

Kcp Cas9-KO Strategy

Designer:

Huan Fan

Reviewer:

Huan Wang

Design Date:

2020-4-8

Project Overview

Project Name

Kcp

Project type

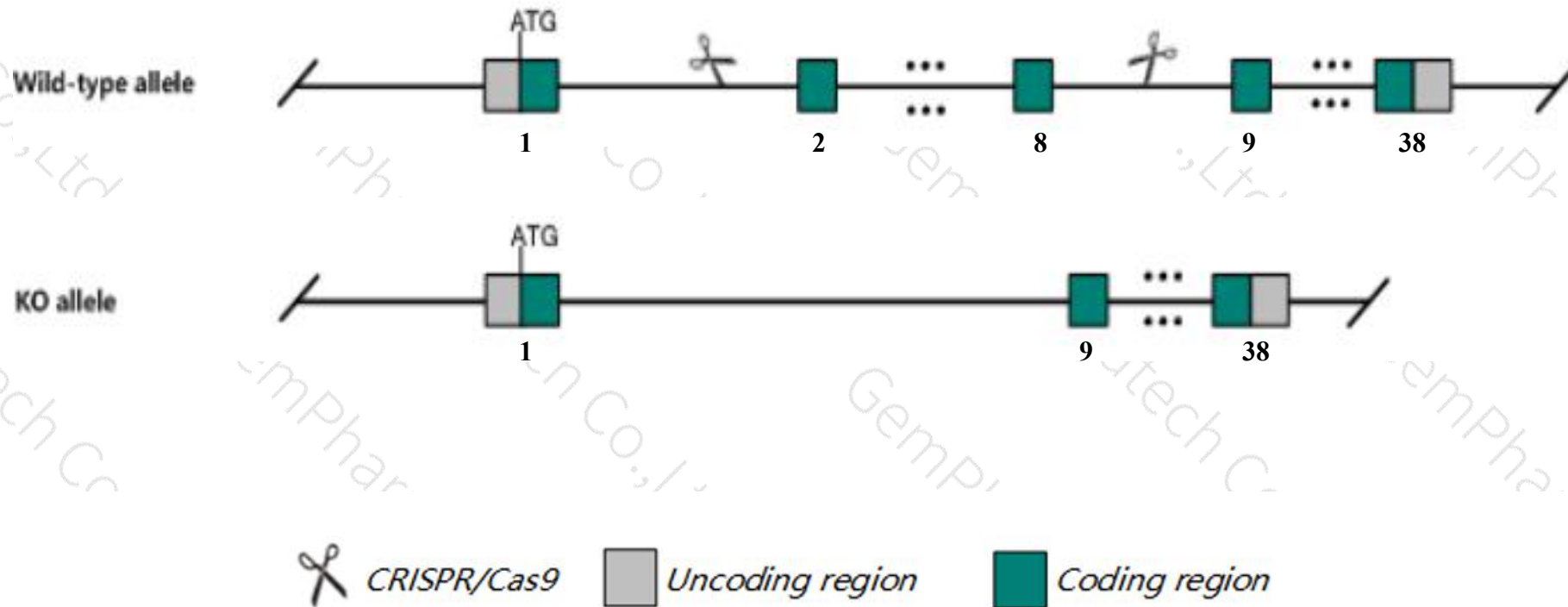
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Kcp* gene has 10 transcripts. According to the structure of *Kcp* gene, exon2-exon8 of *Kcp*-203 (ENSMUST00000101614.9) transcript is recommended as the knockout region. The region contains 773bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Kcp* gene. The brief process is as follows: CRISPR/Cas9 system w

- According to the existing MGI data, Homozygous null mice display increased sensitivity to renal injury.
- *Kcp-205* will not be affected.
- The *Kcp* gene is located on the Chr6. 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)

Kcp kielin/chordin-like protein [Mus musculus (house mouse)]

