

# *Ppme1* Cas9-KO Strategy

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# Project Overview



**Project Name**

*Ppme1*

**Project type**

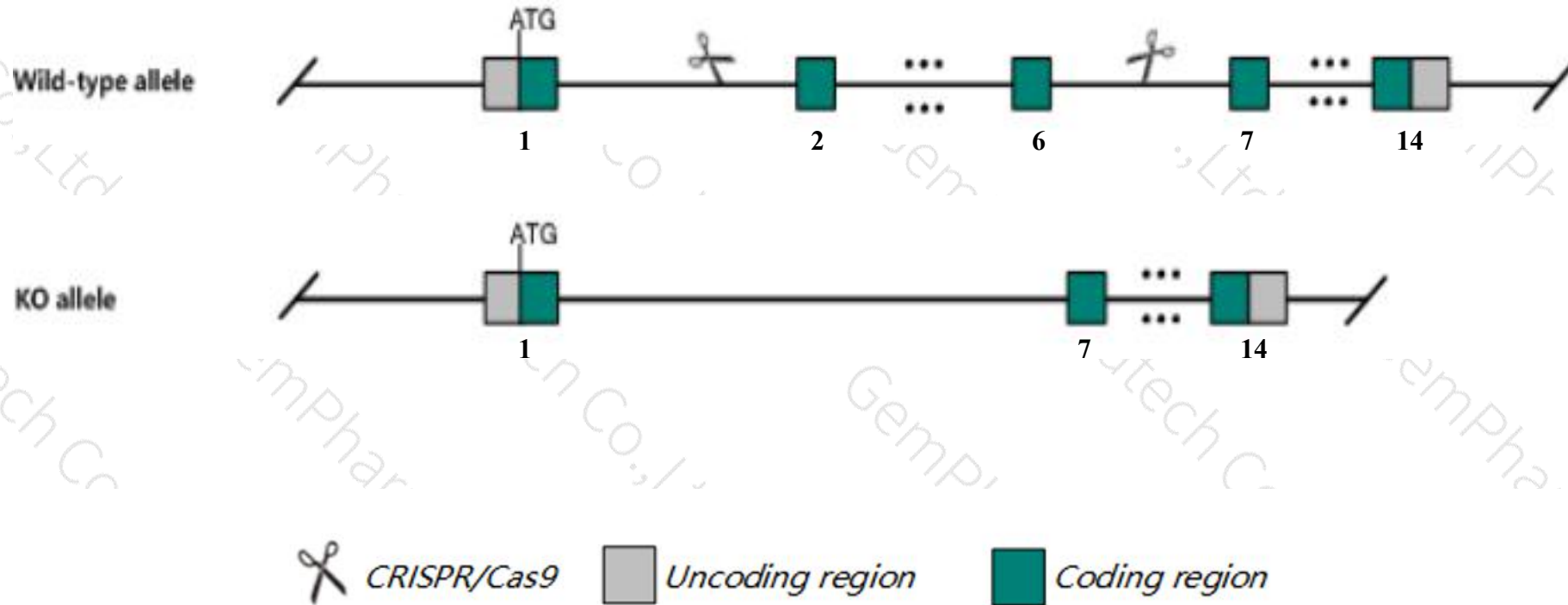
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ppme1* gene. The schematic diagram is as follows:



- The *Ppme1* gene has 5 transcripts. According to the structure of *Ppme1* gene, exon2-exon6 of *Ppme1-201* (ENSMUST00000032963.9) transcript is recommended as the knockout region. The region contains 452bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ppme1* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Targeted disruption of this gene causes virtual loss of the demethylated form of phosphoprotein phosphatase 2A in the nervous system and peripheral tissues. Homozygous null mice fail to initiate normal breathing or suckling behavior and die within the first day of life.
- The effect on transcript *Ppme1*-204 is unknown.
- Transcript *Ppme1*-203 may not be affected.
- The *Ppme1* gene is located on the Chr7. 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)

