

Psmc2 Cas9-KO Strategy

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Reviewer:

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Project Overview

Project Name

Psmc2

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Psmc2* gene. The schematic diagram is as follows:



- The *Psmc2* gene has 2 transcripts. According to the structure of *Psmc2* gene, exon3-exon5 of *Psmc2-201* (ENSMUST00000030769.5) transcript is recommended as the knockout region. The region contains 220bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Psmc2* gene. The brief process is as follows: CRISPR/Cas9 system

- The *Psmc2* gene is located on the Chr5. 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 gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Psmc2 proteasome (prosome, macropain) 26S subunit, ATPase 2 [*Mus musculus* (house mouse)]

Gene ID: 19181, updated on 12-Aug-2019

Summary

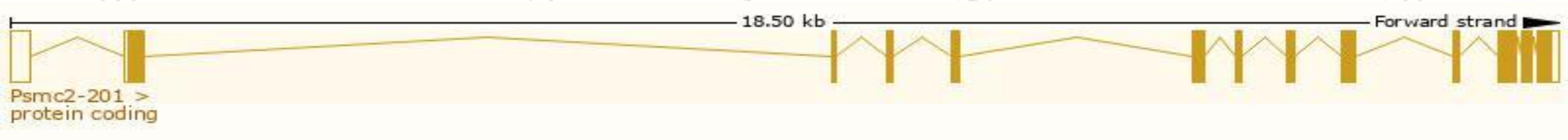
Official Symbol	Psmc2 provided by MGI
Official Full Name	proteasome (prosome, macropain) 26S subunit, ATPase 2 provided by MGI
Primary source	MGI:MGI:109555
See related	Ensembl:ENSMUSG00000028932
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Expression	Ubiquitous expression in testis adult (RPKM 61.8), CNS E11.5 (RPKM 44.8) and 25 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

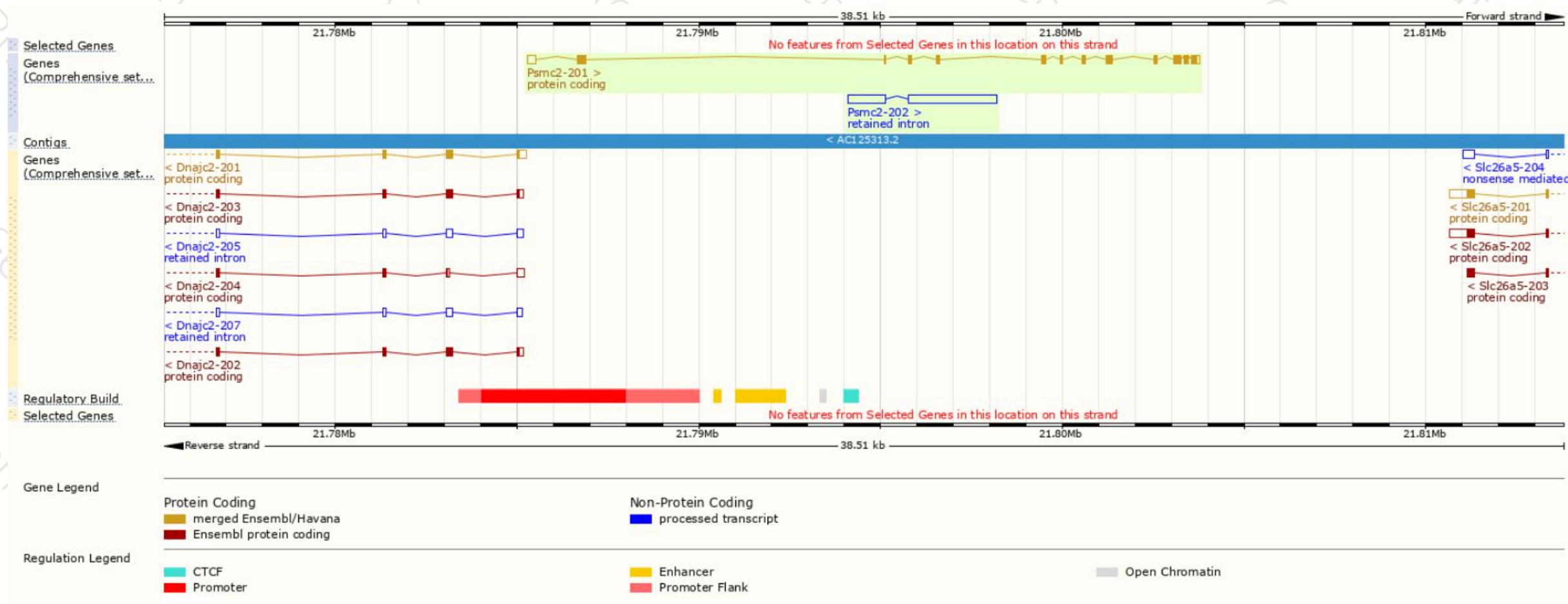
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Psmc2-201	ENSMUST00000030769.5	1785	475aa	Protein coding	CCDS19108	Q8BVQ9	TSL:1 GENCODE basic APPRIS P1
Psmc2-202	ENSMUST00000132720.1	3466	No protein	Retained intron	-	-	TSL:1

