

Mtrex Cas9-CKO Strategy

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Reviewer:

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Design Date:

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Project Overview

Project Name

Mtrex

Project type

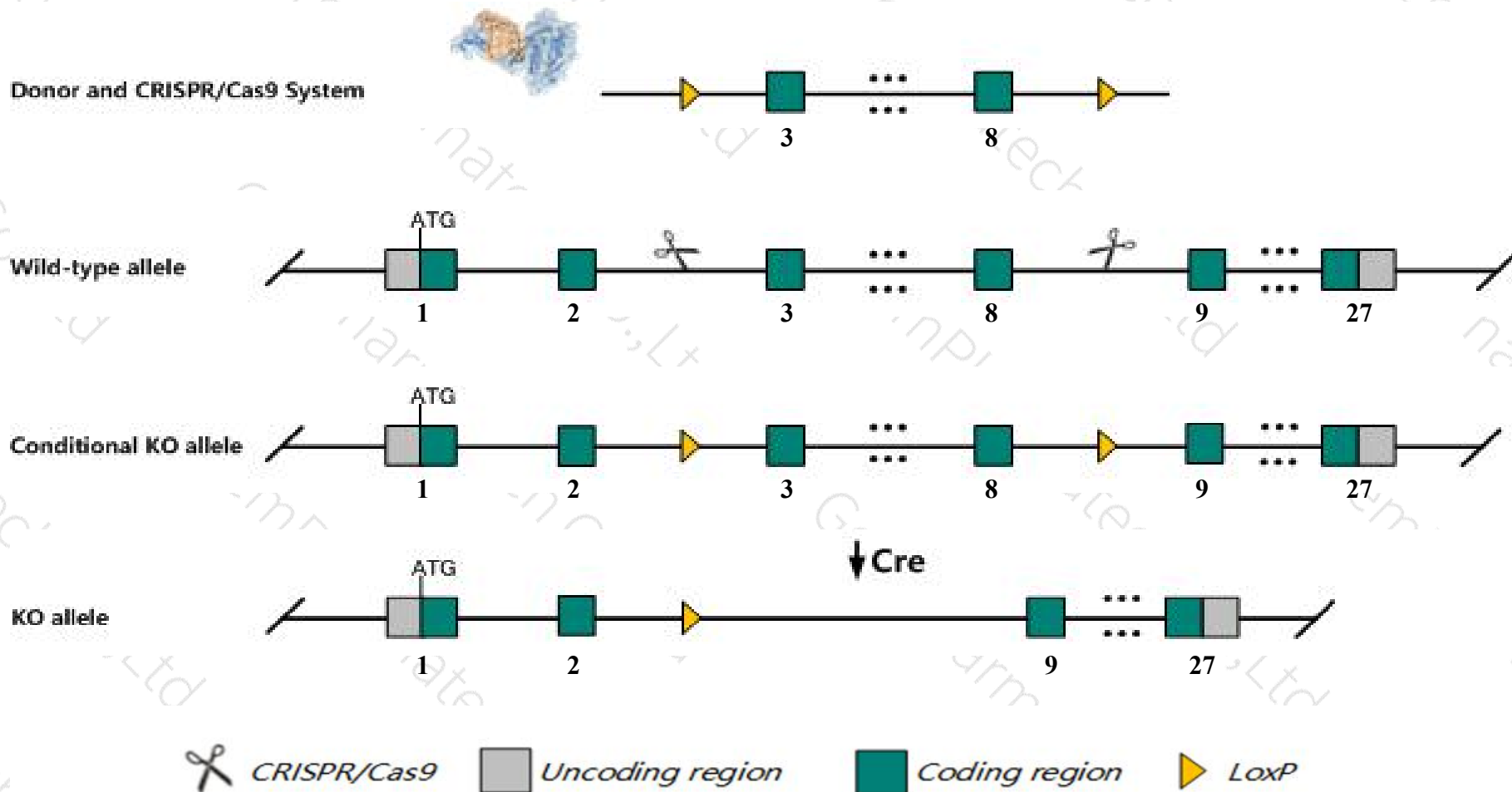
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



- The *Mtrex* gene has 6 transcripts. According to the structure of *Mtrex* gene, exon3-exon8 of *Mtrex-201* (ENSMUST00000022281.4) transcript is recommended as the knockout region. The region contains 634bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Mtrex* 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.

