

Mxd4 Cas9-CKO Strategy

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Design Date:	2020-4-16

Project Overview

Project Name

Mxd4

Project type

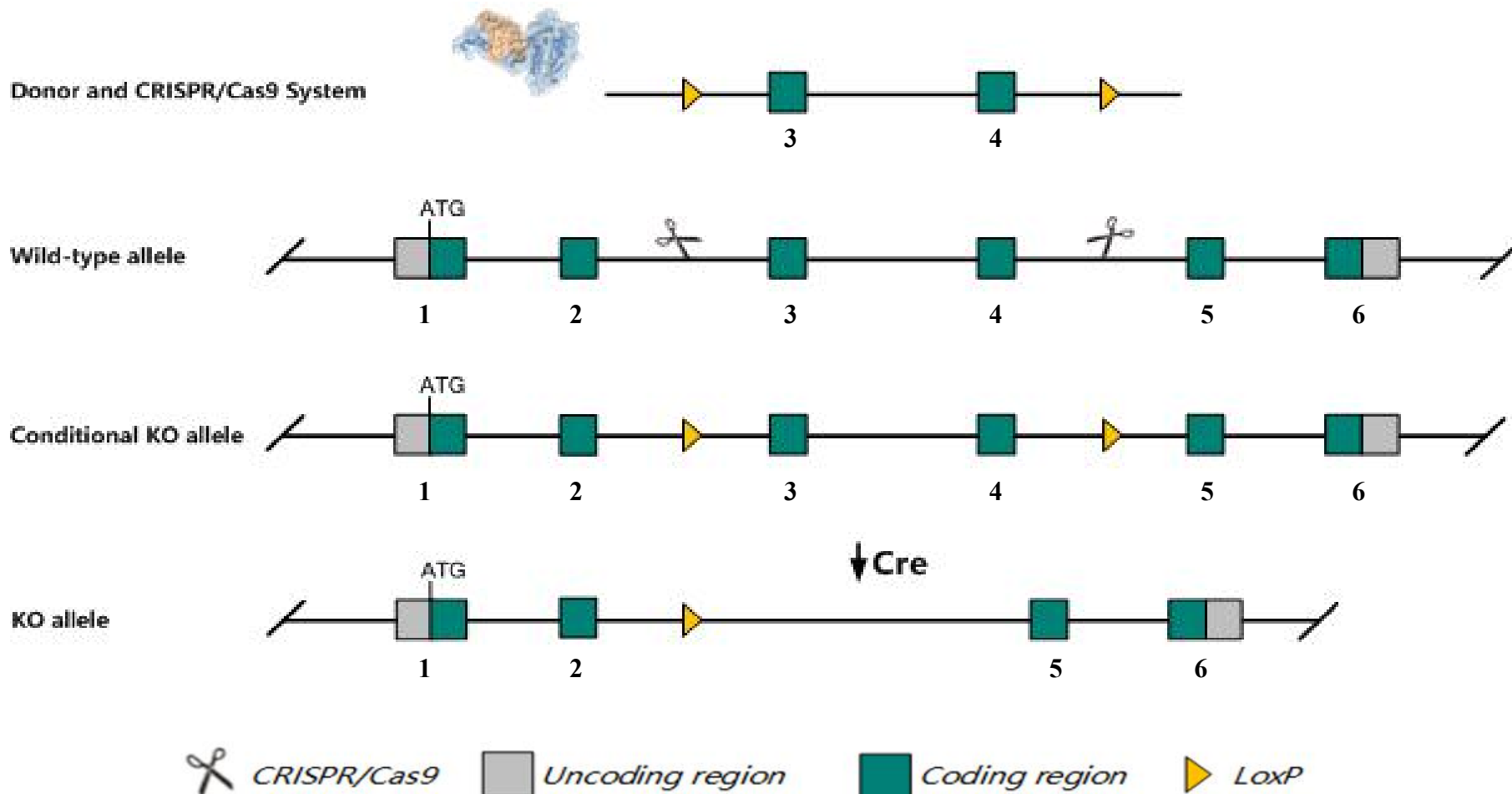
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Mxd4* gene. The schematic diagram is as follows:



The *Mxd4* gene has 4 transcripts. According to the structure of *Mxd4* gene, exon3-exon4 of *Mxd4-201* (ENSMUST00000042701.12) transcript is recommended as the knockout region. The region contains 145bp coding sequence. Knock out the region will result in disruption of protein function.

In this project we use CRISPR/Cas9 technology to modify *Mxd4* 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 *Mxd4* gene is located on the Chr5. 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.

