

***Klk12* Cas9-CKO Strategy**

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Design Date: 2020-10-14

Project Overview

Project Name

Klk12

Project type

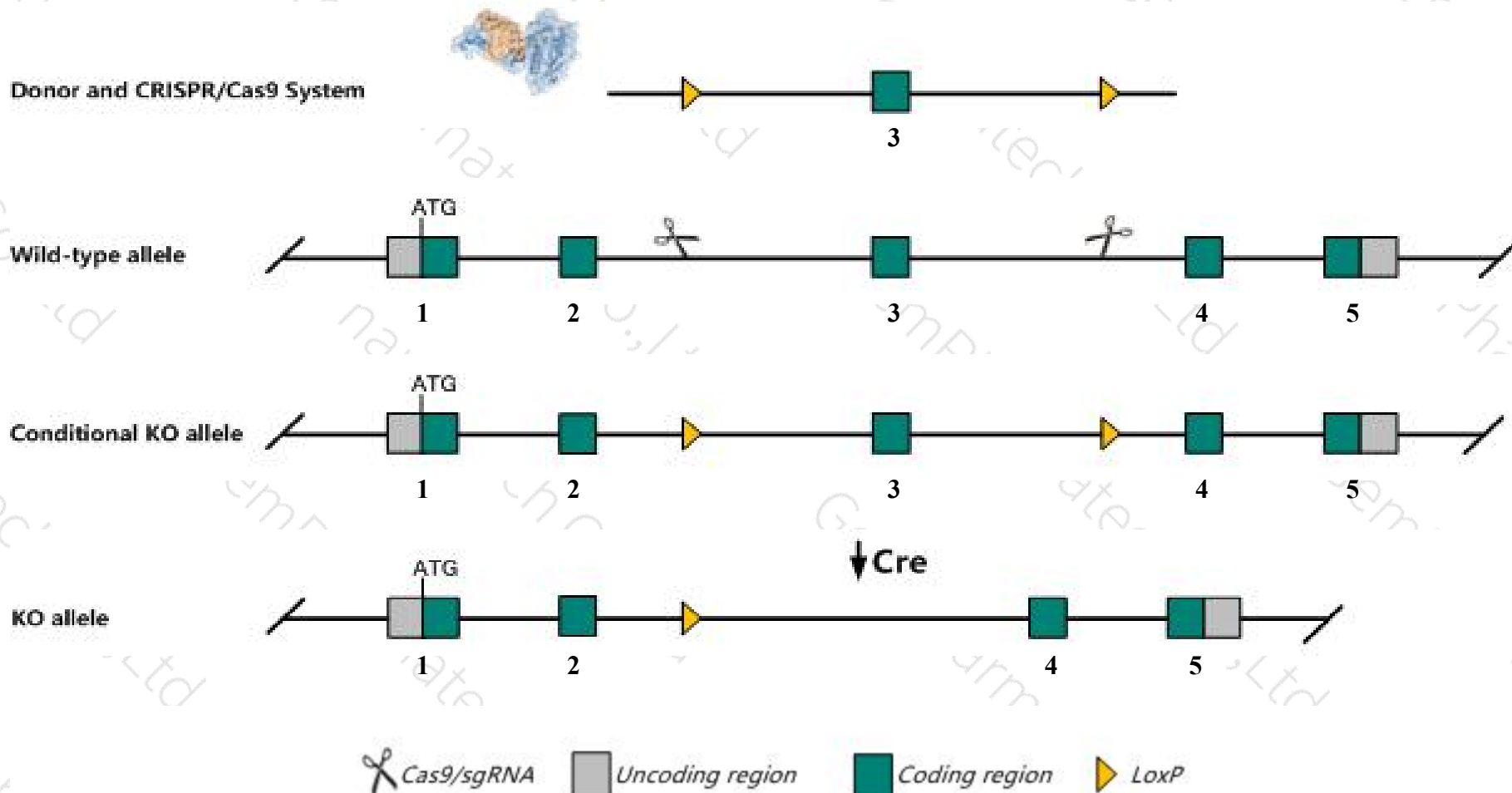
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Klk12* gene. The schematic diagram is as follows:



Technical routes

- The *Klk12* gene has 2 transcripts. According to the structure of *Klk12* gene, exon3 of *Klk12-201*(ENSMUST00000014063.5) transcript is recommended as the knockout region. The region contains 257bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Klk12* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector 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 *Klk12* gene is located on the Chr7. 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.
- Knockout of the target region may affect the 5-terminal regulatory function of *Klk11*.
- The knockout region overlapped with the intron of 2310002F09Rik-201. Knockout the region may affect the function of 2310002F09Rik-201 gene.
- 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)

Klk12 kallikrein related-peptidase 12 [Mus musculus (house mouse)]

