

Psmd14 Cas9-CKO Strategy

Designer

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Reviewer

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2018-6-8

Project Overview

Project Name

Psmc14

Project type

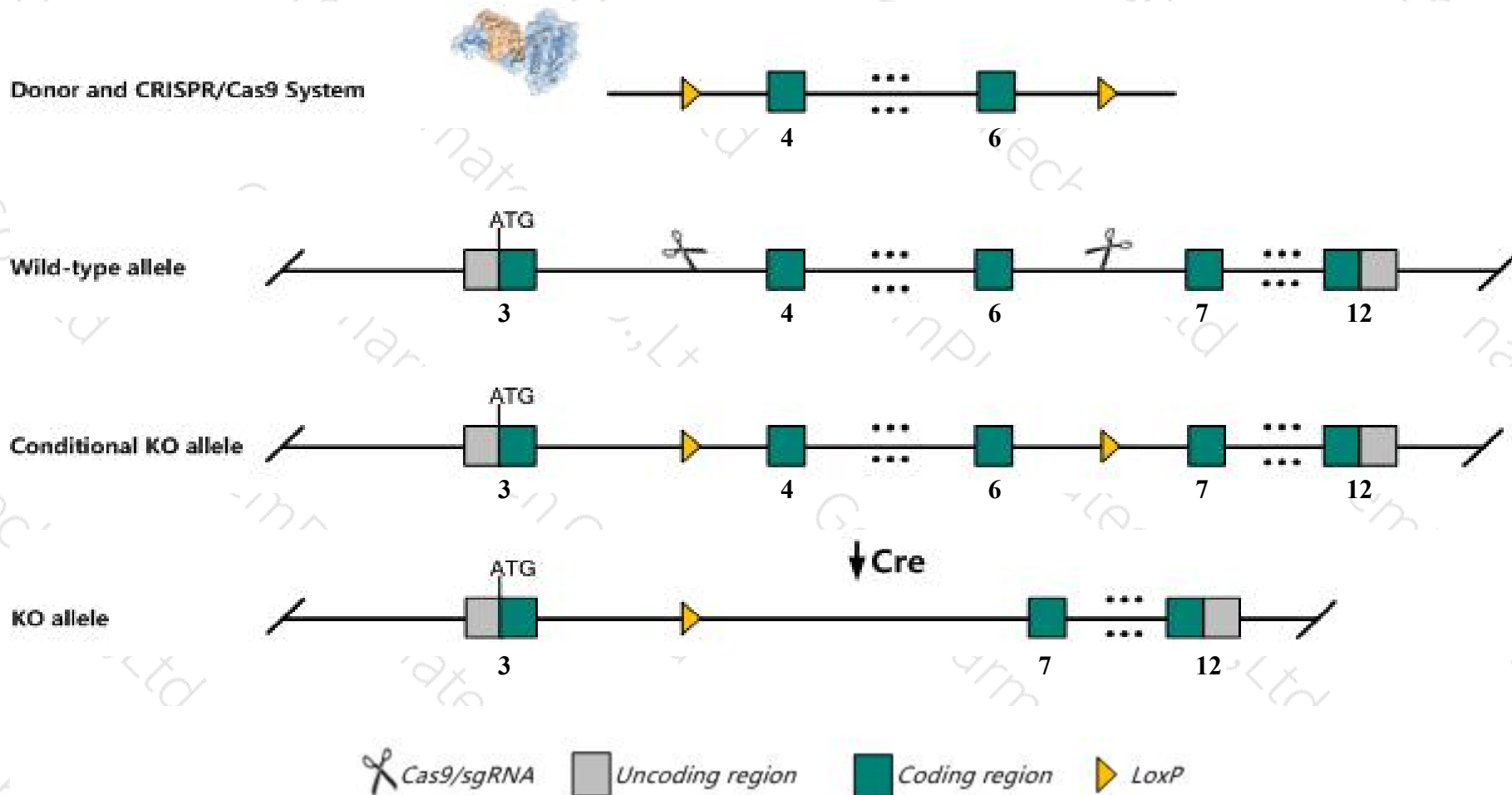
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Psmd14* gene. The schematic diagram is as follows:



- The *Psmc14* gene has 8 transcripts. According to the structure of *Psmc14* gene, exon4-exon6 of *Psmc14-201* (ENSMUST00000028278.13) transcript is recommended as the knockout region. The region contains 263bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Psmc14* 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 and cell types.