Notice

- The *Mtrex* gene is located on the Chr13. 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)

Mtrex Mtr4 exosome RNA helicase [Mus musculus (house mouse)]

Gene ID: 72198, updated on 31-Jan-2019

Summary



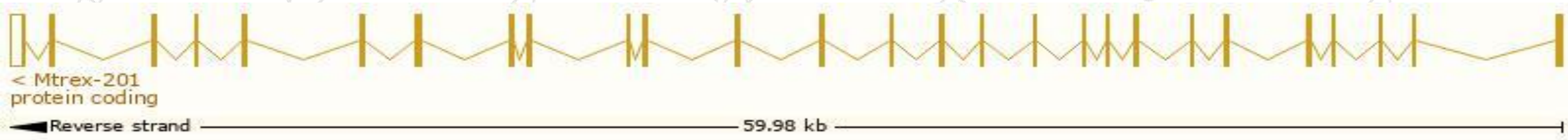
Official Symbol	Mtrex provided by MGI
Official Full Name	Mtr4 exosome RNA helicase provided by MGI
Primary source	MGI:MGI:1919448
See related	Ensembl:ENSMUSG00000016018
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2610528A15Rik, Skiv2l2, mKIAA0052
Expression	Broad expression in CNS E11.5 (RPKM 25.7), CNS E14 (RPKM 16.5) and 24 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

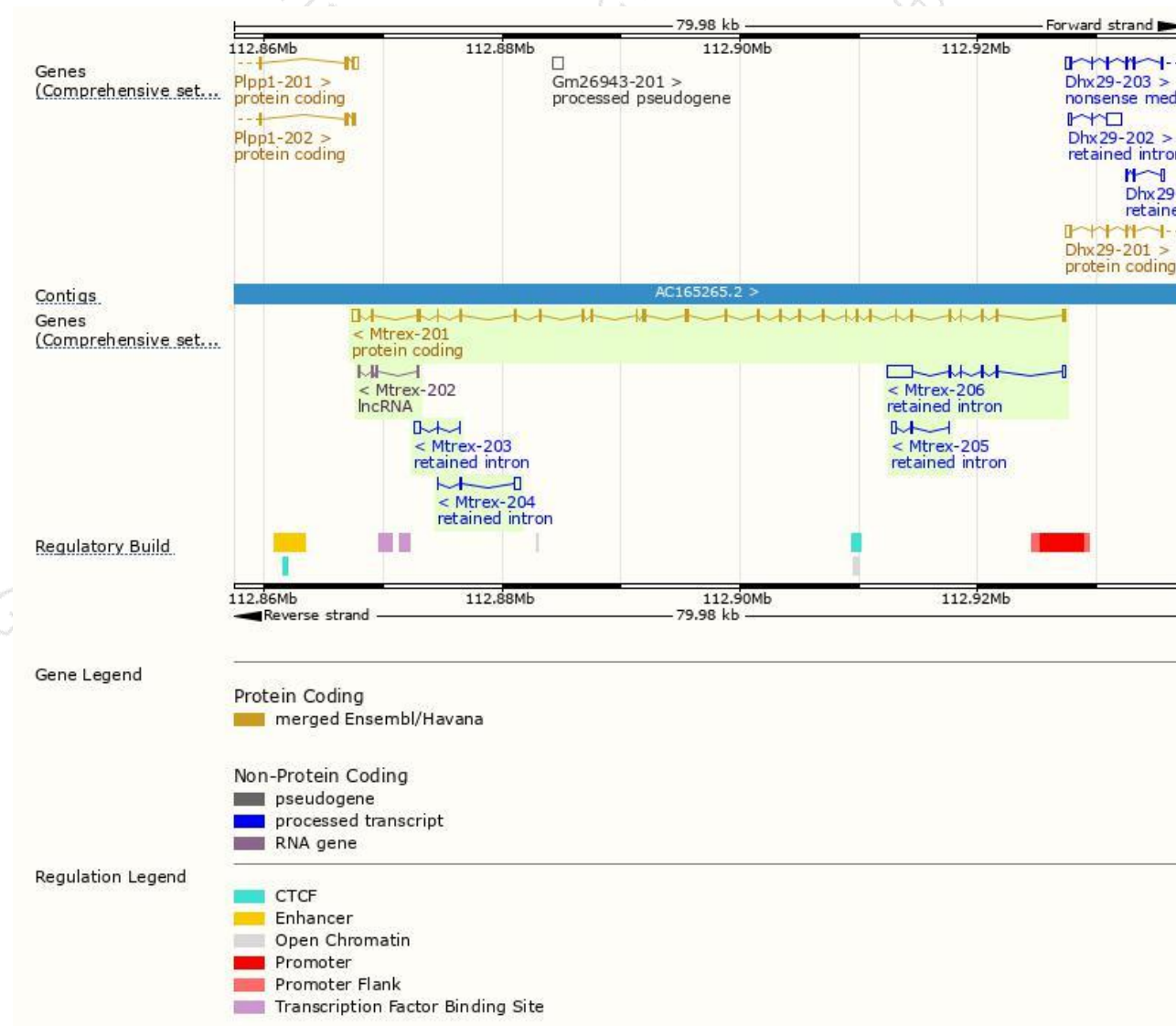
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mtrex-201	ENSMUST00000022281.4	3689	1040aa	Protein coding	CCDS26778	Q9CZU3	TSL:1 GENCODE basic APPRIS P1
Mtrex-206	ENSMUST000000225997.1	2673	No protein	Retained intron	-	-	
Mtrex-204	ENSMUST000000224639.1	717	No protein	Retained intron	-	-	
Mtrex-205	ENSMUST000000225037.1	639	No protein	Retained intron	-	-	
Mtrex-203	ENSMUST000000224266.1	571	No protein	Retained intron	-	-	
Mtrex-202	ENSMUST000000223559.1	498	No protein	lncRNA	-	-	

