

Vstm2a Cas9-CKO Strategy

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Project Overview

Project Name

Vstm2a

Project type

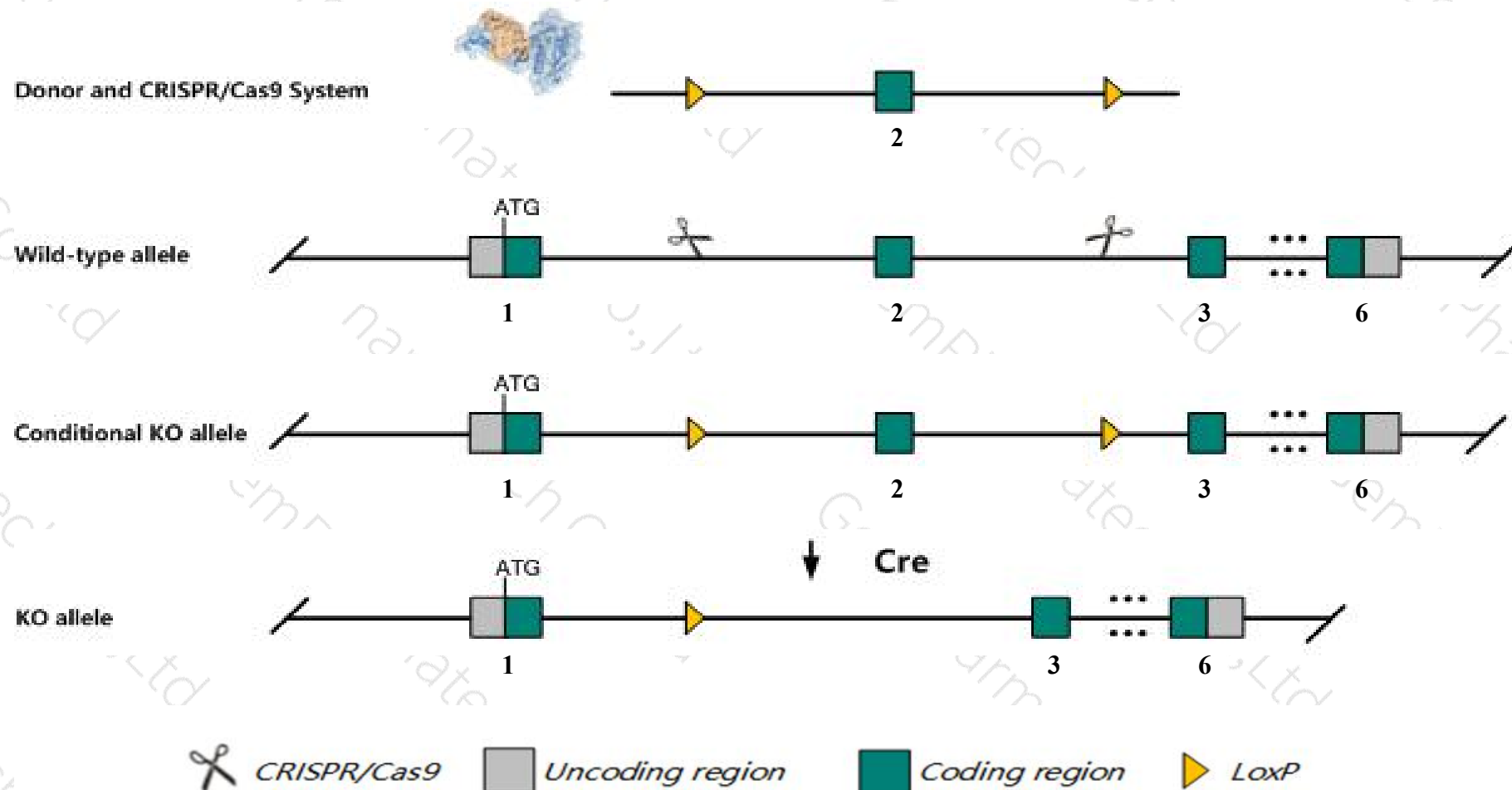
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Vstm2a* gene. The schematic diagram is as follows:



Technical routes

- The *Vstm2a* gene has 5 transcripts. According to the structure of *Vstm2a* gene, exon2 of *Vstm2a*-202(ENSMUST00000109647.2) transcript is recommended as the knockout region. The region contains 167bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Vstm2a* gene. The brief process is as follows: gRNA was transcribed in vitro, donor was constructed. Cas9, gRNA 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 *Vstm2a* gene is located on the Chr11. 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.
- *Vstm2a-203* may not be affected .
- 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)

