

# ***Mpp5*** **Cas9-KO Strategy**

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# Project Overview

**Project Name**

*Mpp5*

**Project type**

**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Mpp5* gene. The schematic diagram is as follows:



- The *Mpp5* gene has 5 transcripts. According to the structure of *Mpp5* gene, exon4-exon7 of *Mpp5-201* (ENSMUST00000082024.6) transcript is recommended as the knockout region. The region contains 596bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Mpp5* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for a floxed allele activated in cortical neuron exhibit loss of cortex neurons due to premature differentiation and increased apoptosis. These mice also exhibit behavioral defects but are otherwise viable and fertile. Heterozygous mice exhibit an intermediate phenotype.
- Transcript *Mpp5*-202&203 may not be affected.
- The *Mpp5* gene is located on the Chr12. 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)

## Mpp5 membrane protein, palmitoylated 5 (MAGUK p55 subfamily member 5) [ *Mus musculus* (house mouse) ]

Gene ID: 56217, updated on 10-Oct-2019

### Summary

Official Symbol	Mpp5 provided by <a href="#">MGI</a>
Official Full Name	membrane protein, palmitoylated 5 (MAGUK p55 subfamily member 5) provided by <a href="#">MGI</a>
Primary source	<a href="#">MGI:MGI:1927339</a>
See related	<a href="#">Ensembl:ENSMUSG00000021112</a>
Gene type	protein coding
RefSeq status	VALIDATED
Organism	<a href="#">Mus musculus</a>
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Pals1; AI255216; AI644496; 3830420B02Rik
Expression	Ubiquitous expression in placenta adult (RPKM 4.8), CNS E11.5 (RPKM 4.1) and 24 other tissues <a href="#">See more</a>
Orthologs	<a href="#">human</a> <a href="#">all</a>

### Genomic context

Location: 12; 12 C3

See Mpp5 in [Genome Data Viewer](#)

Exon count: 16

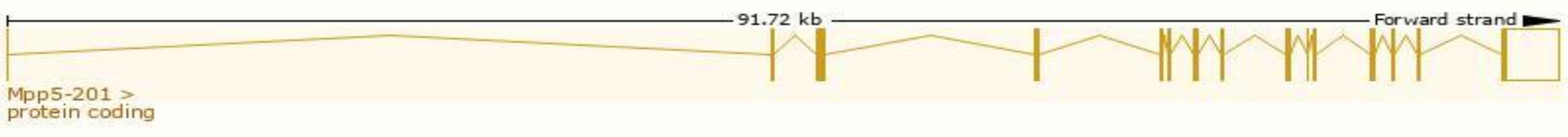
Annotation release	Status	Assembly	Chr	Location
<a href="#">108</a>	current	GRCm38.p6 ( <a href="#">GCF_000001635.26</a> )	12	NC_000078.6 (78748882..78840714)
Build 37.2	previous assembly	MGSCv37 ( <a href="#">GCF_000001635.18</a> )	12	NC_000078.5 (79849934..79941701)

# Transcript information (Ensembl)

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

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mpp5-201	<a href="#">ENSMUST00000082024.6</a>	5470	<a href="#">675aa</a>	Protein coding	<a href="#">CCDS26001</a>	<a href="#">B2RRY4 Q9JLB2</a>	TSL:1 GENCODE basic APPRIS P1
Mpp5-205	<a href="#">ENSMUST00000219667.1</a>	413	<a href="#">93aa</a>	Protein coding	-	<a href="#">A0A1W2P7Z6</a>	CDS 3' incomplete TSL:5
Mpp5-204	<a href="#">ENSMUST00000219197.1</a>	5283	<a href="#">285aa</a>	Nonsense mediated decay	-	<a href="#">A0A1W2P6P0</a>	TSL:1
Mpp5-203	<a href="#">ENSMUST00000219180.1</a>	3619	No protein	Retained intron	-	-	TSL:NA
Mpp5-202	<a href="#">ENSMUST00000218726.1</a>	424	No protein	Retained intron	-	-	TSL:NA

The strategy is based on the design of *Mpp5-201* transcript,The transcription is shown below



# Genomic location distribution

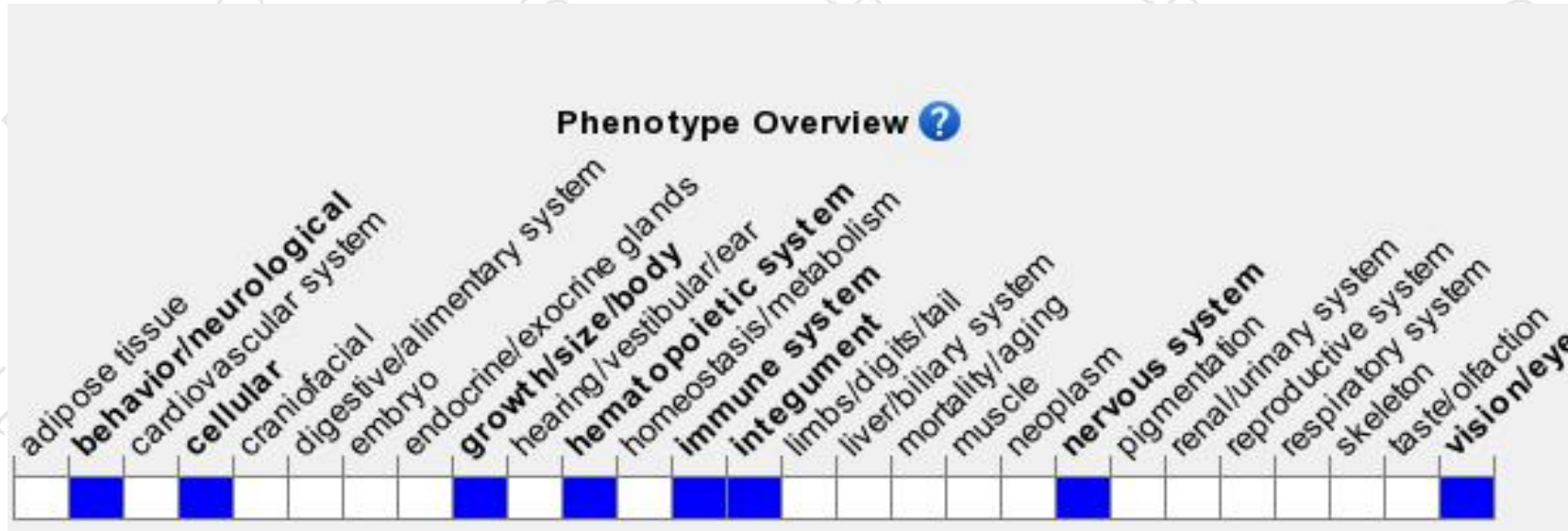




# Protein domain



# Mouse phenotype description(MGI )



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

According to the existing MGI data, Mice homozygous for a floxed allele activated in cortical neuron exhibit loss of cortex neurons due to premature differentiation and increased apoptosis. These mice also exhibit behavioral defects but are otherwise viable and fertile. Heterozygous mice exhibit an intermediate phenotype.

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

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