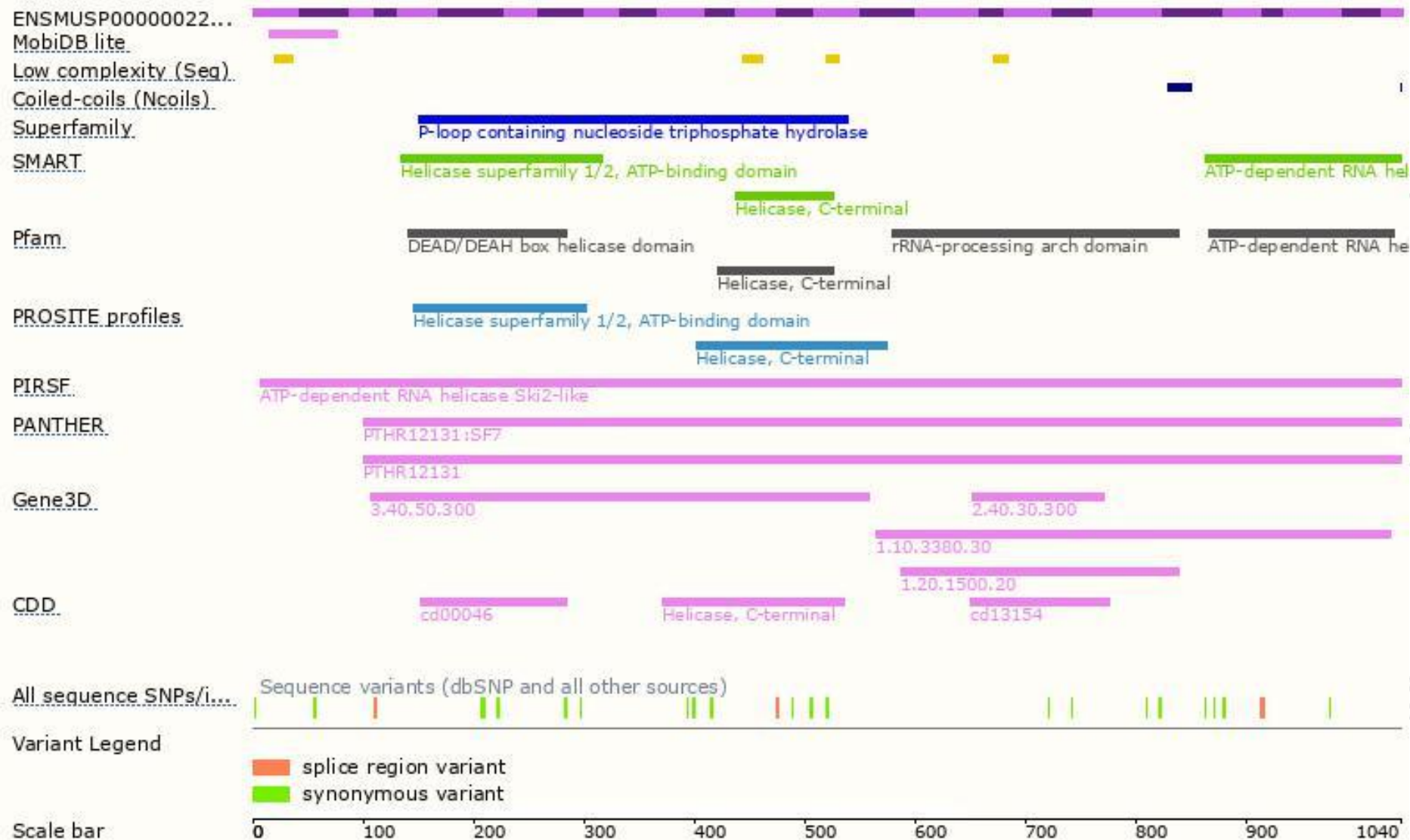
The strategy is based on the design of *Mtrex-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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