

Unkl Cas9-CKO Strategy

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Design Date: 2021-7-9

Project Overview

Project Name

Unkl

Project type

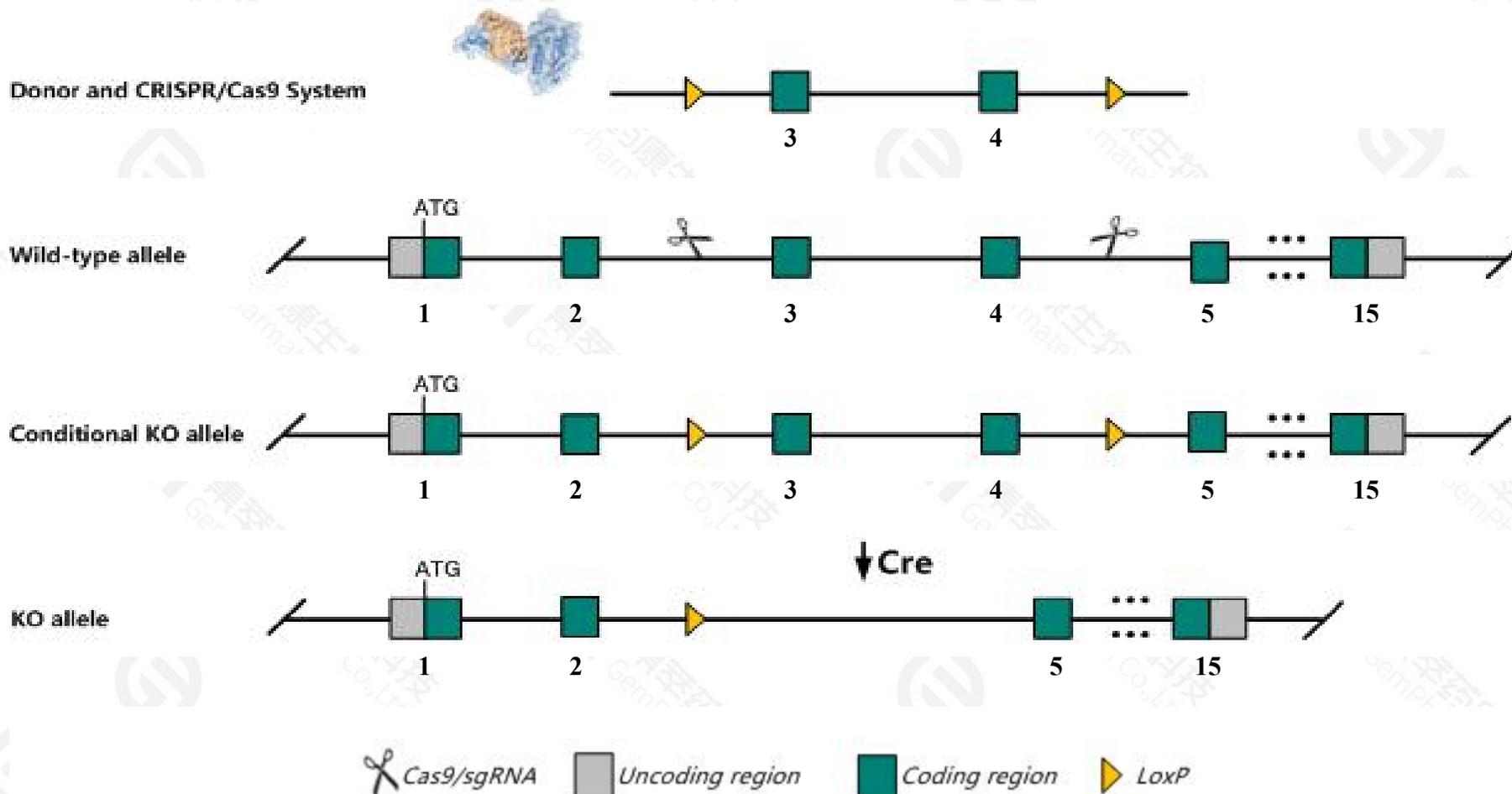
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



- The *Unkl* gene has 7 transcripts. According to the structure of *Unkl* gene, exon3-exon4 of *Unkl-202*(ENSMUST00000039734.12) transcript is recommended as the knockout region. The region contains 311bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Unkl* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor 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 and cell types.

