

***Psmb5* Cas9-CKO Strategy**

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Reviewer:

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Project Overview

Project Name

Psmb5

Project type

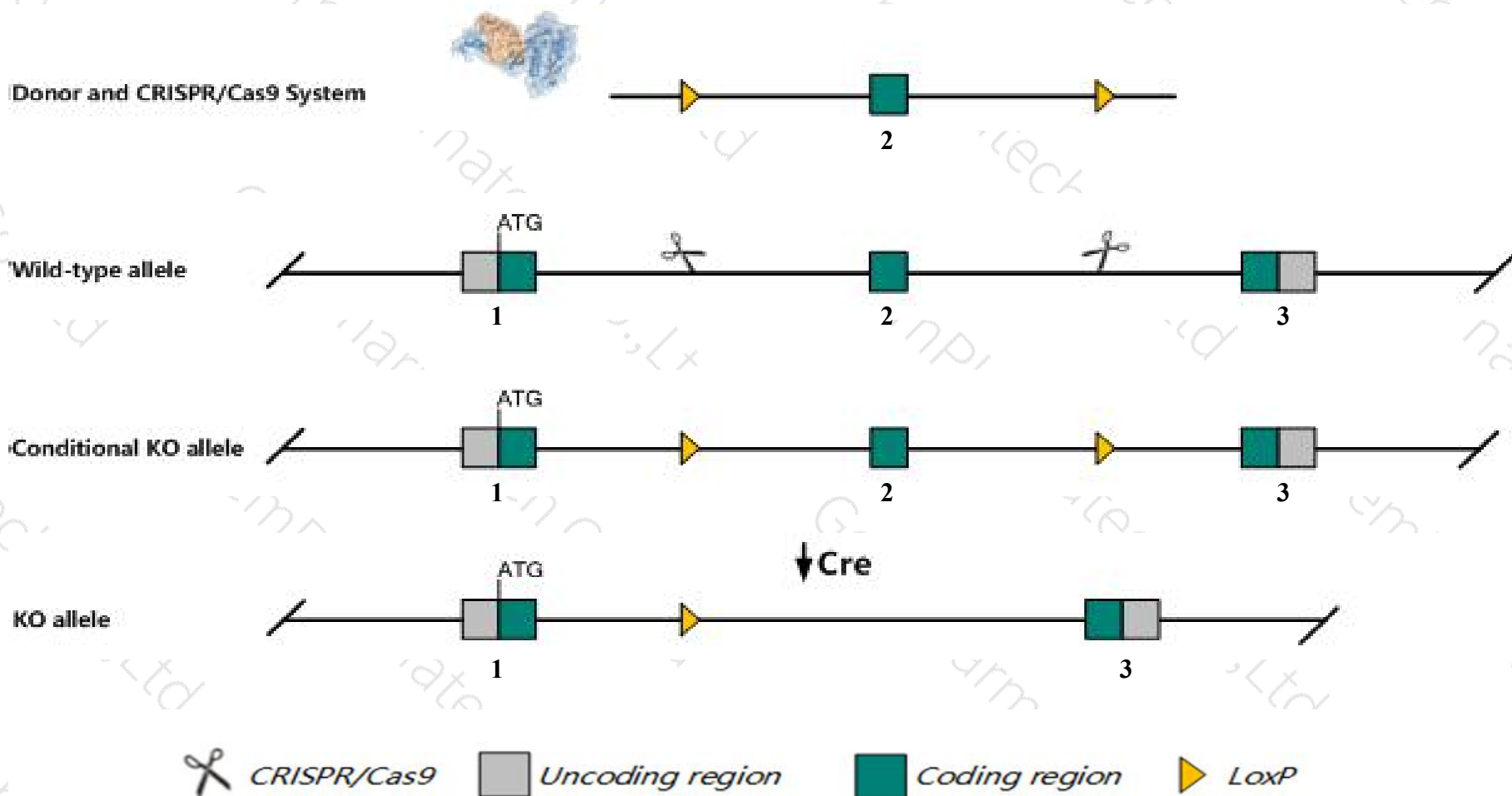
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Psmb5* gene. The schematic diagram is as follows:



Technical routes

- The *Psmb5* gene has 2 transcripts. According to the structure of *Psmb5* gene, exon2 of *Psmb5-201* (ENSMUST00000022803.5) transcript is recommended as the knockout region. The region contains 307bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Psmb5* 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.

