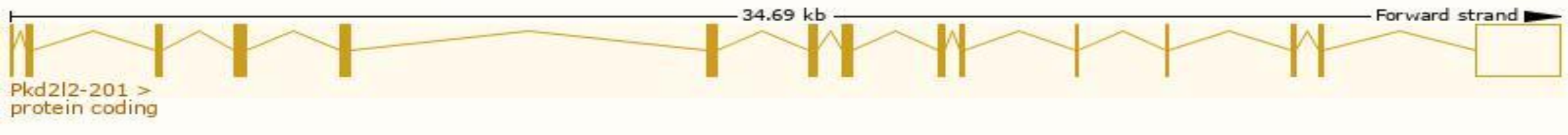
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	18	NC_000084.6 (34408501..34442798)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	18	NC_000084.5 (34569077..34602443)

Transcript information（Ensembl）

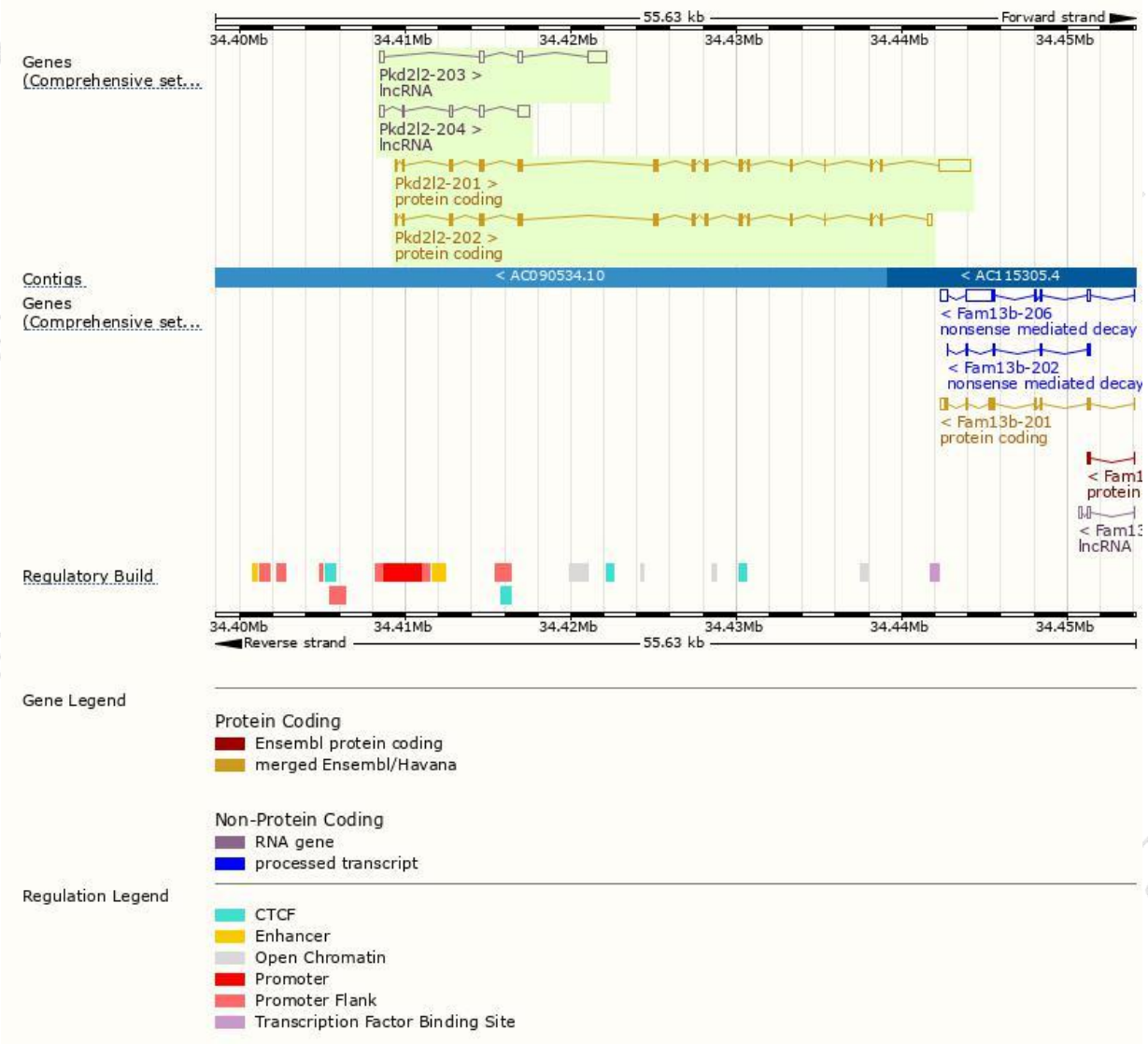
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pkd2l2-201	ENSMUST00000014647.8	3788	621aa	Protein coding	CCDS29127	Q9JLG4	TSL:1 GENCODE basic APPRIS P1
Pkd2l2-202	ENSMUST00000166156.8	2129	621aa	Protein coding	CCDS29127	Q9JLG4	TSL:1 GENCODE basic APPRIS P1
Pkd2l2-203	ENSMUST00000235732.1	1811	No protein	lncRNA	-	-	
Pkd2l2-204	ENSMUST00000236131.1	1373	No protein	lncRNA	-	-	

