

***Kctd3* Cas9-CKO Strategy**

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Project Overview

Project Name

Kctd3

Project type

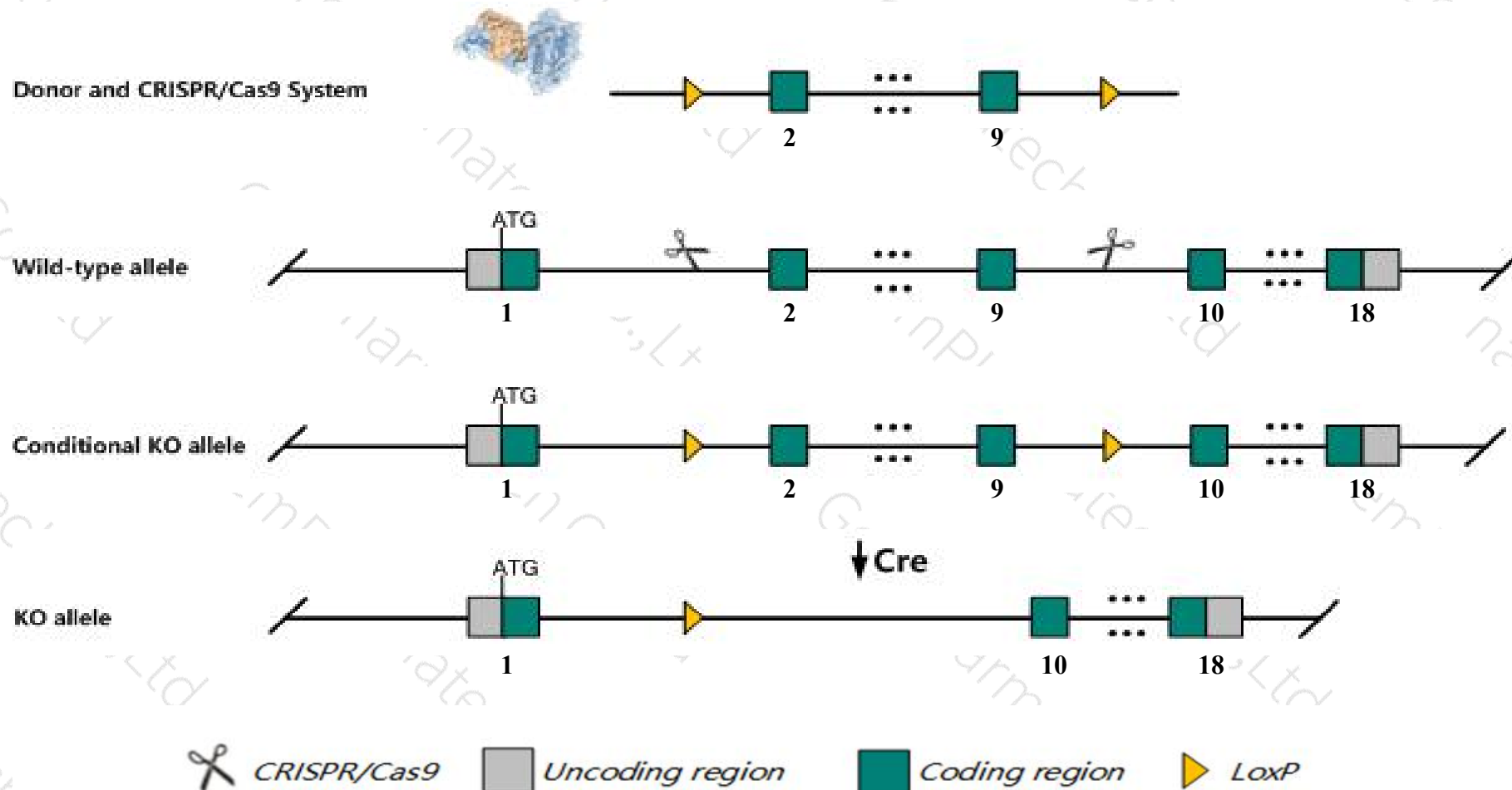
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Kctd3* gene. The schematic diagram is as follows:



Technical routes

- The *Kctd3* gene has 10 transcripts. According to the structure of *Kctd3* gene, exon2-exon9 of *Kctd3*-201 (ENSMUST00000085678.7) transcript is recommended as the knockout region. The region contains 737bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Kctd3* 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.

