

# *Ppp4r3a* Cas9-KO Strategy

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# Project Overview

**Project Name**

*Ppp4r3a*

**Project type**

**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ppp4r3a* gene. The schematic diagram is as follows:



- The *Ppp4r3a* gene has 8 transcripts. According to the structure of *Ppp4r3a* gene, exon2 of *Ppp4r3a-201* (ENSMUST00000048305.9) transcript is recommended as the knockout region. The region contains 56bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ppp4r3a* gene. The brief process is as follows: CRISPR/Cas9 system

- Transcripts 204, 205 are unaffected.
- The effect on transcripts 206, 208 is unknown.
- The *Ppp4r3a* 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)

## Ppp4r3a protein phosphatase 4 regulatory subunit 3A [ *Mus musculus* (house mouse) ]

Gene ID: 68734, updated on 12-Aug-2019

### Summary

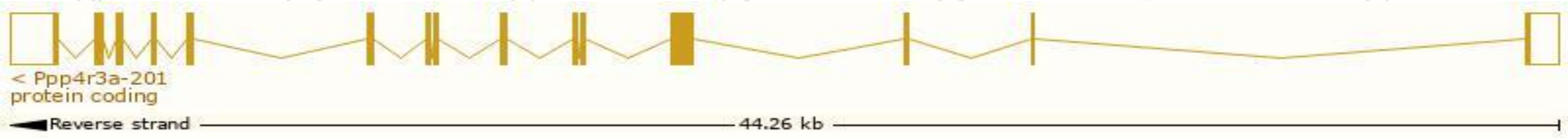
Official Symbol	Ppp4r3a provided by <a href="#">MGI</a>
Official Full Name	protein phosphatase 4 regulatory subunit 3A provided by <a href="#">MGI</a>
Primary source	<a href="#">MGI:MGI:1915984</a>
See related	<a href="#">Ensembl:ENSMUSG00000041846</a>
Gene type	protein coding
RefSeq status	VALIDATED
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	Smek1; BC064465; mKIAA2010; 1110034C04Rik
Expression	Ubiquitous expression in CNS E11.5 (RPKM 18.5), placenta adult (RPKM 11.4) and 28 other tissues <a href="#">See more</a>
Orthologs	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