Gene ID: 69511, updated on 13-Mar-2020

Summary



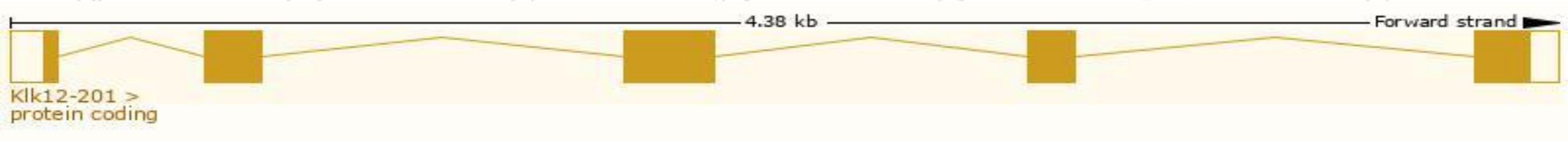
Official Symbol	Klk12 provided by MGI
Official Full Name	kallikrein related-peptidase 12 provided by MGI
Primary source	MGI:MGI:1916761
See related	Ensembl:ENSMUSG00000044430
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2310008B01Rik, AI324852, KLK-L5
Expression	Low expression observed in reference dataset See more
Orthologs	human all

Transcript information (Ensembl)

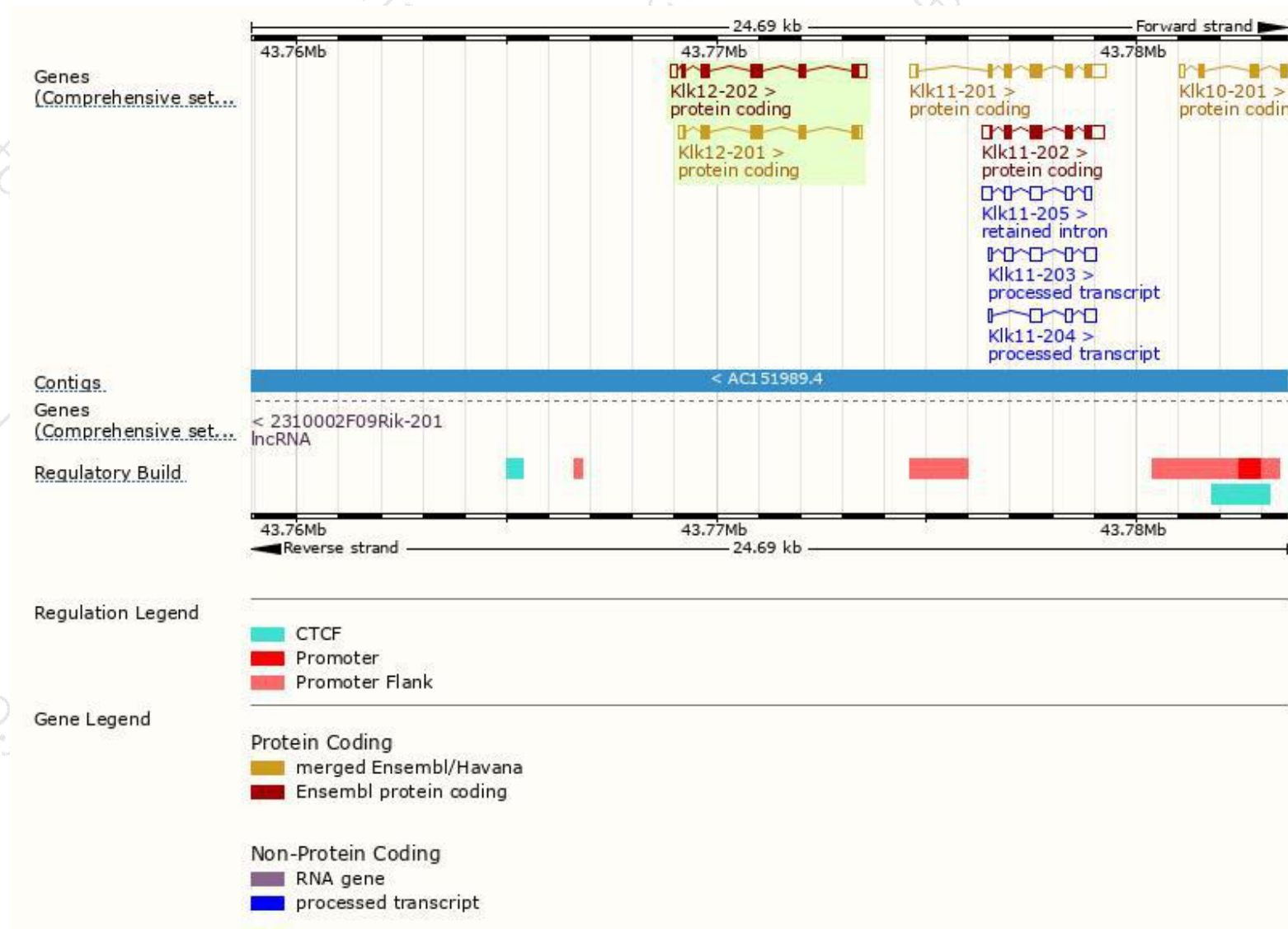
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Klk12-202	ENSMUST00000107970.7	1115	247aa	Protein coding	CCDS52226	B2RVZ0	TSL:5 GENCODE basic APPRIS P1
Klk12-201	ENSMUST0000014063.5	924	247aa	Protein coding	CCDS52226	B2RVZ0	TSL:1 GENCODE basic APPRIS P1

The strategy is based on the design of *Klk12-201* 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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