- Transcripts 202,206,207,209 may not be affected. The effect of transcripts 203, 208 is unknown.
- The *Kctd3* gene is located on the Chr1. 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)

Kctd3 potassium channel tetramerisation domain containing 3 [*Mus musculus* (house mouse)]

Gene ID: 226823, updated on 12-Aug-2019

Summary

Official Symbol	Kctd3 provided by MGI
Official Full Name	potassium channel tetramerisation domain containing 3 provided by MGI
Primary source	MGI:MGI:2444629
See related	Ensembl:ENSMUSG000000026608
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	NY-REN-45; 9330185B06; 4930438A20Rik; E330032J19Rik
Expression	Ubiquitous expression in CNS E18 (RPKM 20.9), CNS E14 (RPKM 16.1) and 28 other tissues See more
Orthologs	human all

Genomic context

Location: 1; 1 H6

Exon count: 20

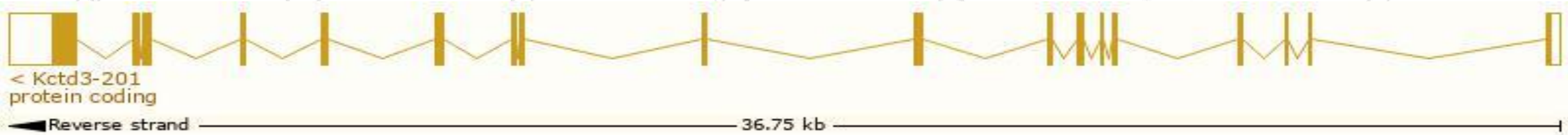
See Kctd3 in [Genome Data Viewer](#)

Transcript information (Ensembl)

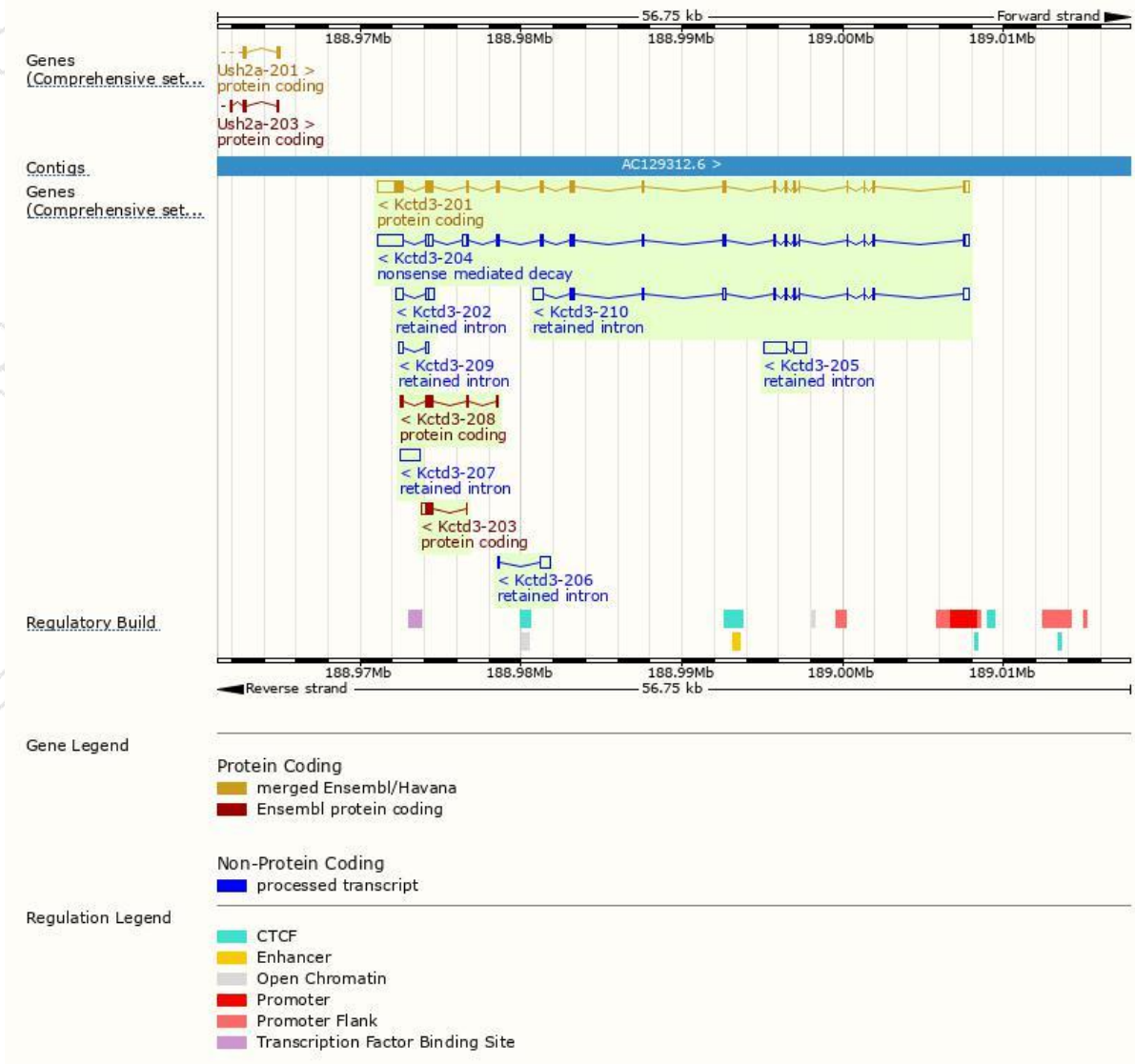
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Kctd3-201	ENSMUST00000085678.7	3706	815aa	Protein coding	CCDS15608	Q8BFX3	TSL:1 GENCODE basic APPRIS P1
Kctd3-208	ENSMUST00000195658.1	725	242aa	Protein coding	-	A0A0A6YX69	5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete TSL:3
Kctd3-203	ENSMUST00000192458.2	630	127aa	Protein coding	-	A0A338P7C2	CDS 5' incomplete TSL:3
Kctd3-204	ENSMUST00000193143.5	3934	522aa	Nonsense mediated decay	-	A0A0A6YX67	TSL:5
Kctd3-205	ENSMUST00000193273.1	2207	No protein	Retained intron	-	-	TSL:1
Kctd3-210	ENSMUST00000195787.1	1967	No protein	Retained intron	-	-	TSL:1
Kctd3-207	ENSMUST00000195488.1	1221	No protein	Retained intron	-	-	TSL:NA
Kctd3-202	ENSMUST00000192200.1	908	No protein	Retained intron	-	-	TSL:2
Kctd3-206	ENSMUST00000193590.1	688	No protein	Retained intron	-	-	TSL:2
Kctd3-209	ENSMUST00000195745.1	495	No protein	Retained intron	-	-	TSL:2