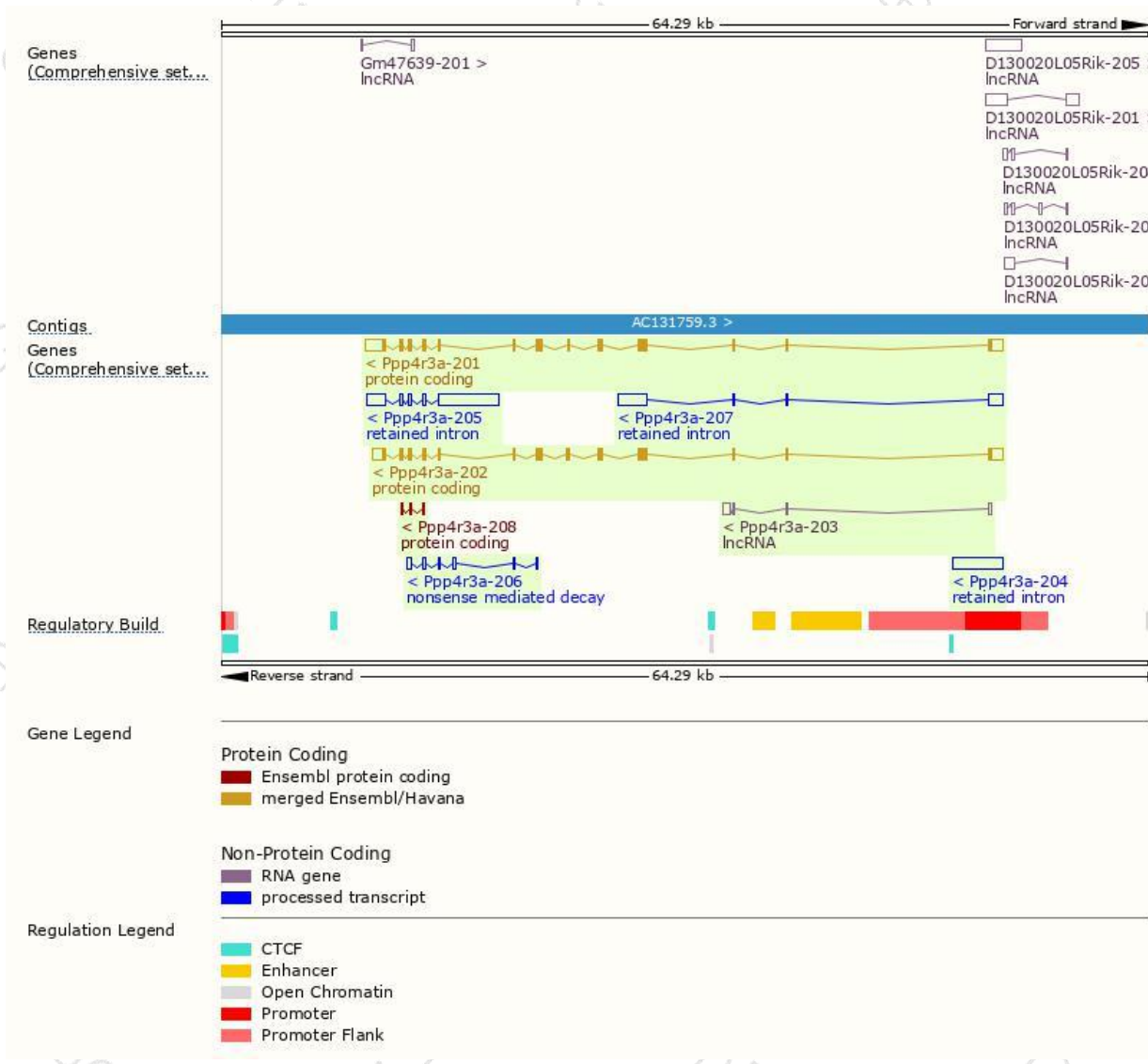
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ppp4r3a-201	<a href="#">ENSMUST00000048305.9</a>	4516	<a href="#">820aa</a>	Protein coding	<a href="#">CCDS26111</a>	<a href="#">Q6P2K6</a>	TSL:1 GENCODE basic APPRIS P3
Ppp4r3a-202	<a href="#">ENSMUST00000163095.8</a>	4083	<a href="#">833aa</a>	Protein coding	<a href="#">CCDS49142</a>	<a href="#">E9Q481</a>	TSL:5 GENCODE basic APPRIS ALT 1
Ppp4r3a-208	<a href="#">ENSMUST00000223459.1</a>	445	<a href="#">148aa</a>	Protein coding	-	<a href="#">A0A1Y7VJG9</a>	5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete TSL:2
Ppp4r3a-206	<a href="#">ENSMUST00000223091.1</a>	1065	<a href="#">77aa</a>	Nonsense mediated decay	-	<a href="#">A0A1Y7VM13</a>	CDS 5' incomplete TSL:5
Ppp4r3a-205	<a href="#">ENSMUST00000222956.1</a>	6009	No protein	Retained intron	-	-	TSL:1
Ppp4r3a-204	<a href="#">ENSMUST00000222302.1</a>	3455	No protein	Retained intron	-	-	TSL:NA
Ppp4r3a-207	<a href="#">ENSMUST00000223161.1</a>	3100	No protein	Retained intron	-	-	TSL:1
Ppp4r3a-203	<a href="#">ENSMUST00000221912.1</a>	856	No protein	lncRNA	-	-	TSL:5

The strategy is based on the design of *Ppp4r3a-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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