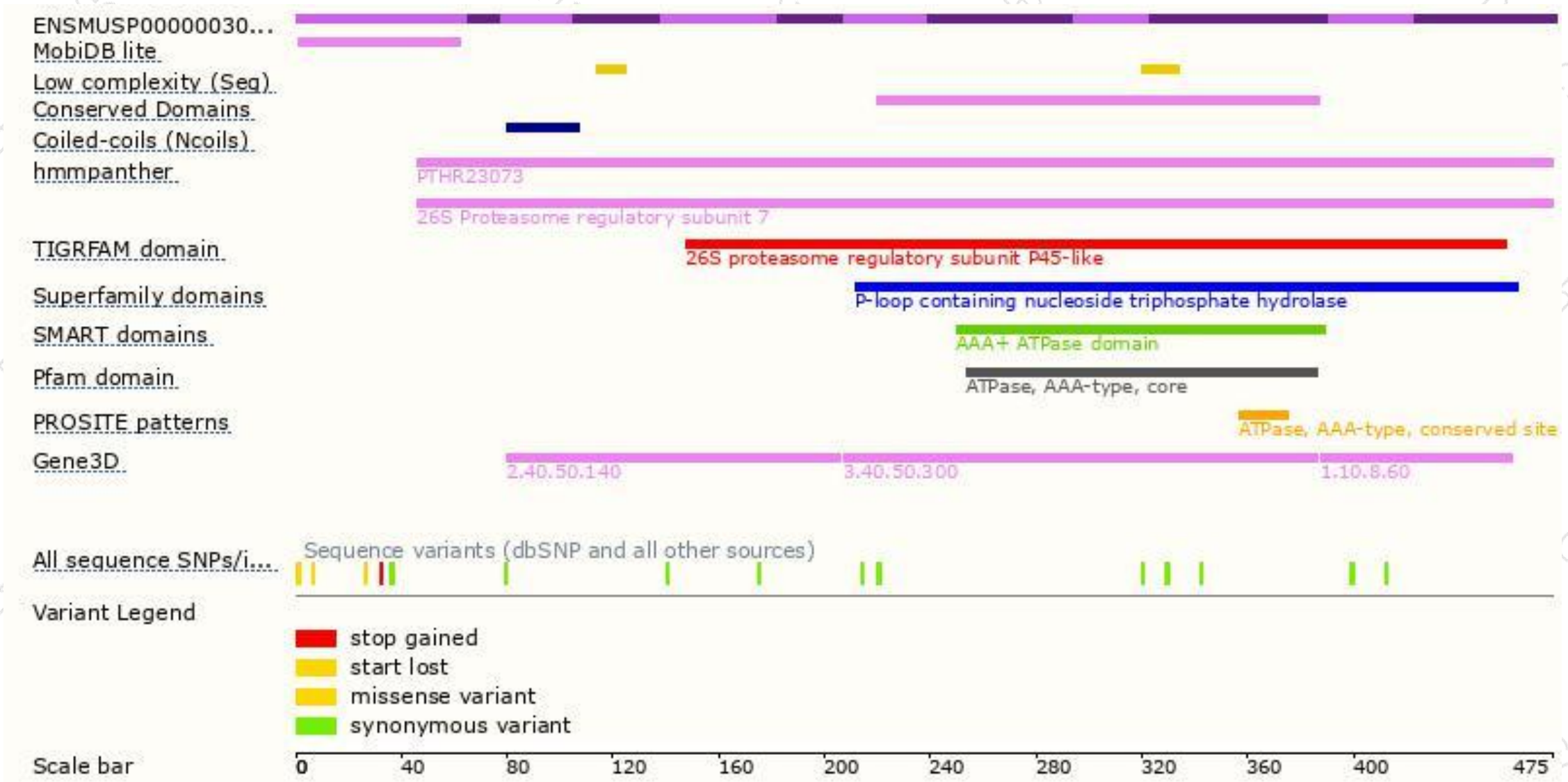
The strategy is based on the design of *Psmc2-201* transcript,The transcription is shown below



