

***H2-DMb2* Cas9-CKO Strategy**

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Project Overview

Project Name

H2-DMb2

Project type

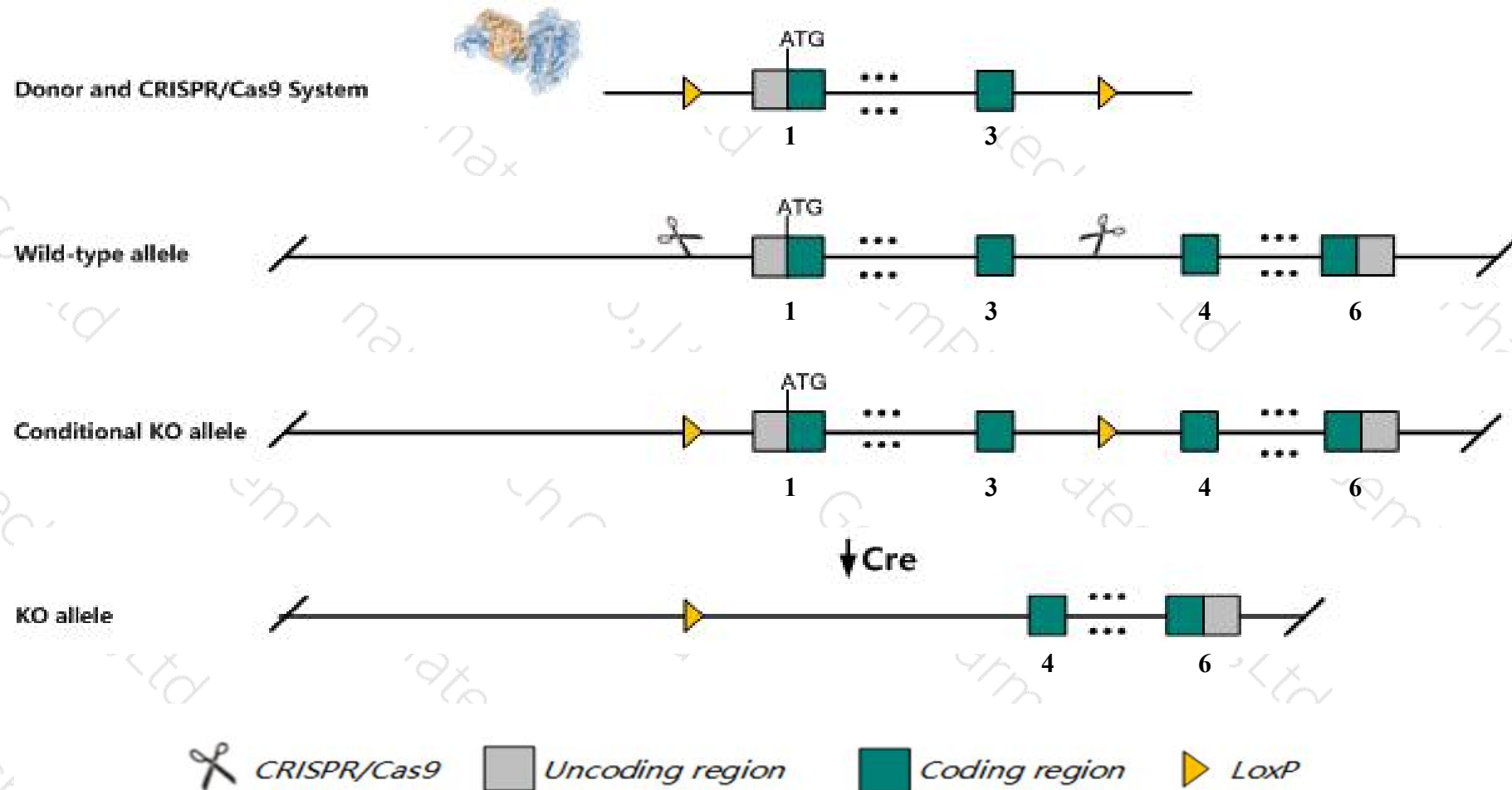
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *H2-DMb2* gene. The schematic diagram is as follows:



Technical routes

- The *H2-DMb2* gene has 3 transcripts. According to the structure of *H2-DMb2* gene, exon1-exon3 of *H2-DMb2-201*(ENSMUST00000041982.8) 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 *H2-DMb2* 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 *H2-DMb2* 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.
- The flox region is about 4 kb away from the 3th end of the H2-DM gene, which may affect the regulation of this 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)

H2-DMb2 histocompatibility 2, class II, locus Mb2 [Mus musculus (house mouse)]