## Ppme1 protein phosphatase methylesterase 1 [ *Mus musculus* (house mouse) ]

Gene ID: 72590, updated on 27-Feb-2020

### Summary

**Official Symbol** Ppme1 provided by MGI  
**Official Full Name** protein phosphatase methylesterase 1 provided by MGI  
**Primary source** MGI:MGI:1919840  
**See related** [Ensembl:ENSMUSG00000030718](#)  
**Gene type** protein coding  
**RefSeq status** PROVISIONAL  
**Organism** [Mus musculus](#)  
**Lineage** Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus  
**Also known as** Pme1; PME-1; 1110069N17Rik; 2700017M01Rik  
**Expression** Ubiquitous expression in cortex adult (RPKM 60.3), frontal lobe adult (RPKM 53.2) and 28 other tissues [See more](#)  
**Orthologs** [human](#) [all](#)

### Genomic context

**Location:** 7; 7 E2

See Ppme1 in [Genome Data Viewer](#)

**Exon count:** 14

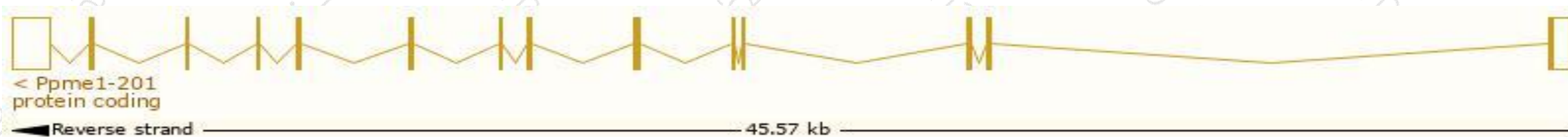
Annotation release	Status	Assembly	Chr	Location
<a href="#">108</a>	current	GRCm38.p6 ( <a href="#">GCF_000001635.26</a> )	7	NC_000073.6 (100326737..100371896, complement)
Build 37.2	previous assembly	MGSCv37 ( <a href="#">GCF_000001635.18</a> )	7	NC_000073.5 (107475247..107520406, complement)