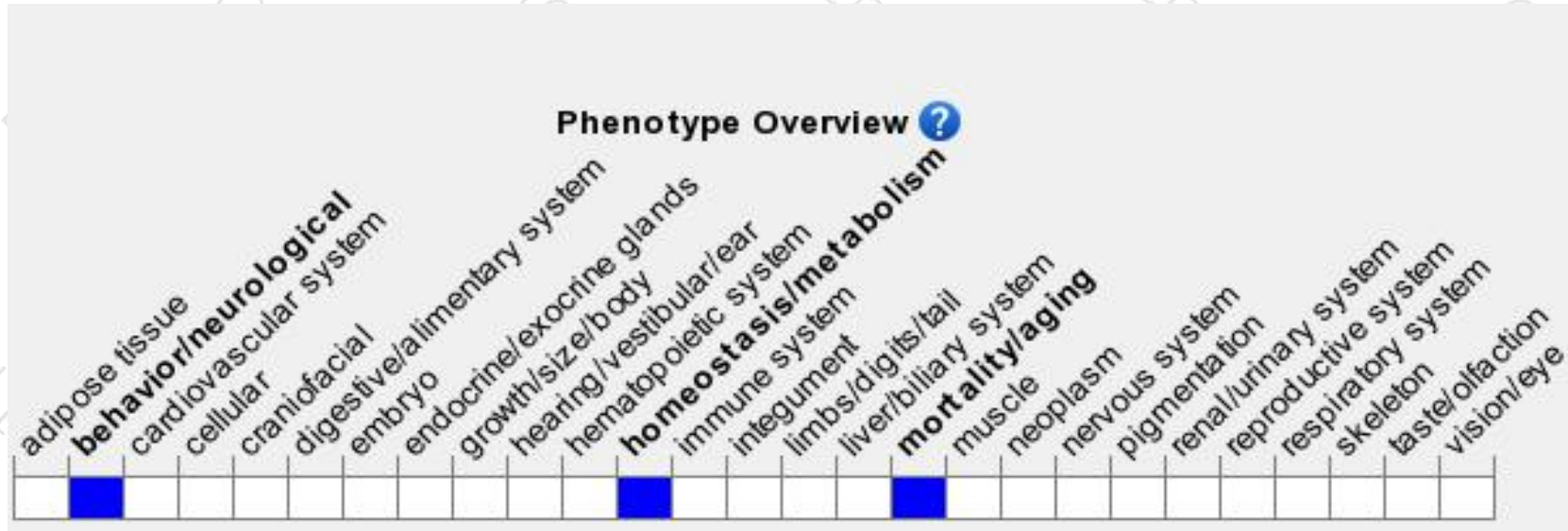
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

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

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