

Pknox2 Cas9-CKO Strategy

Designer:

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Project Overview

Project Name

Pknox2

Project type

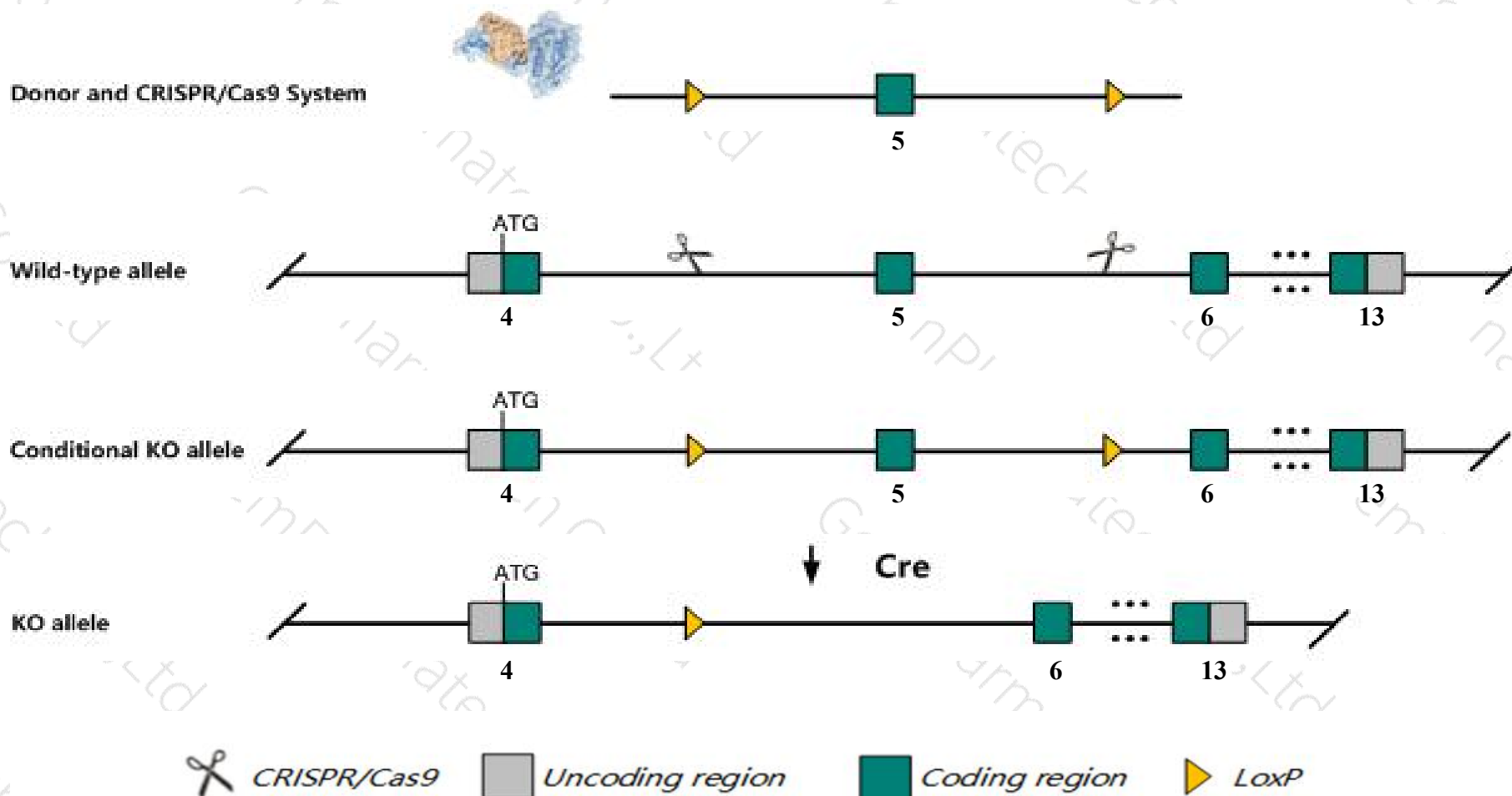
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pknox2* gene. The schematic diagram is as follows:



Technical routes

- The *Pknox2* gene has 14 transcripts. According to the structure of *Pknox2* gene, exon5 of *Pknox2-201* (ENSMUST00000039674.12) transcript is recommended as the knockout region. The region contains 140bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Pknox2* gene. The brief process is as follows: CRISPR/Cas9 system 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 will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

Notice

- The *Pknox2* gene is located on the Chr9. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Pknox2 Pbx/knotted 1 homeobox 2 [Mus musculus (house mouse)]

Gene ID: 208076, updated on 31-Jan-2019

Summary



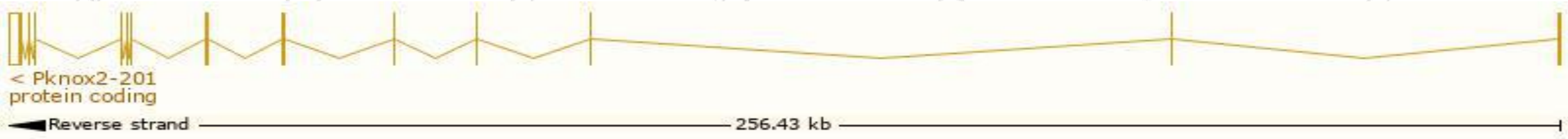
Official Symbol	Pknox2 provided by MGI
Official Full Name	Pbx/knotted 1 homeobox 2 provided by MGI
Primary source	MGI:MGI:2445415
See related	Ensembl:ENSMUSG00000035934
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	D230005H23Rik, Prep2
Expression	Biased expression in testis adult (RPKM 26.9), cortex adult (RPKM 10.3) and 14 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