Vstm2a V-set and transmembrane domain containing 2A [Mus musculus (house mouse)]

Gene ID: 211739, updated on 13-Mar-2020

Summary



Official Symbol	Vstm2a provided by MGI
Official Full Name	V-set and transmembrane domain containing 2A provided by MGI
Primary source	MGI:MGI:2384826
See related	Ensembl:ENSMUSG00000048834
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	Vstm2
Expression	Biased expression in CNS E18 (RPKM 13.3), frontal lobe adult (RPKM 12.1) and 5 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

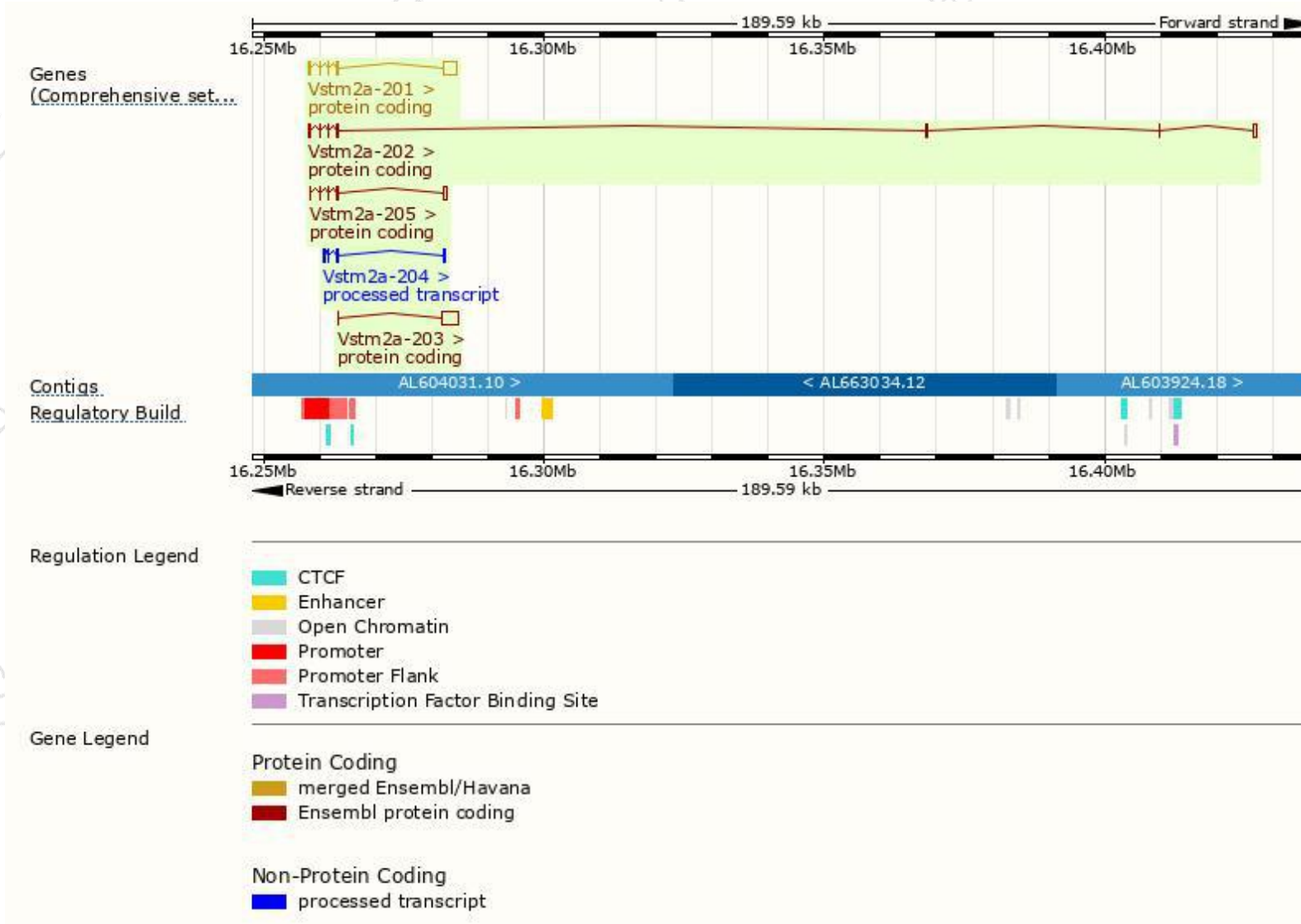
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Vstm2a-201	ENSMUST00000109645.8	3264	236aa	Protein coding	CCDS24441	Q8R0A6	TSL:1 GENCODE basic APPRIS P1
Vstm2a-203	ENSMUST00000207256.1	2882	26aa	Protein coding	-	A0A140LJ76	CDS 5' incomplete TSL:1
Vstm2a-202	ENSMUST00000109647.2	1745	282aa	Protein coding	-	F6Y6A6	TSL:1 GENCODE basic
Vstm2a-205	ENSMUST00000208926.1	1039	234aa	Protein coding	-	A0A140LHB6	CDS 5' incomplete TSL:5
Vstm2a-204	ENSMUST00000208440.1	736	No protein	Processed transcript	-	-	TSL:3