Notice

- The *Psmb5* gene is located on the Chr14. 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.

Gene information (NCBI)

Psmb5 proteasome (prosome, macropain) subunit, beta type 5 [*Mus musculus* (house mouse)]



Gene ID: 19173, updated on 12-Aug-2019

Summary

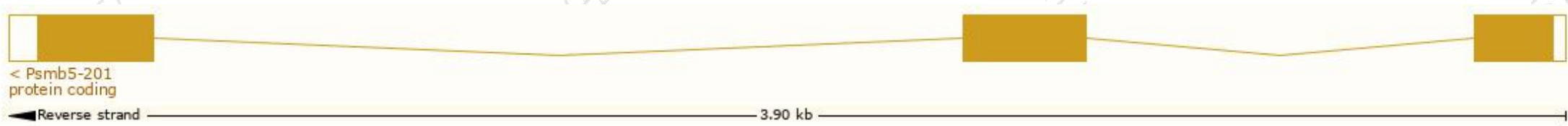
Official Symbol	Psmb5 provided by MGI
Official Full Name	proteasome (prosome, macropain) subunit, beta type 5 provided by MGI
Primary source	MGI:MGI:1194513
See related	Ensembl:ENSMUSG00000022193
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Expression	Ubiquitous expression in adrenal adult (RPKM 108.4), ovary adult (RPKM 85.6) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Psemb5-201	ENSMUST00000022803.5	899	264aa	 Protein coding	CCDS27095	O55234	TSL:1 GENCODE basic APPRIS P1
Psemb5-202	ENSMUST000000227257.1	622	177aa	 Protein coding	-	Q8BTY5	GENCODE basic

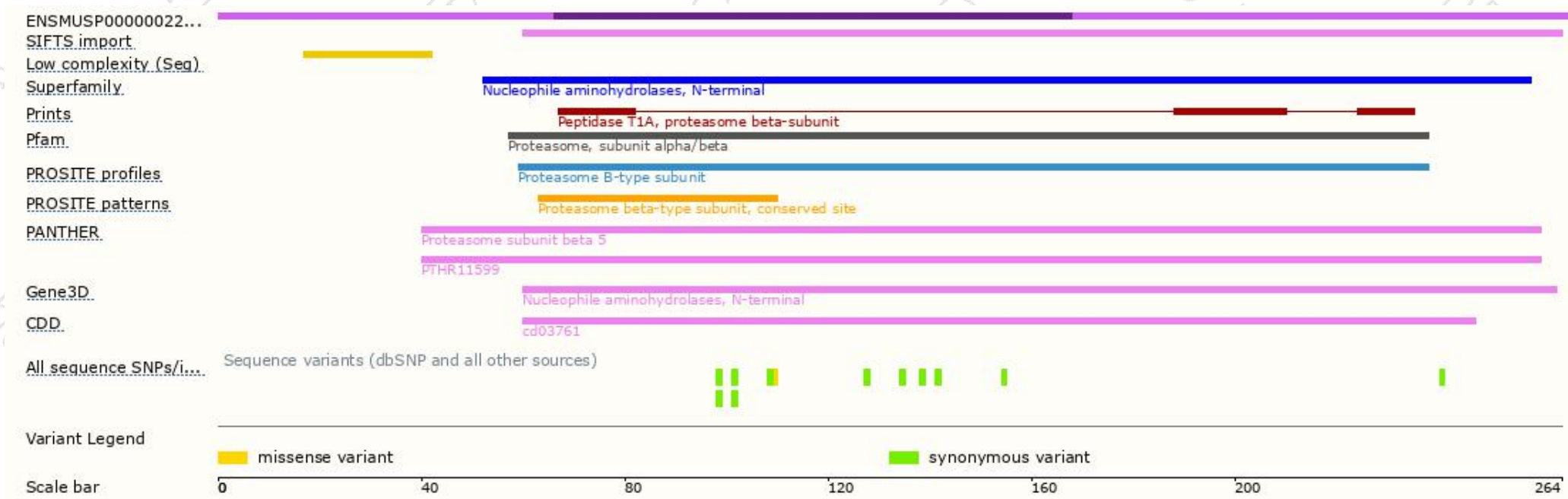
The strategy is based on the design of *Psemb5-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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