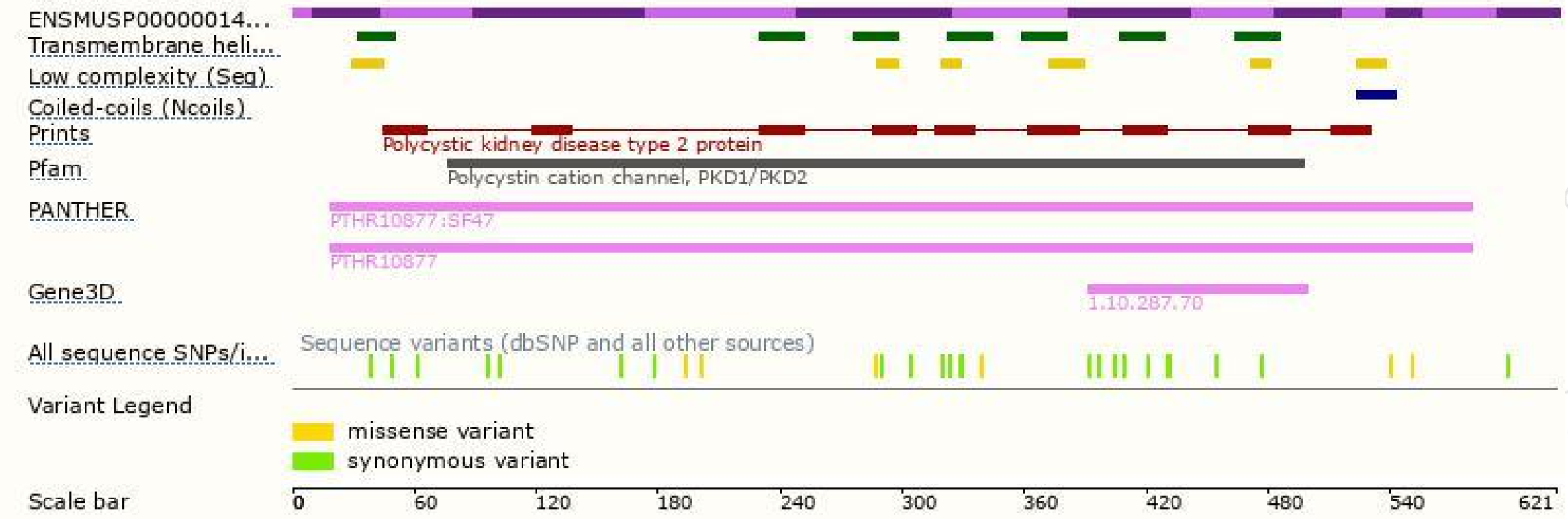
The strategy is based on the design of *Pkd2l2-201* transcript,The transcription is shown below



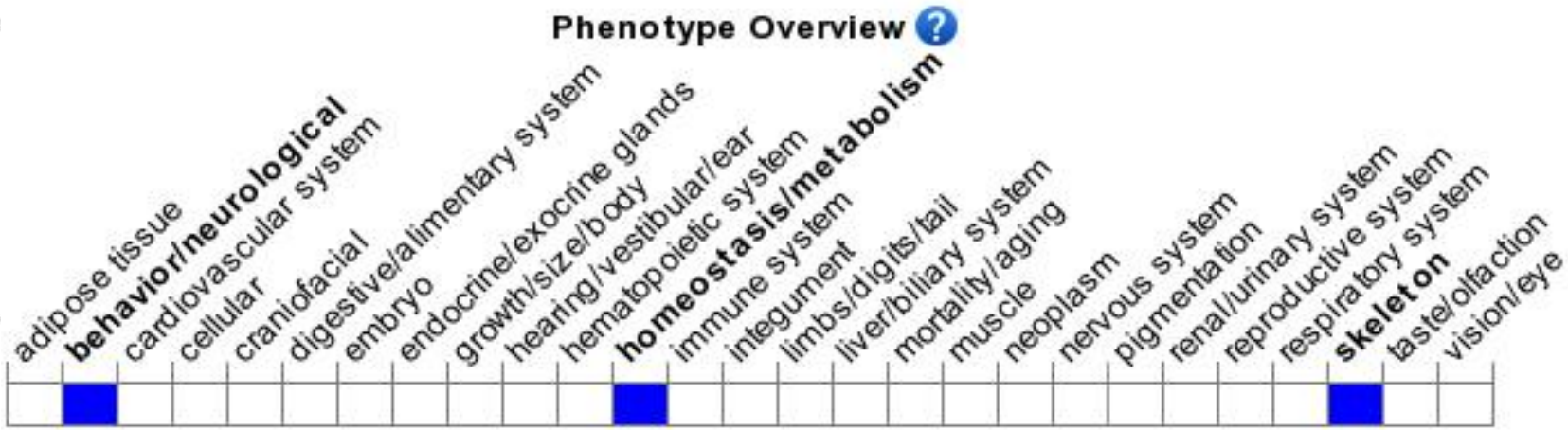
Genomic location distribution



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 targeted gene disruption display hyperactivity.

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

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