Mxd4 Max dimerization protein 4 [Mus musculus (house mouse)]

Gene ID: 17122, updated on 13-Mar-2020

Summary



Official Symbol Mxd4 provided by [MGI](#)

Official Full Name Max dimerization protein 4 provided by [MGI](#)

Primary source [MGI:MGI:104991](#)

See related [Ensembl:ENSMUSG00000037235](#)

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 2810410A03Rik, Mad4, bHLHc12

Expression Ubiquitous expression in ovary adult (RPKM 161.0), thymus adult (RPKM 147.7) and 26 other tissues [See more](#)

Orthologs [human](#) [all](#)

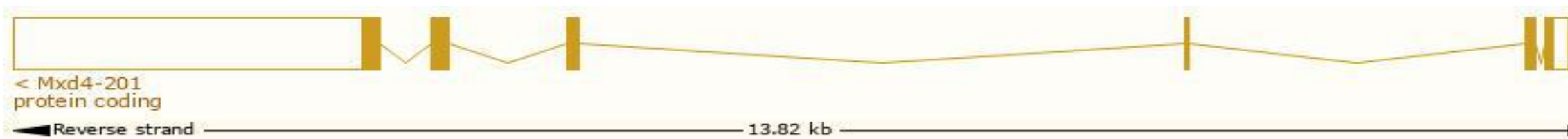
Transcript information

Ensembl

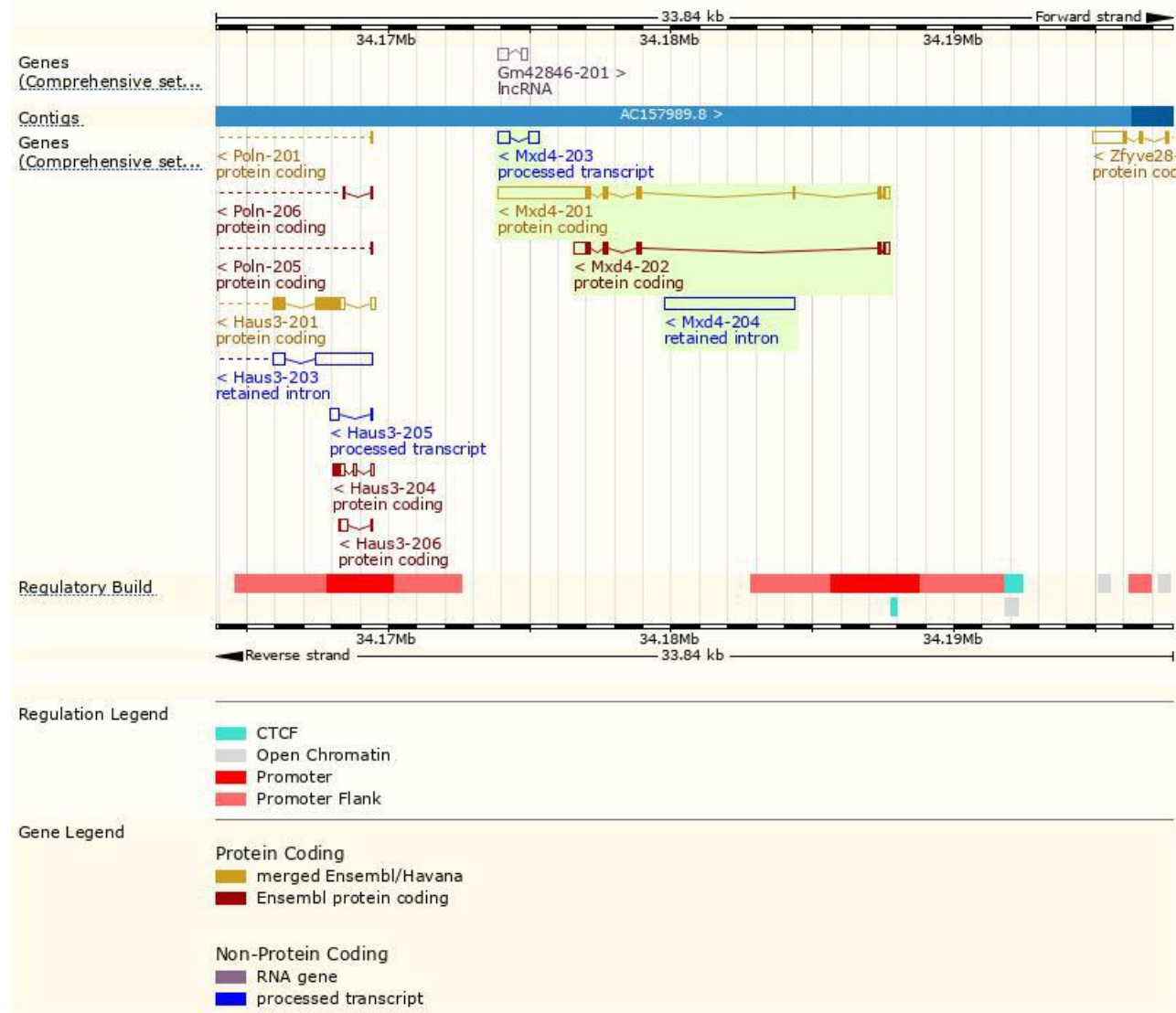
The gene has 4 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mxd4-201	ENSMUST0000042701.12	3872	209aa	Protein coding	CCDS19212	Q91VN7	TSL:1 GENCODE basic APPRIS is a system to annotate alternatively spliced transcripts based on a range of computational methods to identify the most functionally important transcript(s) of a gene. APPRIS P1
Mxd4-202	ENSMUST00000119171.1	1160	199aa	Protein coding	-	Q3UZ22	TSL:1 GENCODE basic
Mxd4-203	ENSMUST00000201189.1	787	No protein	Processed transcript	-	-	TSL:5
Mxd4-204	ENSMUST00000201763.1	4627	No protein	Retained intron	-	-	TSL:NA

