

***Vps4b* Cas9-CKO Strategy**

Designer:

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Project Overview

Project Name

Vps4b

Project type

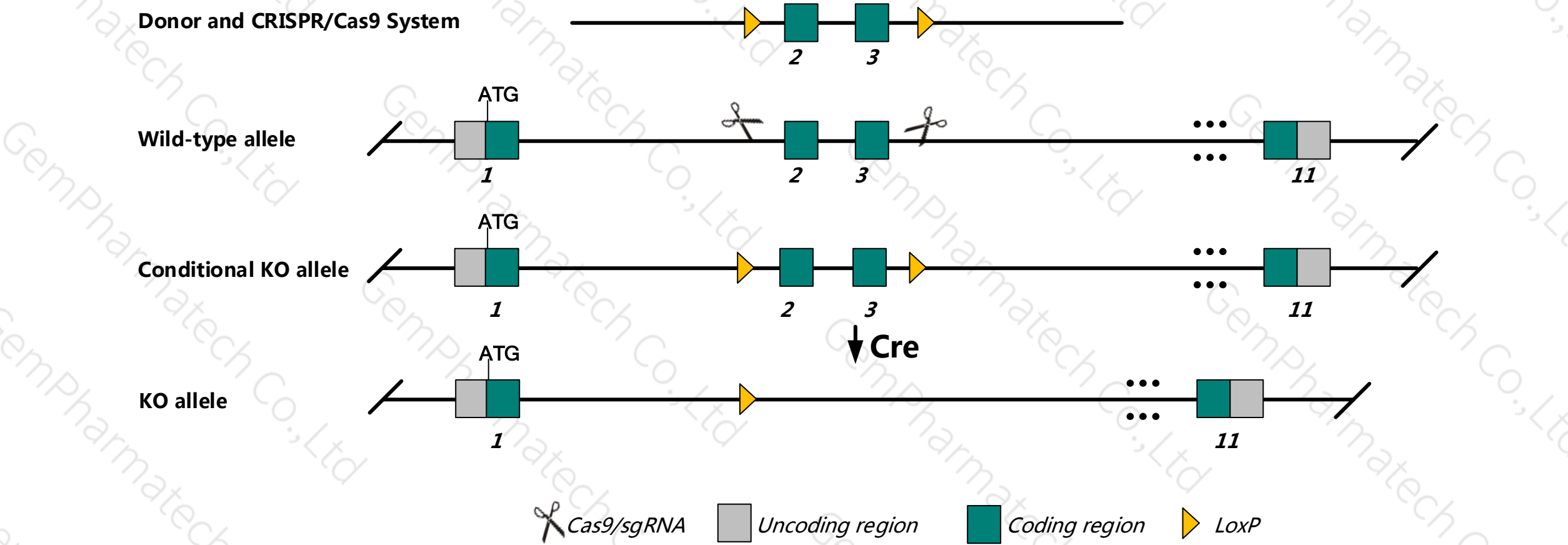
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Vps4b* gene. The schematic diagram is as follows:



- The *Vps4b* gene has 6 transcripts. According to the structure of *Vps4b* gene, exon2-exon3 of *Vps4b*-201 (ENSMUST00000094646.5) transcript is recommended as the knockout region. The region contains 269bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Vps4b* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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 was knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues or cell types.

- The *Vps4b* gene is located on the Chr1. 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 the loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Vps4b vacuolar protein sorting 4B [*Mus musculus* (house mouse)]

Gene ID: 20479, updated on 2-Oct-2018

Summary

Official Symbol Vps4b provided by [MGI](#)

Official Full Name vacuolar protein sorting 4B provided by [MGI](#)

Primary source [MGI:MGI:1100499](#)

See related [Ensembl:ENSMUSG000000009907](#) [Vega:OTTMUSG000000021646](#)

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 Skd1; 8030489C12Rik

Expression Ubiquitous expression in bladder adult (RPKM 17.1), placenta adult (RPKM 16.0) and 28 other tissues [See more](#)

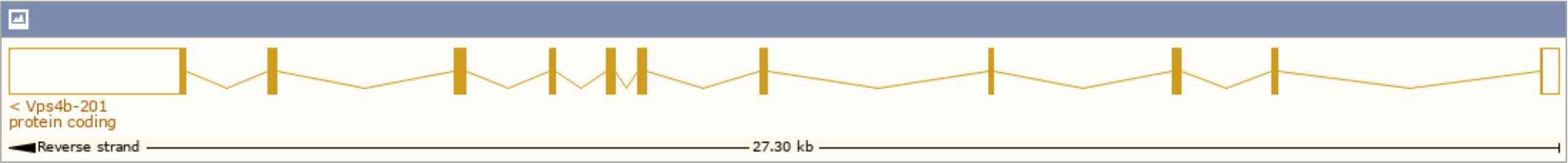
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