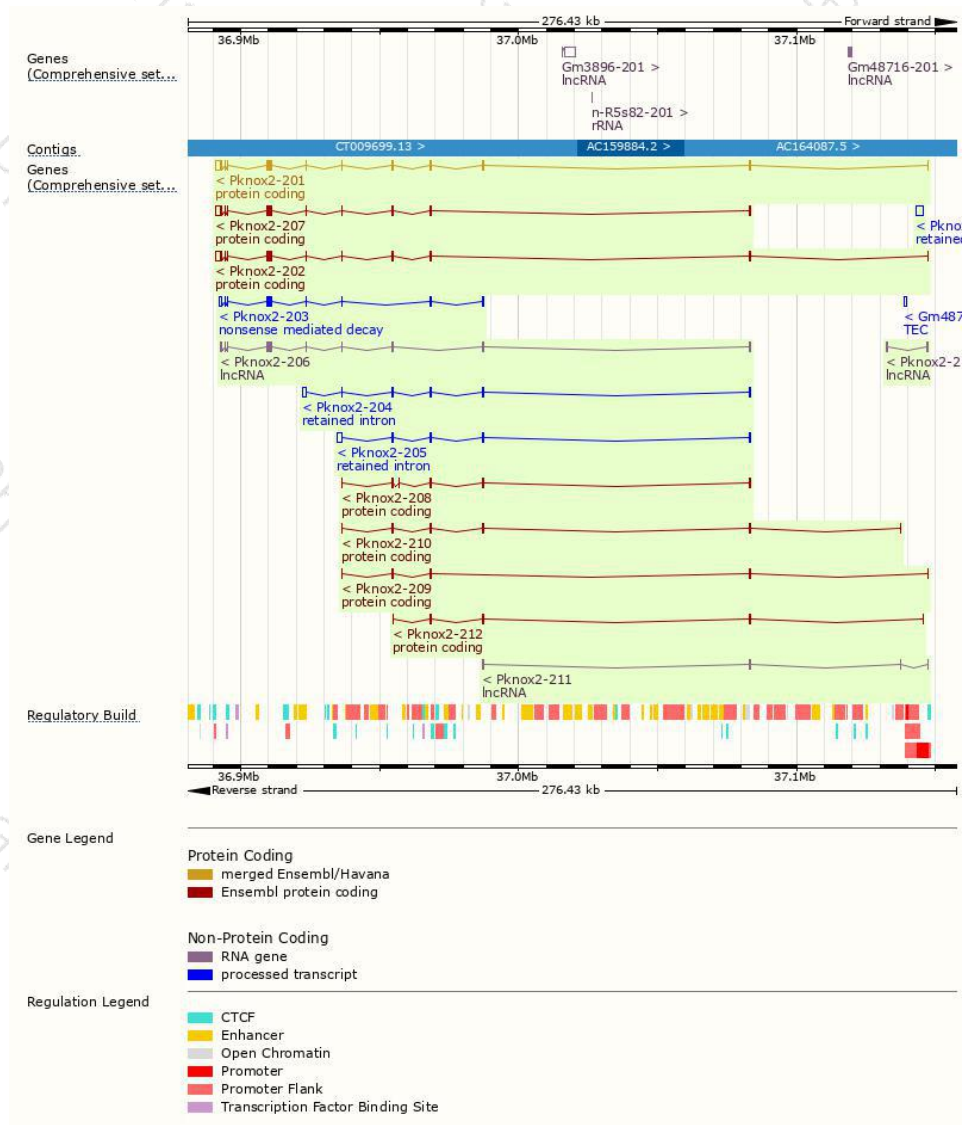
The gene has 14 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pknox2-201	ENSMUST00000039674.12	3632	474aa	Protein coding	CCDS22974	Q8BG99	TSL:1 GENCODE basic APPRIS P1
Pknox2-202	ENSMUST00000080754.11	3431	474aa	Protein coding	CCDS22974	Q8BG99	TSL:1 GENCODE basic APPRIS P1
Pknox2-207	ENSMUST00000177218.7	3393	474aa	Protein coding	CCDS22974	Q8BG99	TSL:1 GENCODE basic APPRIS P1
Pknox2-210	ENSMUST00000188348.6	700	93aa	Protein coding	-	A0A087WPZ3	CDS 3' incomplete TSL:3
Pknox2-208	ENSMUST00000177444.7	611	73aa	Protein coding	-	H3BL39	CDS 3' incomplete TSL:3
Pknox2-212	ENSMUST00000189294.6	456	49aa	Protein coding	-	A0A087WPD3	CDS 3' incomplete TSL:5
Pknox2-209	ENSMUST00000188057.6	439	88aa	Protein coding	-	A0A087WRV9	CDS 3' incomplete TSL:3
Pknox2-203	ENSMUST00000175938.8	1759	40aa	Nonsense mediated decay	-	V9GWW7	TSL:5
Pknox2-214	ENSMUST00000215175.1	2832	No protein	Retained intron	-	-	TSL:NA
Pknox2-205	ENSMUST00000176622.7	2266	No protein	Retained intron	-	-	TSL:2
Pknox2-204	ENSMUST00000176562.7	2029	No protein	Retained intron	-	-	TSL:2
Pknox2-206	ENSMUST00000177080.7	1699	No protein	lncRNA	-	-	TSL:5
Pknox2-213	ENSMUST00000213653.1	657	No protein	lncRNA	-	-	TSL:5
Pknox2-211	ENSMUST00000188433.1	406	No protein	lncRNA	-	-	TSL:2

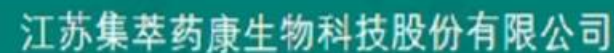
The strategy is based on the design of *Pknox2-201* transcript,The transcription is shown below



Genomic location distribution



集萃药康
GemPharmatech



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

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