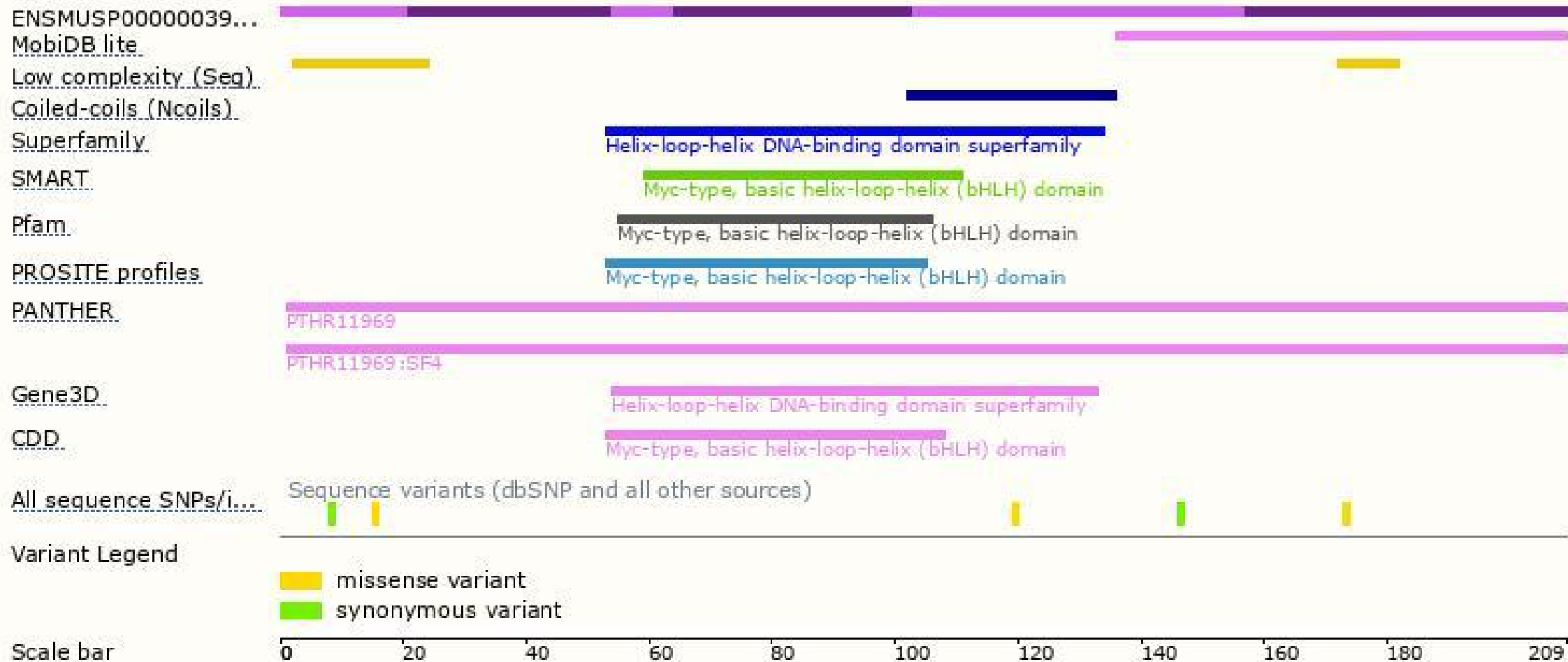
The strategy is based on the design of *Mxd4-201* transcript, the transcription is shown below



Genomic location distribution



Protein domain



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

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