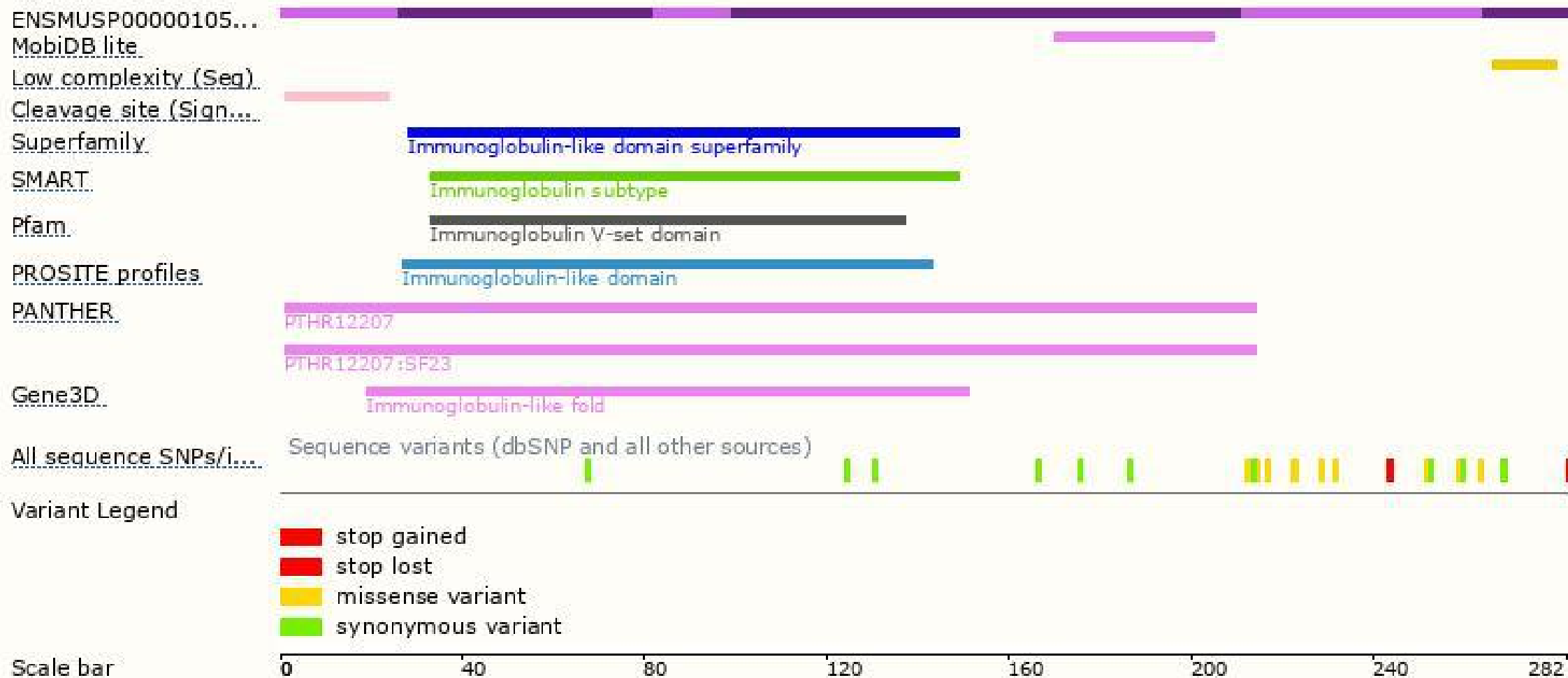
The strategy is based on the design of *Vstm2a-202* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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