

Loxl4 Cas9-CKO Strategy

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Project Overview

Project Name

Loxl4

Project type

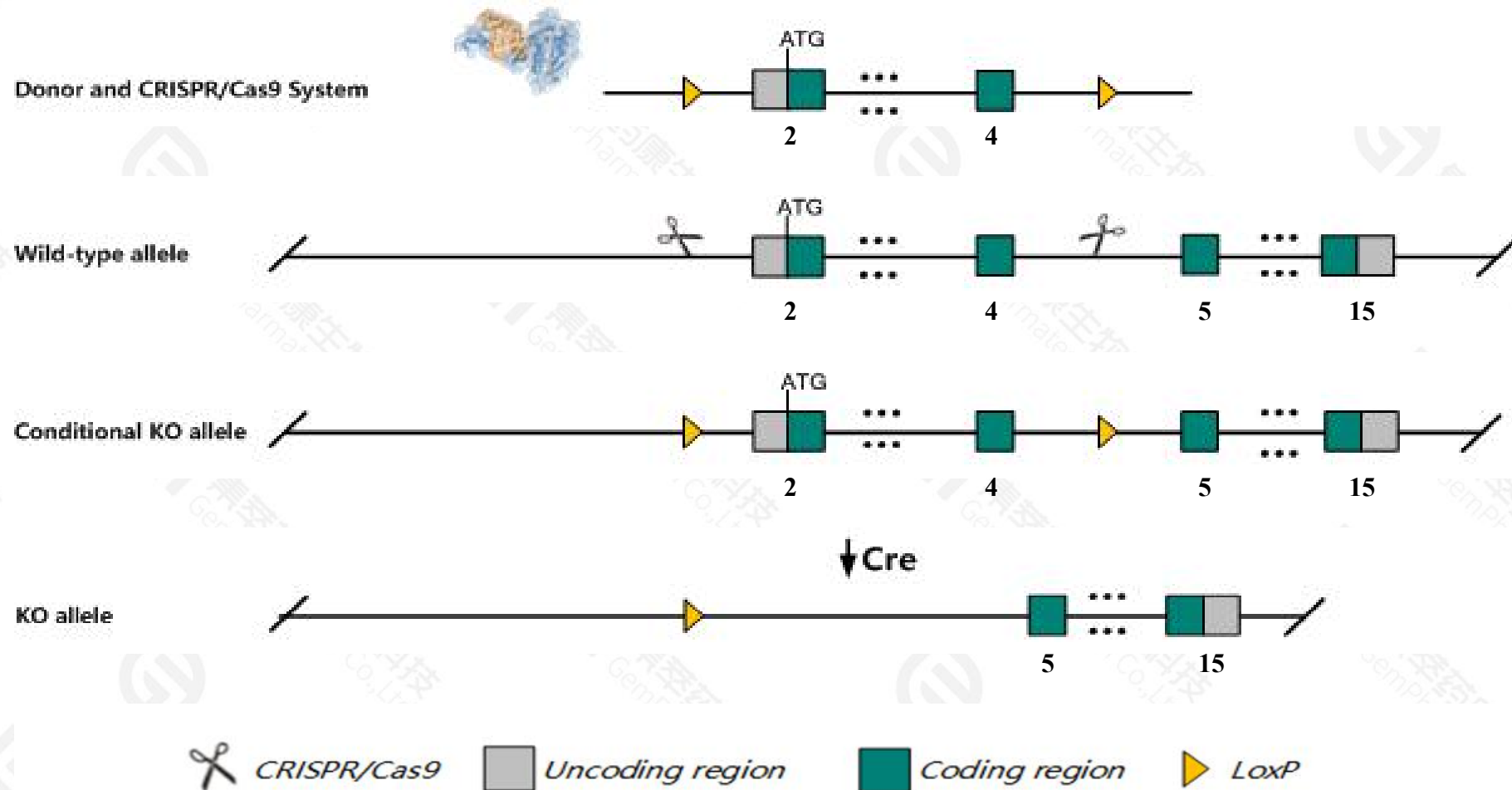
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Loxl4* gene. The schematic diagram is as follows:



- The *Loxl4* gene has 5 transcripts. According to the structure of *Loxl4* gene, exon2-exon4 of *Loxl4*-203(ENSMUST00000164786.8) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Loxl4* 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.