Gene ID: 333088, updated on 13-Mar-2020

Summary



Official Symbol	Kcp provided by MGI
Official Full Name	kielin/chordin-like protein provided by MGI
Primary source	MGI:MGI:2141640
See related	Ensembl:ENSMUSG00000059022
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	AW060220, CRIM-2, Crim2, Gm793, KCP-1
Expression	Broad expression in limb E14.5 (RPKM 11.6), ovary adult (RPKM 5.1) and 16 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

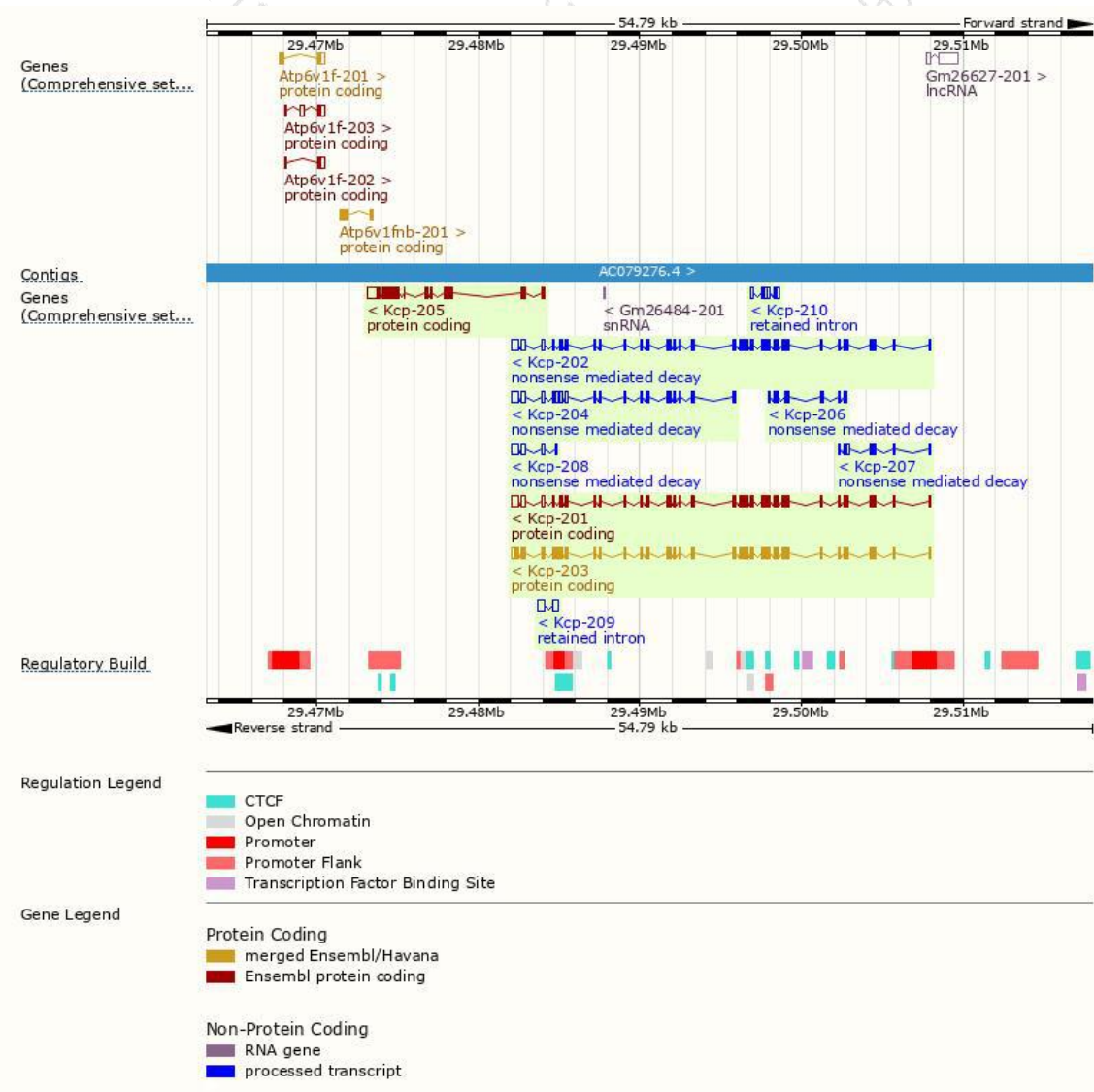
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Kcp-203	ENSMUST00000101614.9	4885	1550aa	Protein coding	CCDS57415	Q3U492	TSL:1 GENCODE basic APPRIS P1
Kcp-201	ENSMUST00000078112.12	4775	1255aa	Protein coding	-	Q3U492	TSL:5 GENCODE basic
Kcp-205	ENSMUST00000159482.8	2742	728aa	Protein coding	-	-	CDS 5' incomplete TSL:1
Kcp-202	ENSMUST00000091391.10	4758	1254aa	Nonsense mediated decay	-	E9QNB3	TSL:2
Kcp-204	ENSMUST00000159479.7	2676	359aa	Nonsense mediated decay	-	F6UH68	CDS 5' incomplete TSL:1
Kcp-208	ENSMUST00000161276.7	971	19aa	Nonsense mediated decay	-	F7DED4	CDS 5' incomplete TSL:1
Kcp-207	ENSMUST00000161237.1	845	165aa	Nonsense mediated decay	-	E0CYL0	TSL:5
Kcp-206	ENSMUST00000160181.1	802	91aa	Nonsense mediated decay	-	F7B5X1	CDS 5' incomplete TSL:3
Kcp-209	ENSMUST00000161655.1	760	No protein	Retained intron	-	-	TSL:3
Kcp-210	ENSMUST00000162959.7	747	No protein	Retained intron	-	-	TSL:3