Gene ID: 15000, updated on 13-Mar-2020

Summary



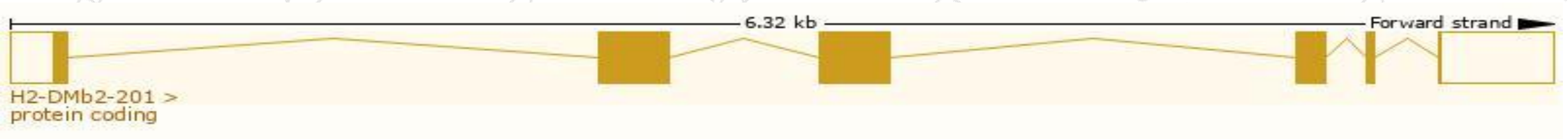
Official Symbol	H2-DMb2 provided by MGI
Official Full Name	histocompatibility 2, class II, locus Mb2 provided by MGI
Primary source	MGI:MGI:95923
See related	Ensembl:ENSMUSG00000037548
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	H-2Mb2, H2-Mb2
Expression	Biased expression in spleen adult (RPKM 391.6), mammary gland adult (RPKM 128.8) and 7 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

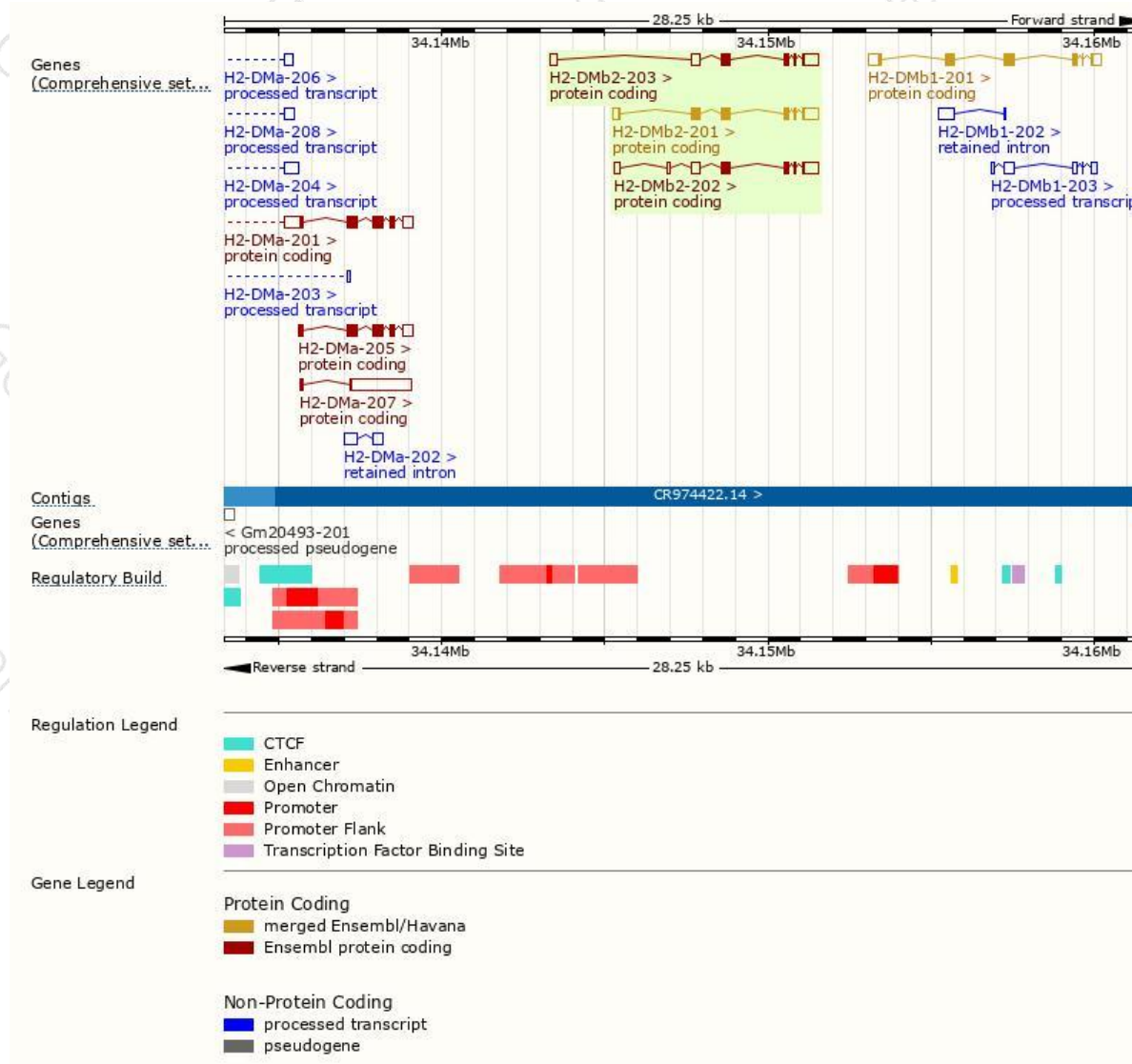
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
H2-DMb2-201	ENSMUST00000041982.8	1424	261aa	Protein coding	CCDS37580	Q31099	TSL:1 GENCODE basic APPRIS P1
H2-DMb2-202	ENSMUST00000171231.7	1483	130aa	Protein coding	-	F7AD18	TSL:1 GENCODE basic
H2-DMb2-203	ENSMUST00000236519.1	1414	130aa	Protein coding	-	F7AD18	GENCODE basic

The strategy is based on the design of *H2-DMb2-201* 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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