

Psma2 Cas9-CKO Strategy

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Reviewer:

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Design Date:

2020-6-24

Project Overview

Project Name

Psma2

Project type

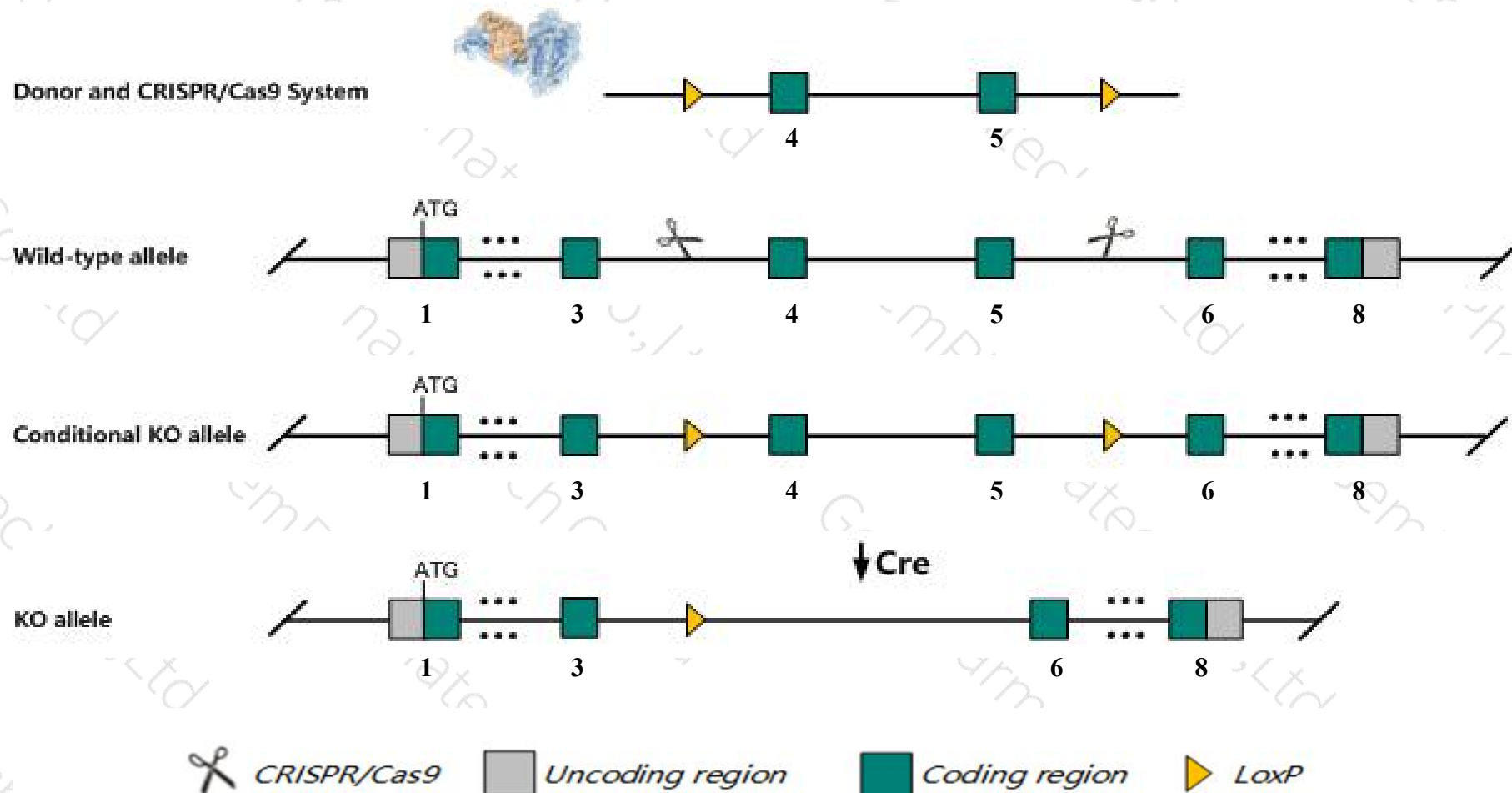
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Psma2* gene. The schematic diagram is as follows:



- The *Pσμα2* gene has 2 transcripts. According to the structure of *Pσμα2* gene, exon4-exon5 of *Pσμα2*-201(ENSMUST00000170836.3) transcript is recommended as the knockout region. The region contains 205bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Pσμα2* 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 *Pσμα2* gene is located on the Chr13. 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.
- Some amino acids will remain at the N-terminus and some functions may be retained.