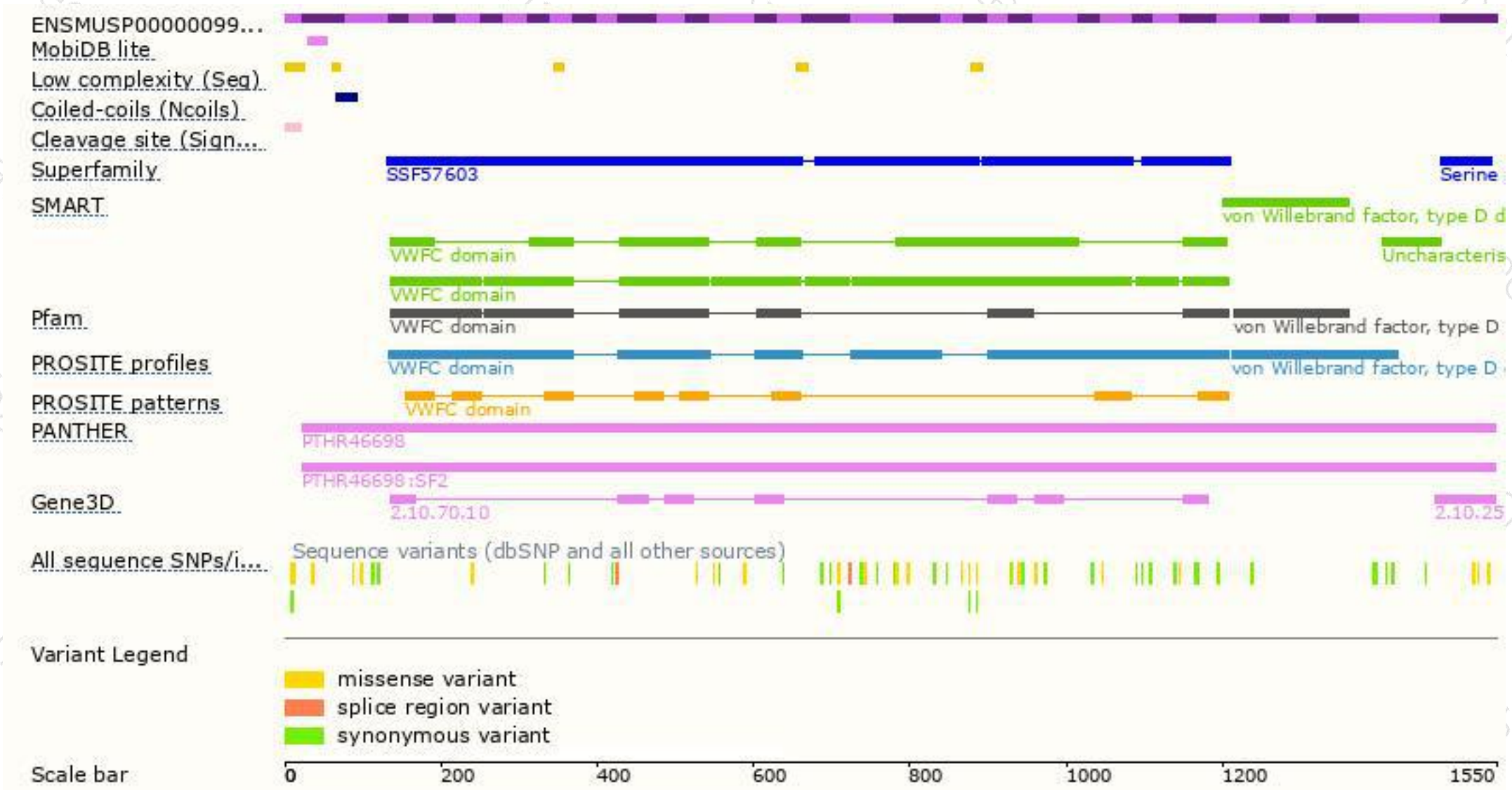
The strategy is based on the design of *Kcp-203* transcript,The transcription is shown below