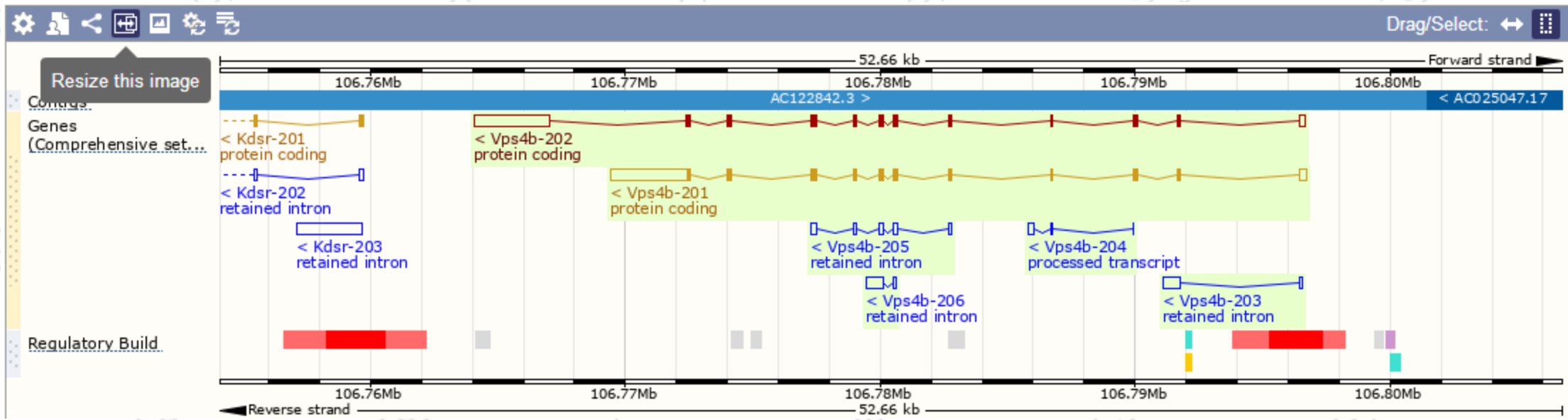
The gene has 6 transcripts, and all transcripts are shown below:

Show/hide columns (1 hidden)								Filter	
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags	
Vps4b-201	ENSMUST00000094646.5	4633	444aa	Protein coding	CCDS15211	P46467 Q3TN07	NM_009190 NP_033216	TSL:1	GENCODE basic APPRIS P1
Vps4b-202	ENSMUST00000112736.7	4539	444aa	Protein coding	CCDS15211	P46467 Q3TN07	-	TSL:1	GENCODE basic APPRIS P1
Vps4b-204	ENSMUST00000127606.1	314	No protein	Processed transcript	-	-	-	TSL:5	
Vps4b-203	ENSMUST00000126057.1	847	No protein	Retained intron	-	-	-	TSL:2	
Vps4b-206	ENSMUST00000190531.1	791	No protein	Retained intron	-	-	-	TSL:2	
Vps4b-205	ENSMUST00000147705.1	709	No protein	Retained intron	-	-	-	TSL:2	

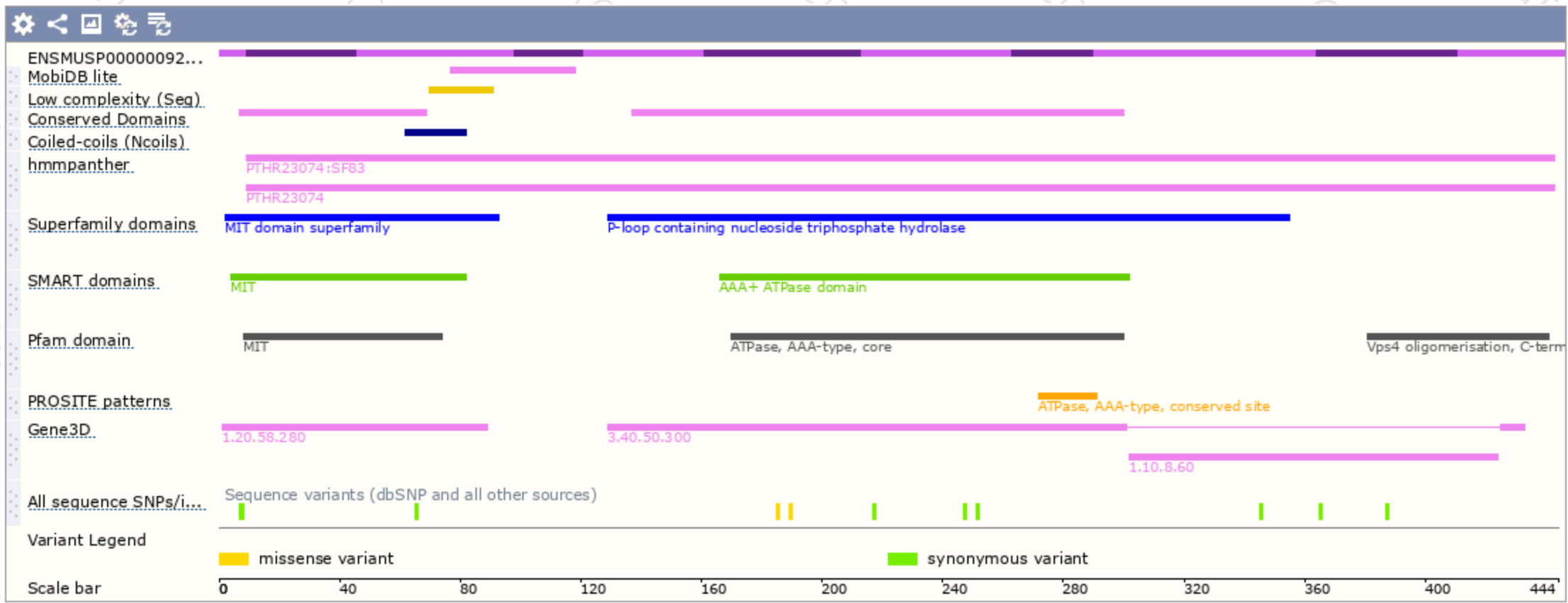
The strategy is based on the design of *Vps4b*-201 transcript, The transcription is shown below



Genomic location distribution



Protein domain



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