- The *Unkl* gene is located on the Chr17. 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.
- Transcript *Unkl-201&206* may not be affected.
- 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)

Unkl unkempt family like zinc finger [Mus musculus (house mouse)]

Gene ID: 74154, updated on 17-Dec-2020

Summary



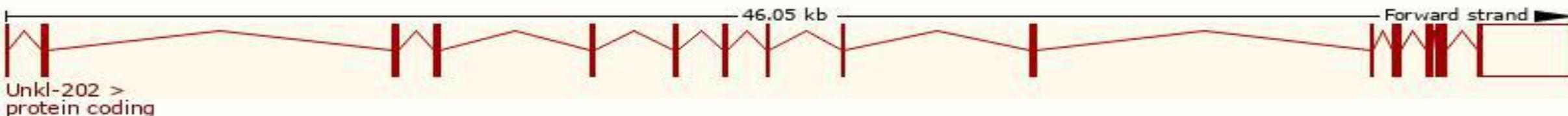
Official Symbol	Unkl provided by MGI
Official Full Name	unkempt family like zinc finger provided by MGI
Primary source	MGI:MGI:1921404
See related	Ensembl:ENSMUSG00000015127
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1300004G08Rik
Expression	Ubiquitous expression in thymus adult (RPKM 12.9), liver E14.5 (RPKM 10.6) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

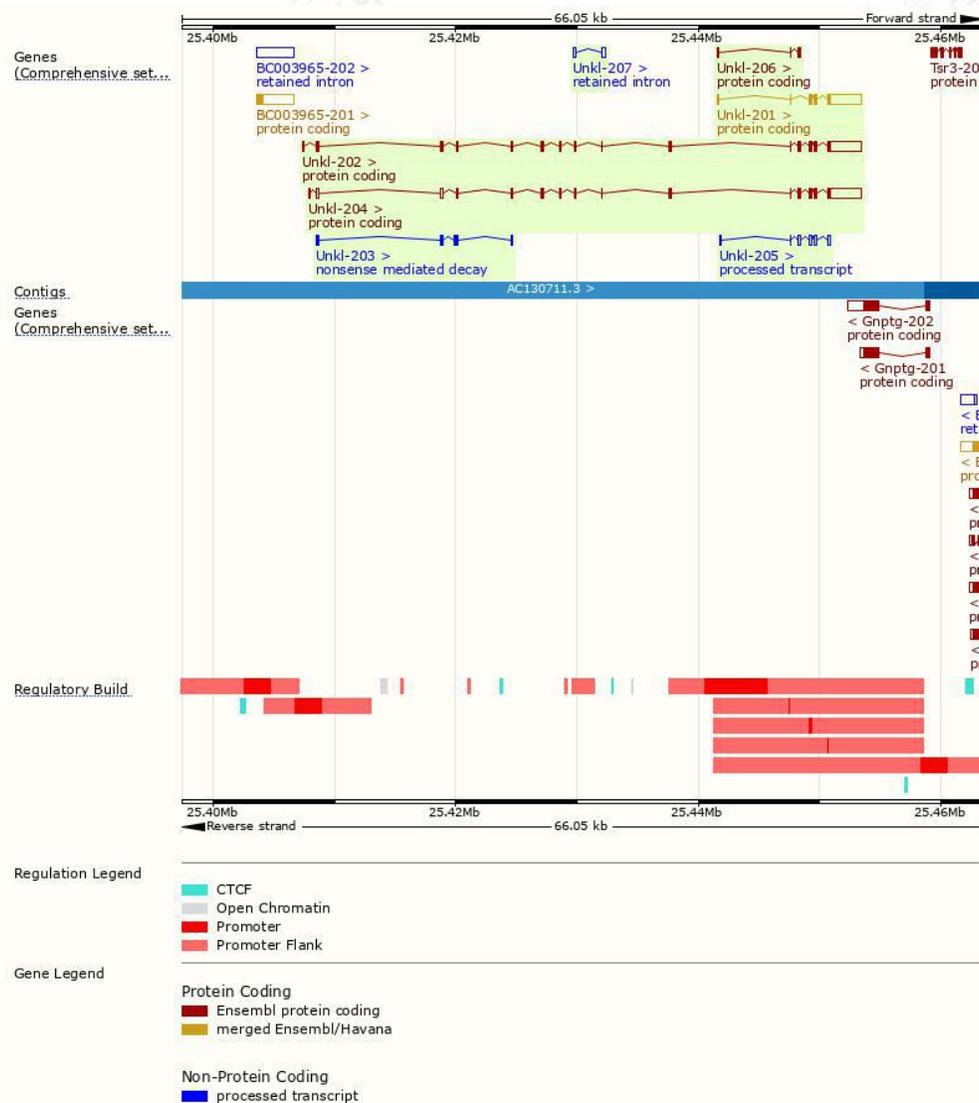
The gene has 7 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Unkl-204	ENSMUST00000160896.8	4787	541aa	<u>Protein coding</u>	CCDS70769		TSL:1 , GENCODE basic ,
Unkl-202	ENSMUST00000039734.12	4779	727aa	<u>Protein coding</u>	CCDS57058		TSL:5 , GENCODE basic , APPRIS P1 ,
Unkl-201	ENSMUST00000015271.12	3414	239aa	<u>Protein coding</u>	CCDS28510		TSL:1 , GENCODE basic ,
Unkl-206	ENSMUST00000162498.8	487	108aa	<u>Protein coding</u>	-		CDS 3' incomplete , TSL:3 ,
Unkl-203	ENSMUST00000160785.2	745	134aa	<u>Nonsense mediated decay</u>	-		CDS 5' incomplete , TSL:3 ,
Unkl-205	ENSMUST00000161679.2	1053	No protein	<u>Processed transcript</u>	-		TSL:5 ,
Unkl-207	ENSMUST00000162838.2	534	No protein	<u>Retained intron</u>	-		TSL:3 ,