# Transcript information (Ensembl)

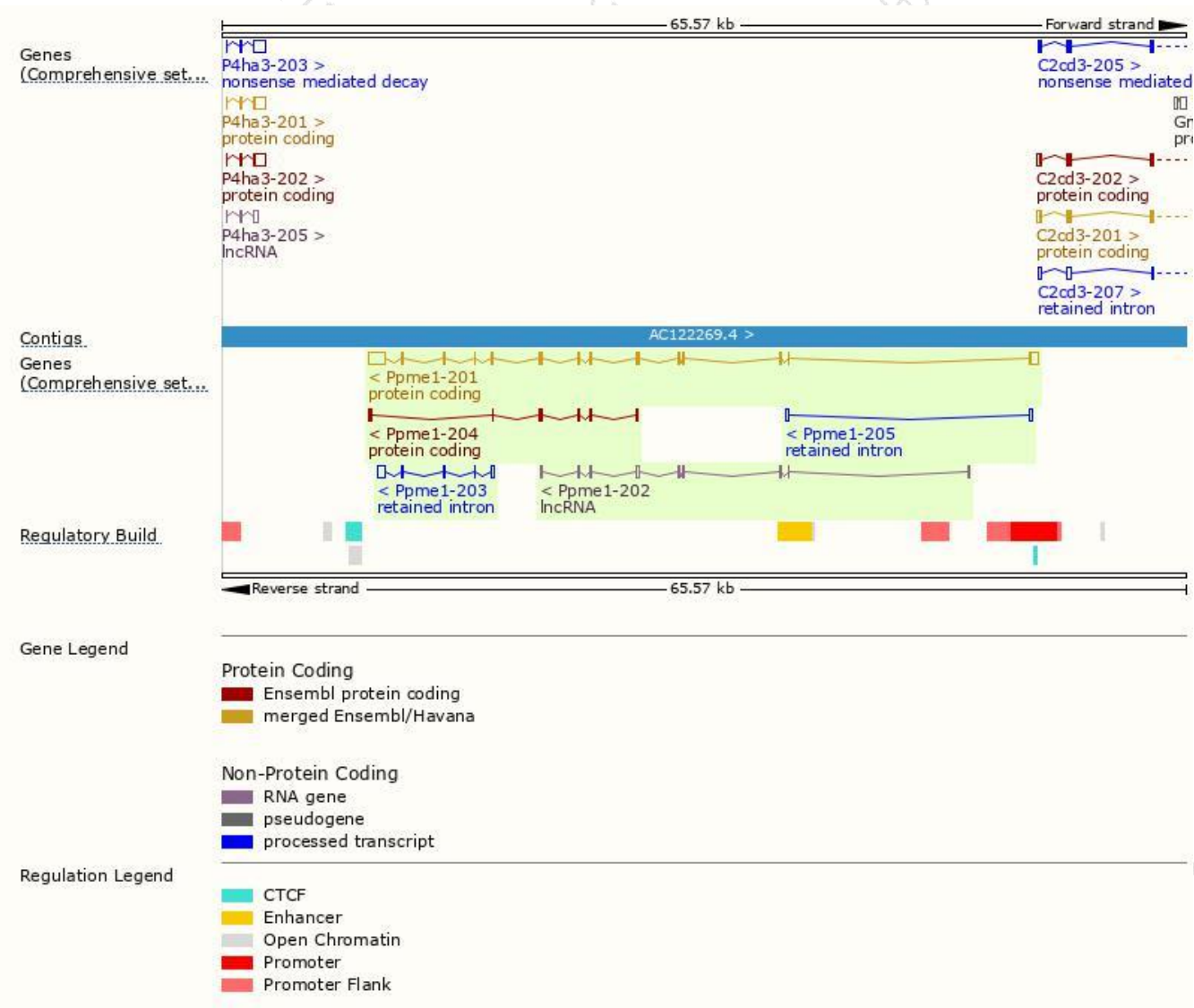
The gene has 5 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ppme1-201	<a href="#">ENSMUST00000032963.9</a>	2772	<a href="#">386aa</a>	Protein coding	<a href="#">CCDS40036</a>	<a href="#">Q8BVQ5</a>	TSL:1 GENCODE basic APPRIS P1
Ppme1-204	<a href="#">ENSMUST00000207634.1</a>	673	<a href="#">182aa</a>	Protein coding	-	<a href="#">A0A140LI84</a>	CDS 5' incomplete TSL:5
Ppme1-203	<a href="#">ENSMUST00000207622.1</a>	942	No protein	Retained intron	-	-	TSL:2
Ppme1-205	<a href="#">ENSMUST00000208168.1</a>	474	No protein	Retained intron	-	-	TSL:2
Ppme1-202	<a href="#">ENSMUST00000207092.1</a>	754	No protein	lncRNA	-	-	TSL:3

The strategy is based on the design of *Ppme1-201* transcript, The transcription is shown below