- The *Loxl4* gene is located on the Chr19. 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)

Loxl4 lysyl oxidase-like 4 [Mus musculus (house mouse)]

Gene ID: 67573, updated on 14-Jan-2021

Summary



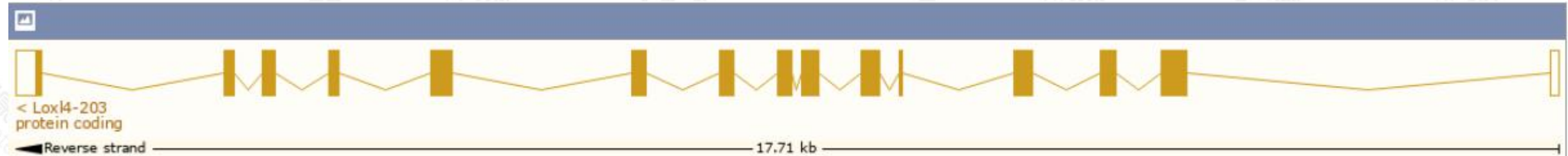
Official Symbol	Loxl4 provided by MGI
Official Full Name	lysyl oxidase-like 4 provided by MGI
Primary source	MGI:MGI:1914823
See related	Ensembl:ENSMUSG00000025185
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	4833426I20Rik, Loxc
Expression	Broad expression in limb E14.5 (RPKM 3.3), bladder adult (RPKM 3.2) and 19 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

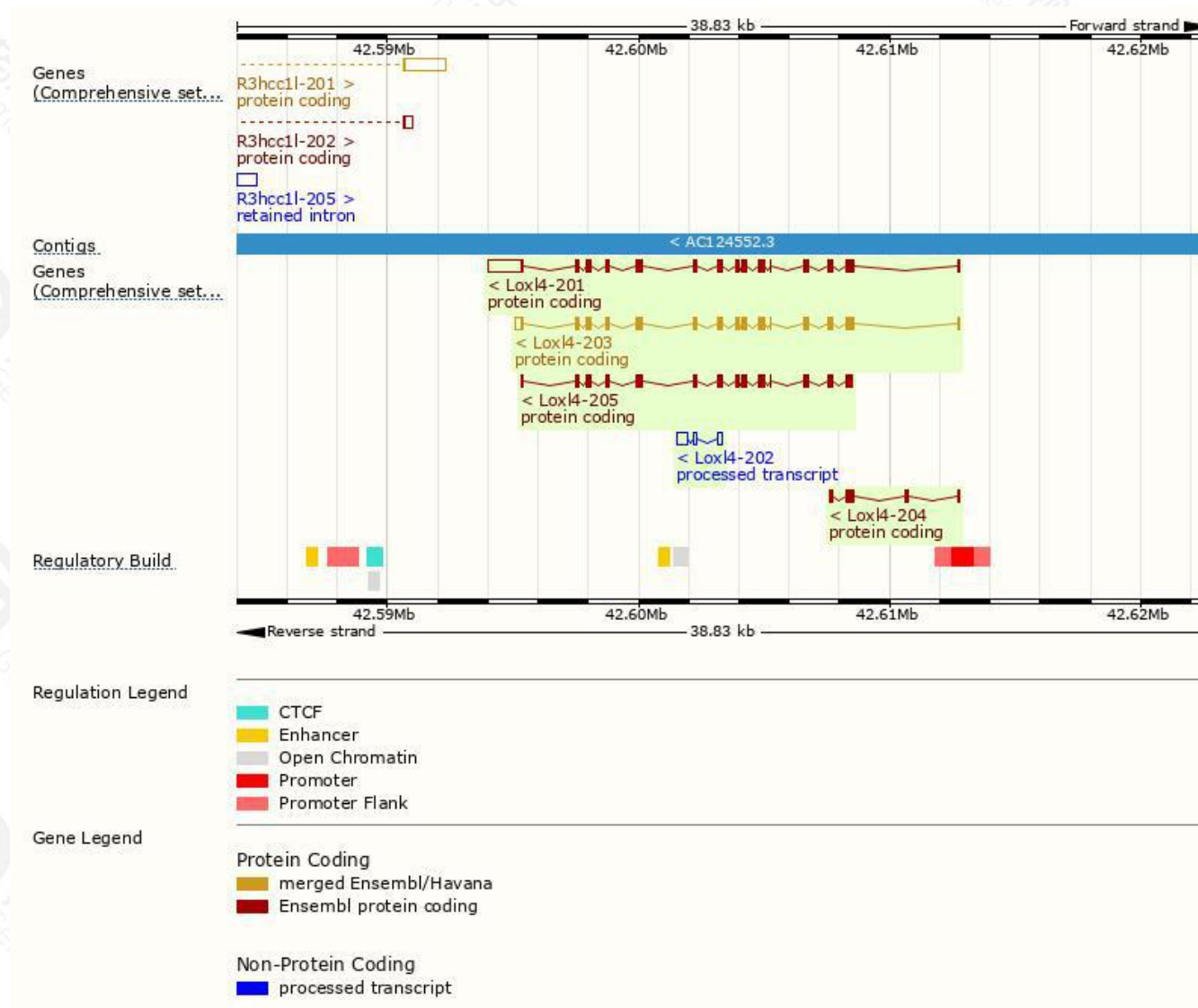
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Loxl4-201	ENSMUST00000026190.14	3738	757aa	Protein coding	CCDS29830		TSL:1 , GENCODE basic , APPRIS P3 ,
Loxl4-203	ENSMUST00000164786.8	2617	758aa	Protein coding	CCDS50441		TSL:1 , GENCODE basic , APPRIS ALT2 ,
Loxl4-205	ENSMUST00000171432.2	2274	757aa	Protein coding	CCDS29830		TSL:1 , GENCODE basic , APPRIS P3 ,
Loxl4-204	ENSMUST00000166128.2	570	147aa	Protein coding	-		CDS 3' incomplete , TSL:3 ,
Loxl4-202	ENSMUST00000164014.2	675	No protein	Processed transcript	-		TSL:3 ,