Gene information (NCBI)

Psma2 proteasome subunit alpha 2 [Mus musculus (house mouse)]

Gene ID: 19166, updated on 13-Mar-2020

Summary



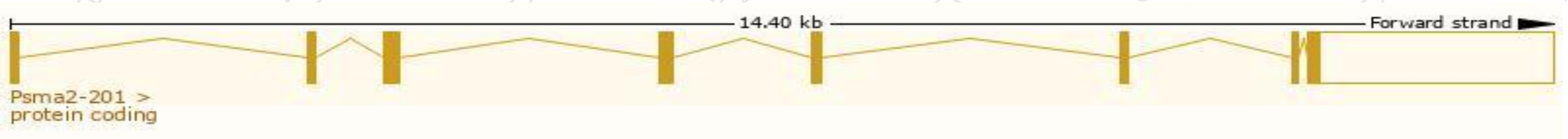
Official Symbol	Psma2 provided by MGI
Official Full Name	proteasome subunit alpha 2 provided by MGI
Primary source	MGI:MGI:104885
See related	Ensembl:ENSMUSG00000015671
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Lmpc3
Expression	Ubiquitous expression in placenta adult (RPKM 107.2), liver E14 (RPKM 90.2) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

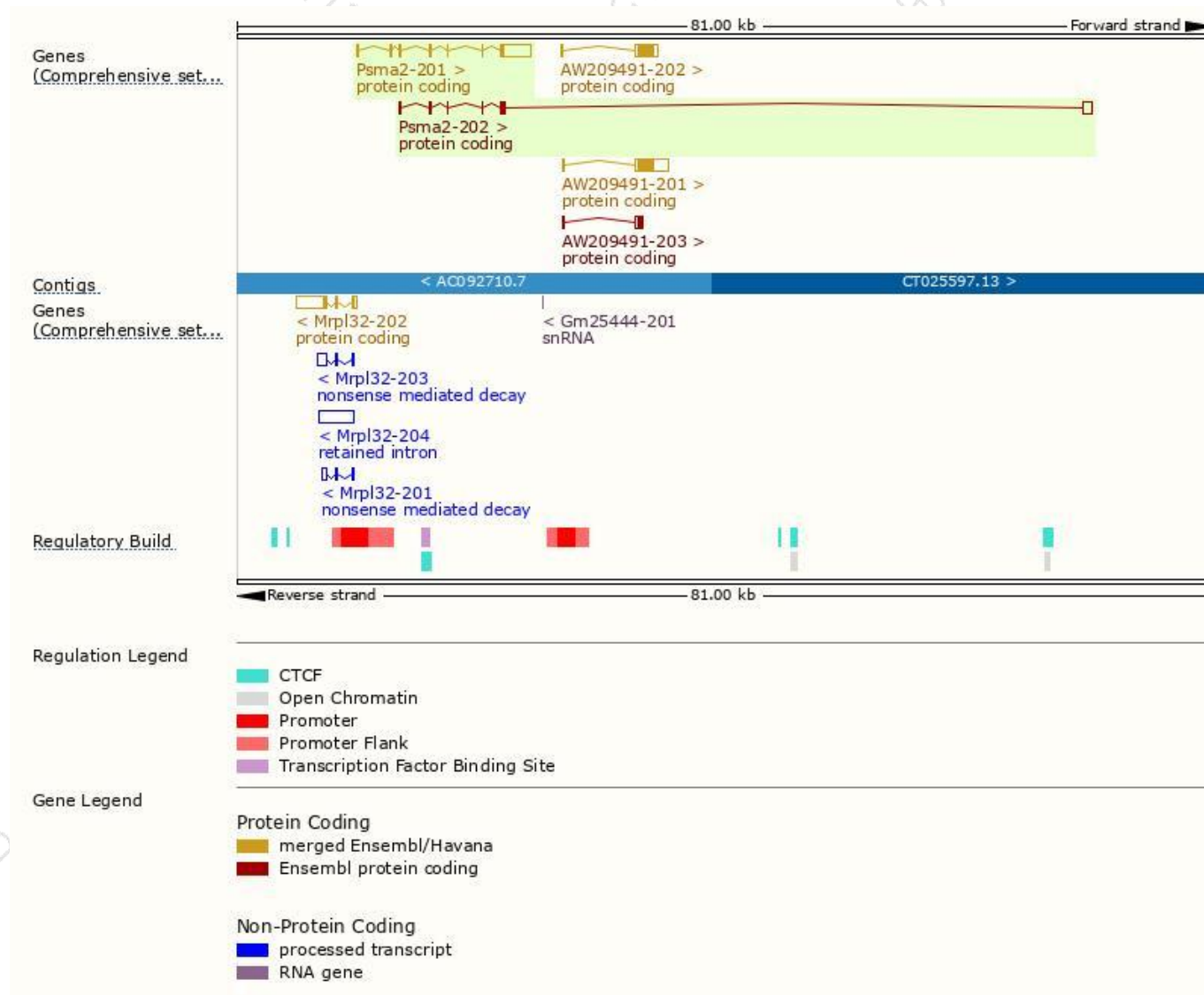
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Psma2-201	ENSMUST00000170836.3	2911	234aa	Protein coding	CCDS36602	P49722	TSL:1 GENCODE basic APPRIS P1
Psma2-202	ENSMUST00000221168.1	1353	183aa	Protein coding	-	Q8BKE0	CDS 5' incomplete TSL:2