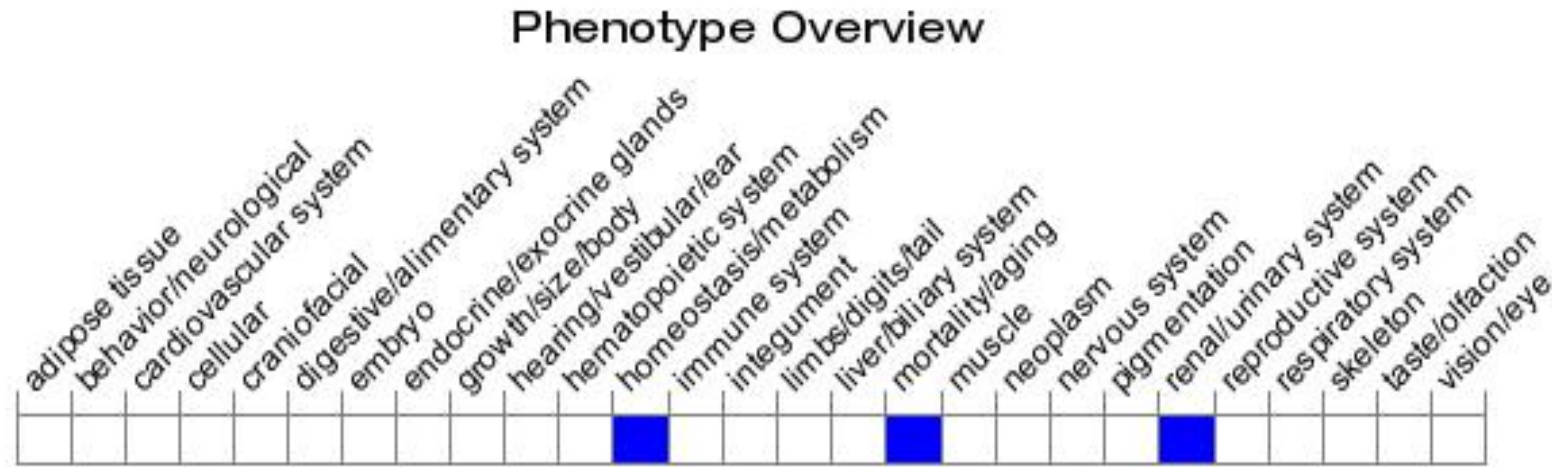
Genomic location distribution



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 null mice display increased sensitivity to renal injury.

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

Tel: 400-9660890