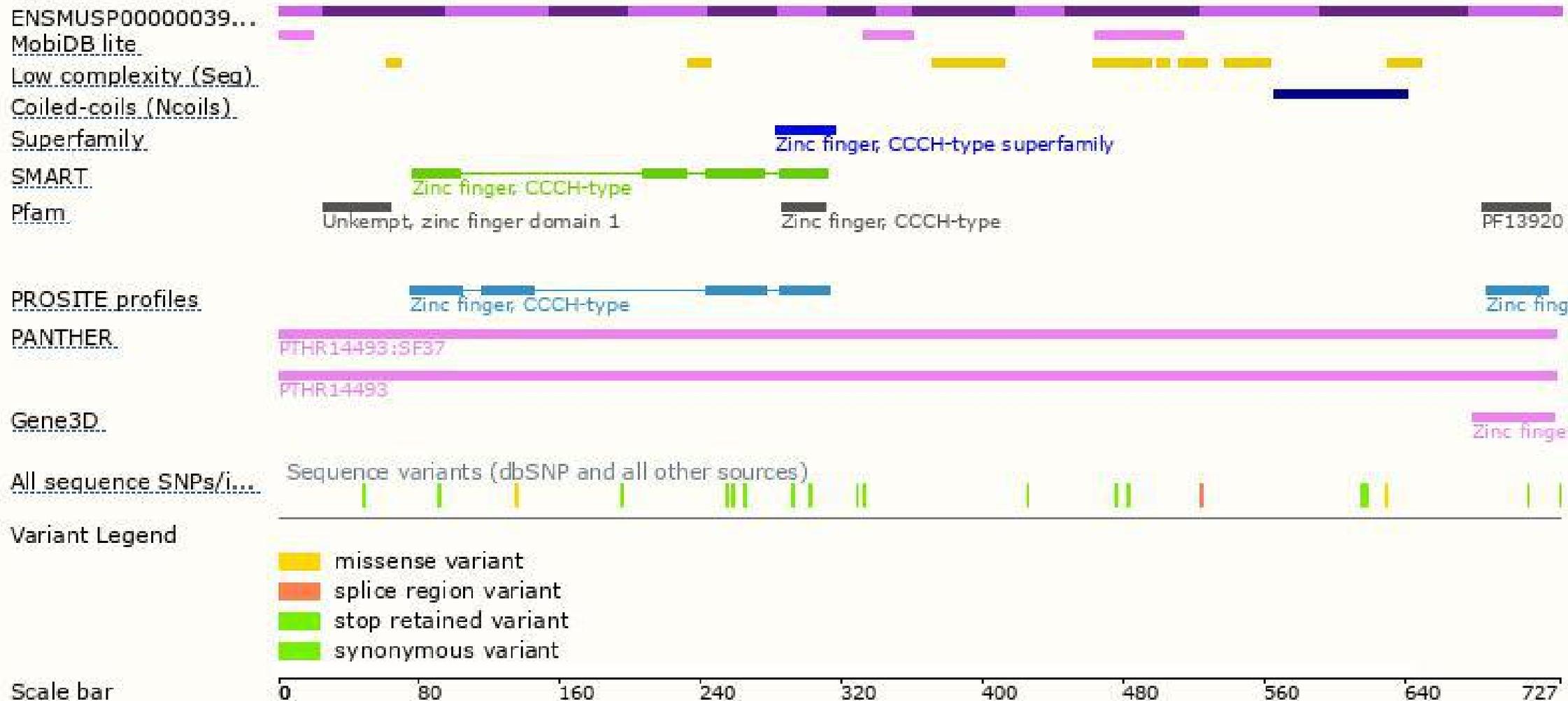
The strategy is based on the design of *Unkl-202* transcript, the transcription is shown below:



Genomic location distribution



Protein domain



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

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