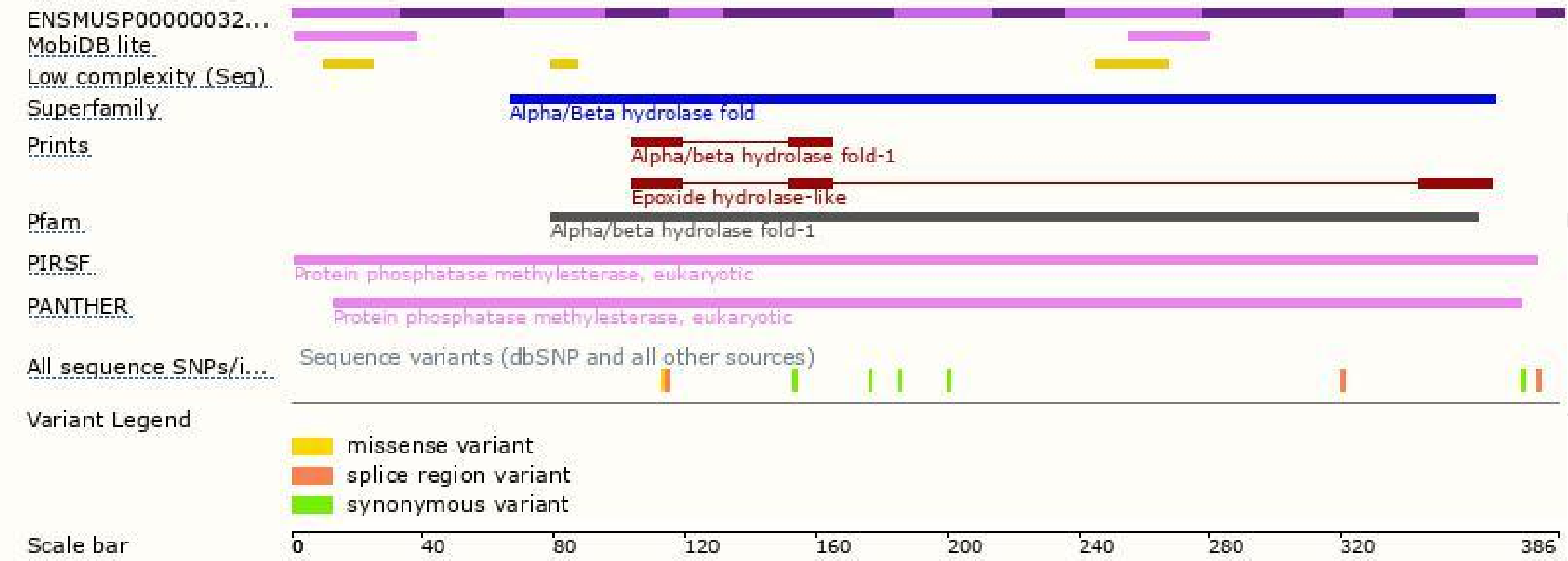


# Genomic location distribution



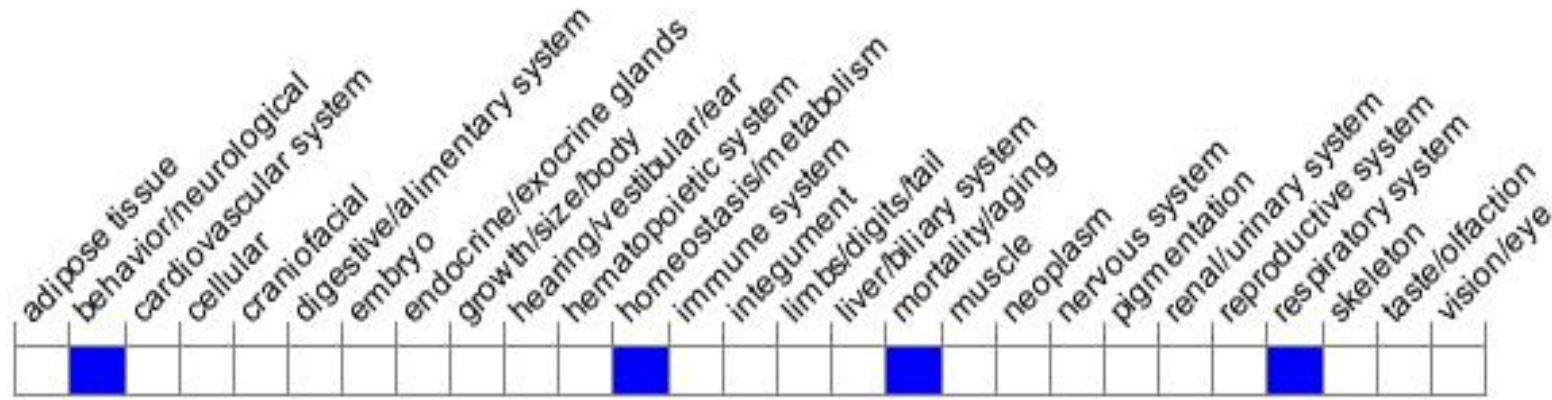


# Protein domain



# Mouse phenotype description(MGI)

## Phenotype Overview



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

According to the existing MGI data, Targeted disruption of this gene causes virtual loss of the demethylated form of phosphoprotein phosphatase 2A in the nervous system and peripheral tissues. Homozygous null mice fail to initiate normal breathing or suckling behavior and die within the first day of life.

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

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