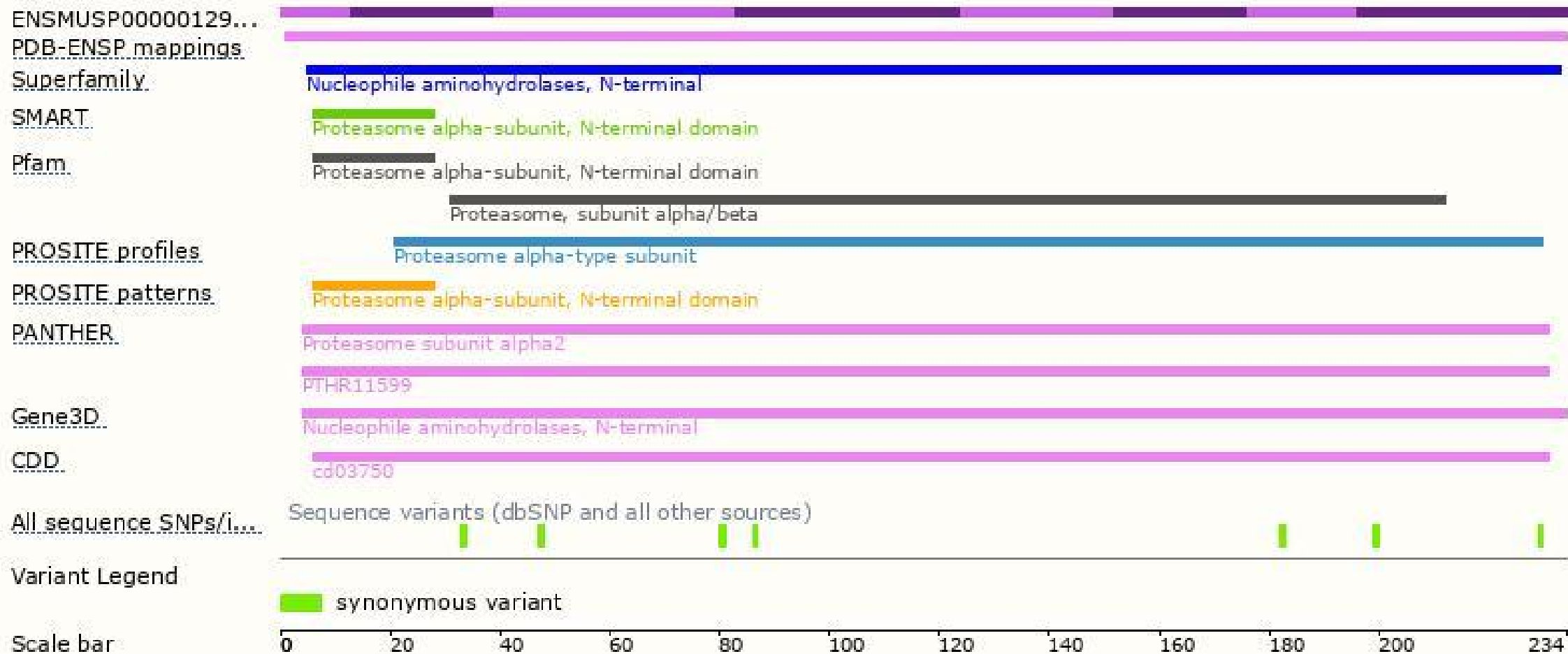
The strategy is based on the design of *Psma2-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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