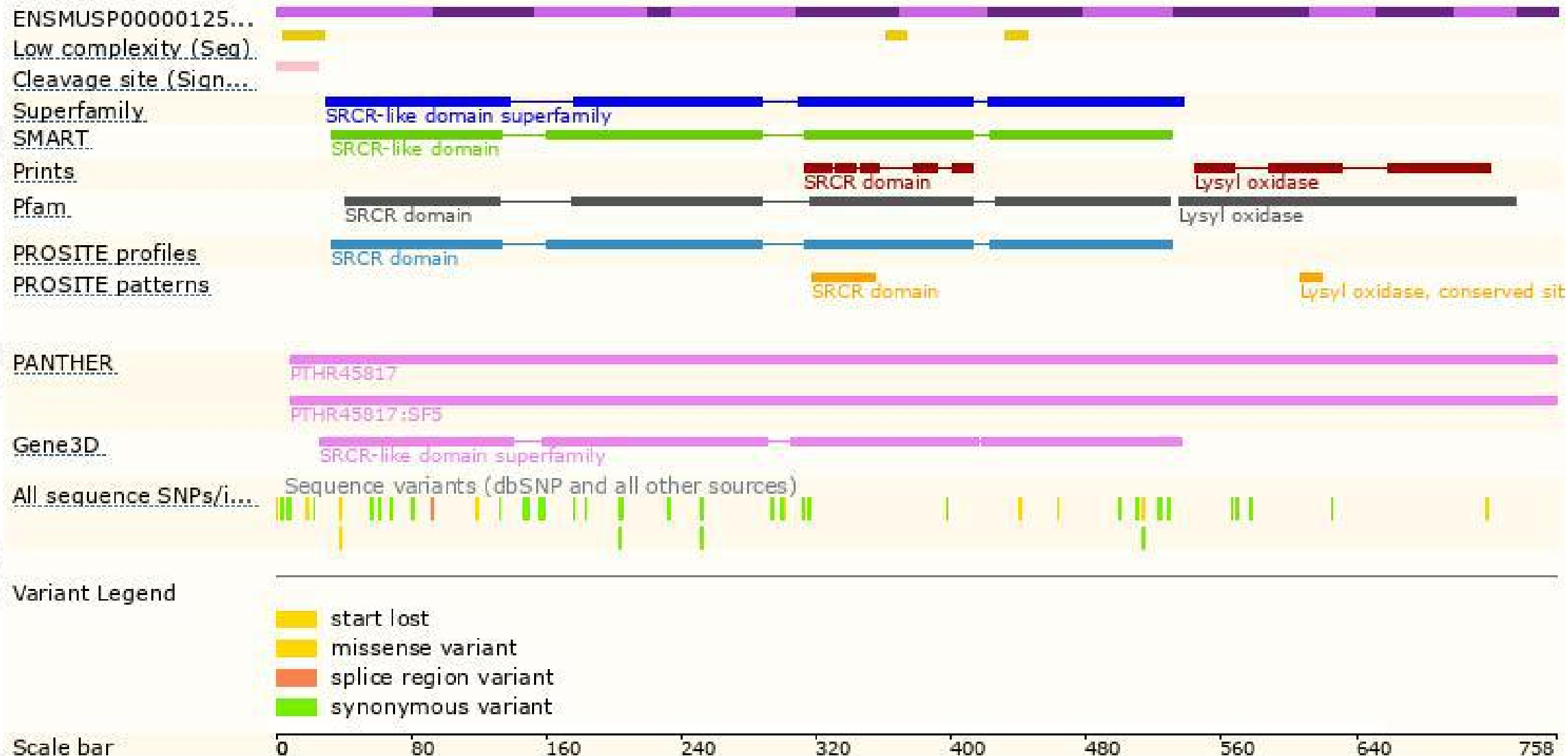
The strategy is based on the design of *Loxl4-203* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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