Notice

- The *Psmc14* gene is located on the Chr2. 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.
- Transcript *Psmc14* -202/203/204/208 may not be affected.
- The KO region contains the *Gm22403-201* gene. Knockout the region may knockout *Gm22403-201* 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)

Psmd14 proteasome (prosome, macropain) 26S subunit, non-ATPase, 14 [*Mus musculus* (house mouse)]

Gene ID: 59029, updated on 19-Mar-2019

Summary

Official Symbol	Psmd14 provided by MGI
Official Full Name	proteasome (prosome, macropain) 26S subunit, non-ATPase, 14 provided by MGI
Primary source	MGI:MGI:1913284
See related	Ensembl:ENSMUSG00000026914
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	Pad1; Poh1; rpm11; AA986732; 2610312C03Rik; 3200001M20Rik
Expression	Ubiquitous expression in CNS E11.5 (RPKM 35.4), liver E14 (RPKM 33.6) and 25 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

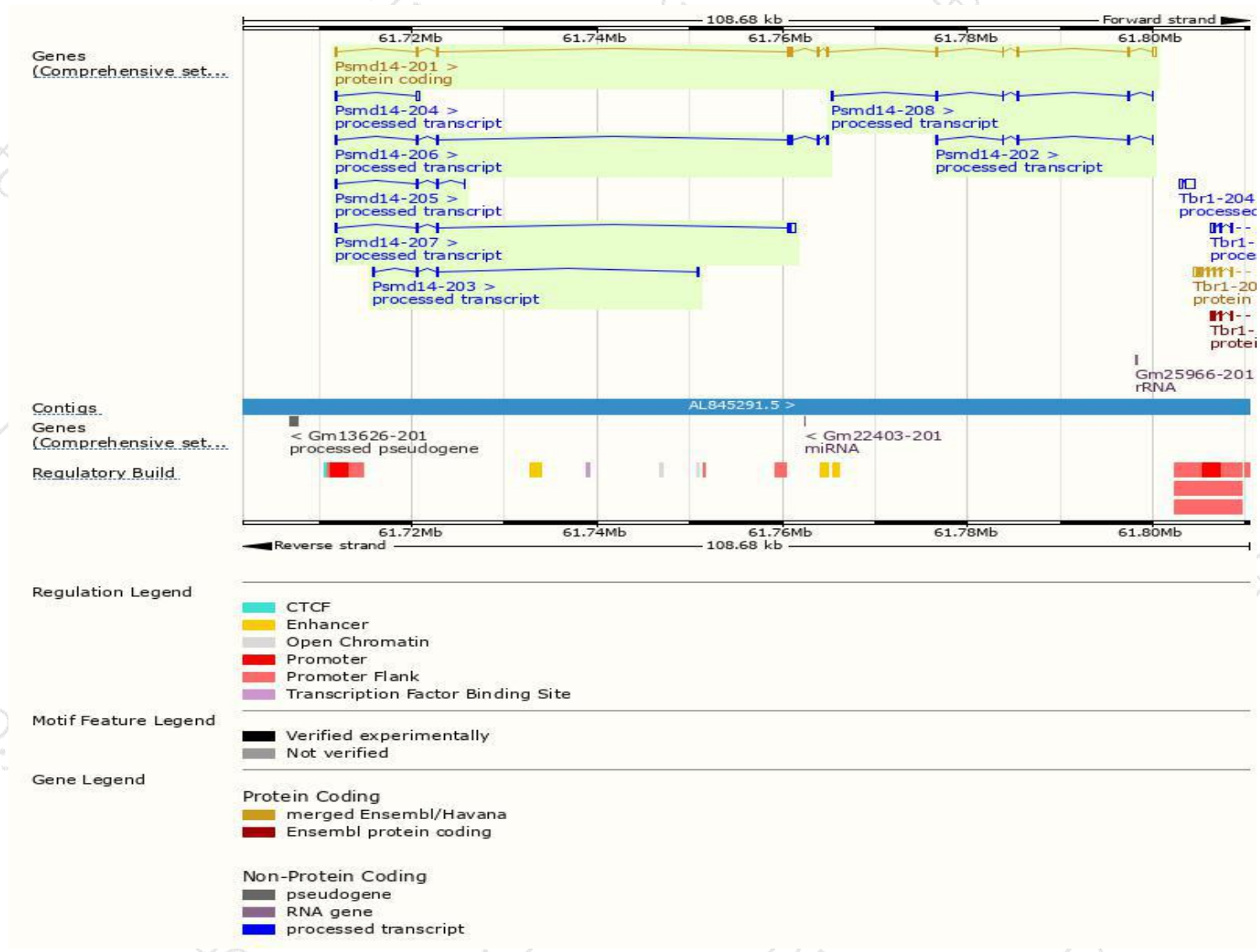
The gene has 8 transcripts,all transcripts are shown below:

Show/hide columns								Filter	
Name ▲	Transcript ID ▲	bp ▲	Protein ▲	Translation ID ▲	Biotype ▲	CCDS ▲	UniProt ▲	Flags ▲	
Psmc14-201	ENSMUST00000028278.13	1541	310aa	ENSMUSP00000028278.7	Protein coding	CCDS38127	O35593	TSL:1	GENCODE basic APPRIS P1
Psmc14-202	ENSMUST00000125388.1	560	No protein	-	lncRNA	-	-	TSL:2	
Psmc14-203	ENSMUST00000134658.1	525	No protein	-	lncRNA	-	-	TSL:5	
Psmc14-204	ENSMUST00000135265.1	540	No protein	-	lncRNA	-	-	TSL:1	
Psmc14-205	ENSMUST00000139475.7	337	No protein	-	lncRNA	-	-	TSL:5	
Psmc14-206	ENSMUST00000146051.7	704	No protein	-	lncRNA	-	-	TSL:5	
Psmc14-207	ENSMUST00000153683.7	741	No protein	-	lncRNA	-	-	TSL:2	
Psmc14-208	ENSMUST00000154627.7	567	No protein	-	lncRNA	-	-	TSL:3	

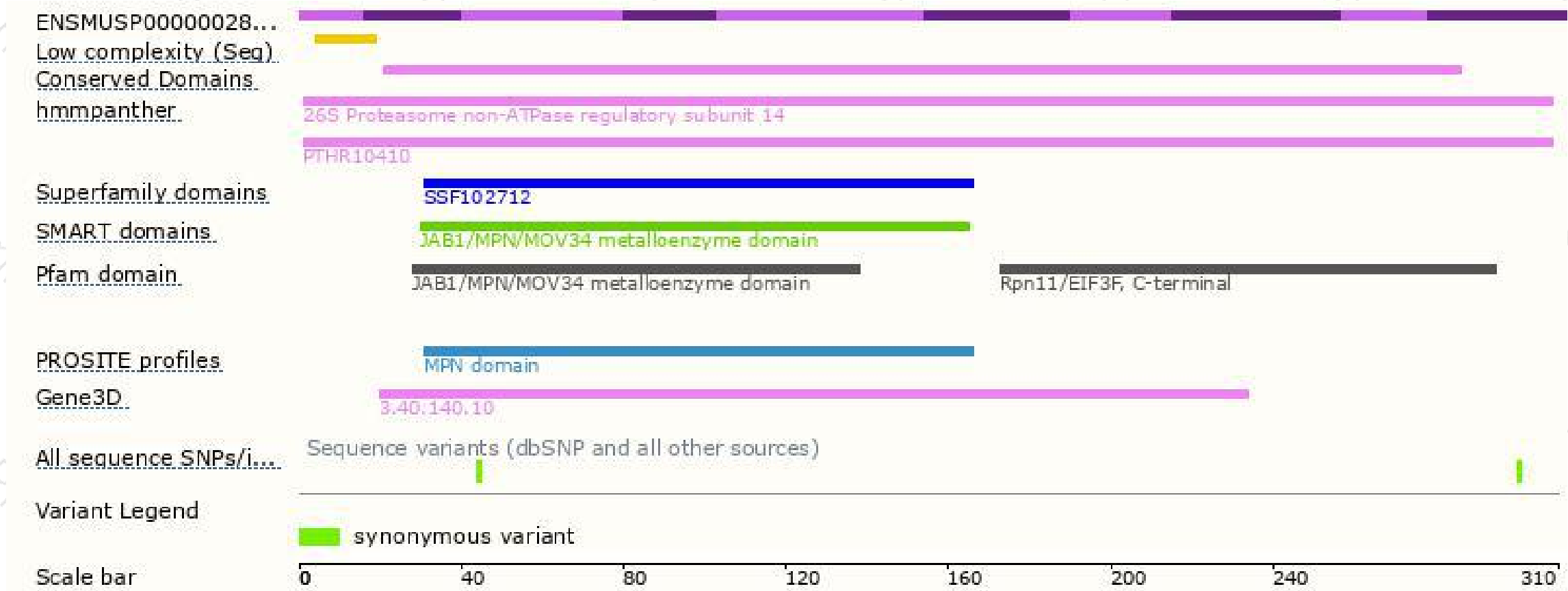
The strategy is based on the design of *Psmc14-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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