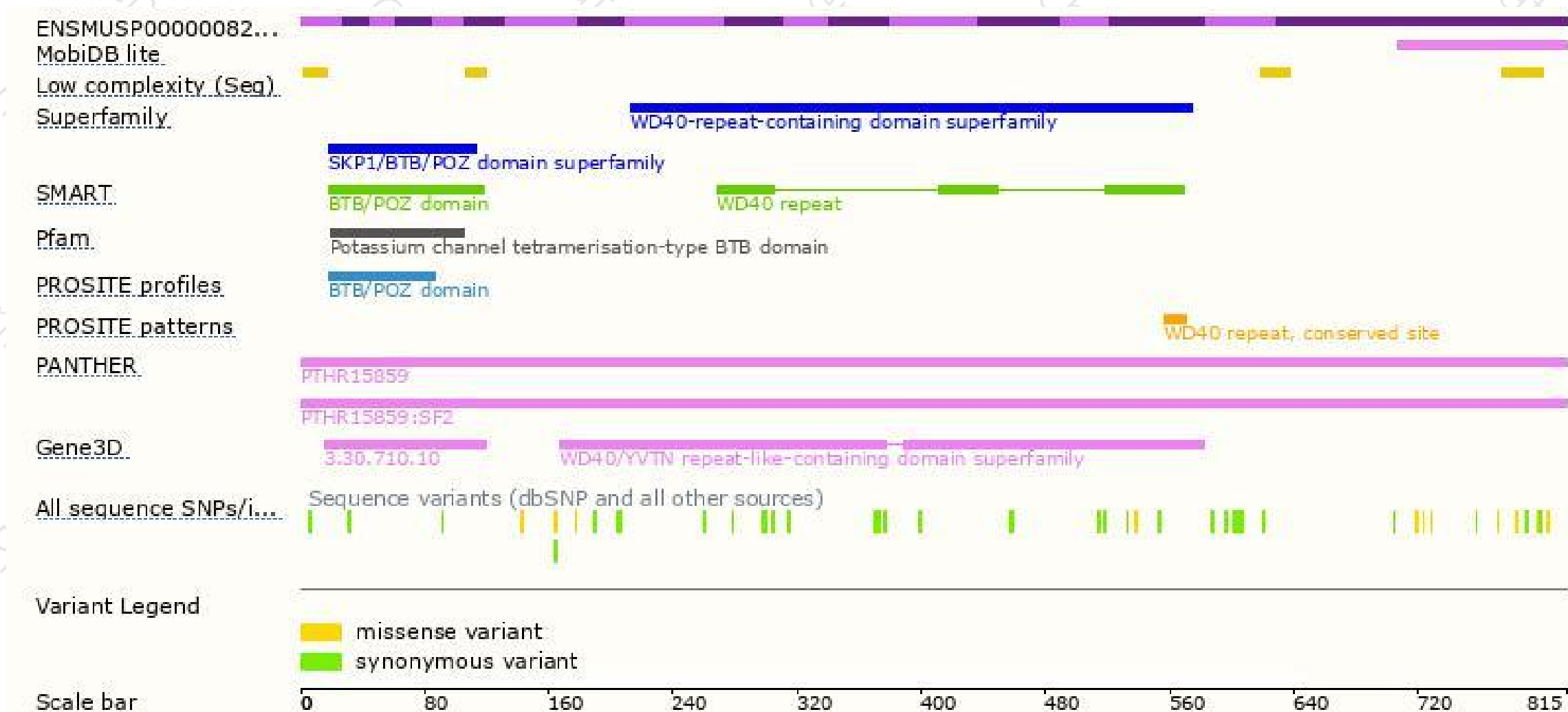
The strategy is based on the design of *Kctd3-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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