Ppp4r3a Cas9-CKO Strategy

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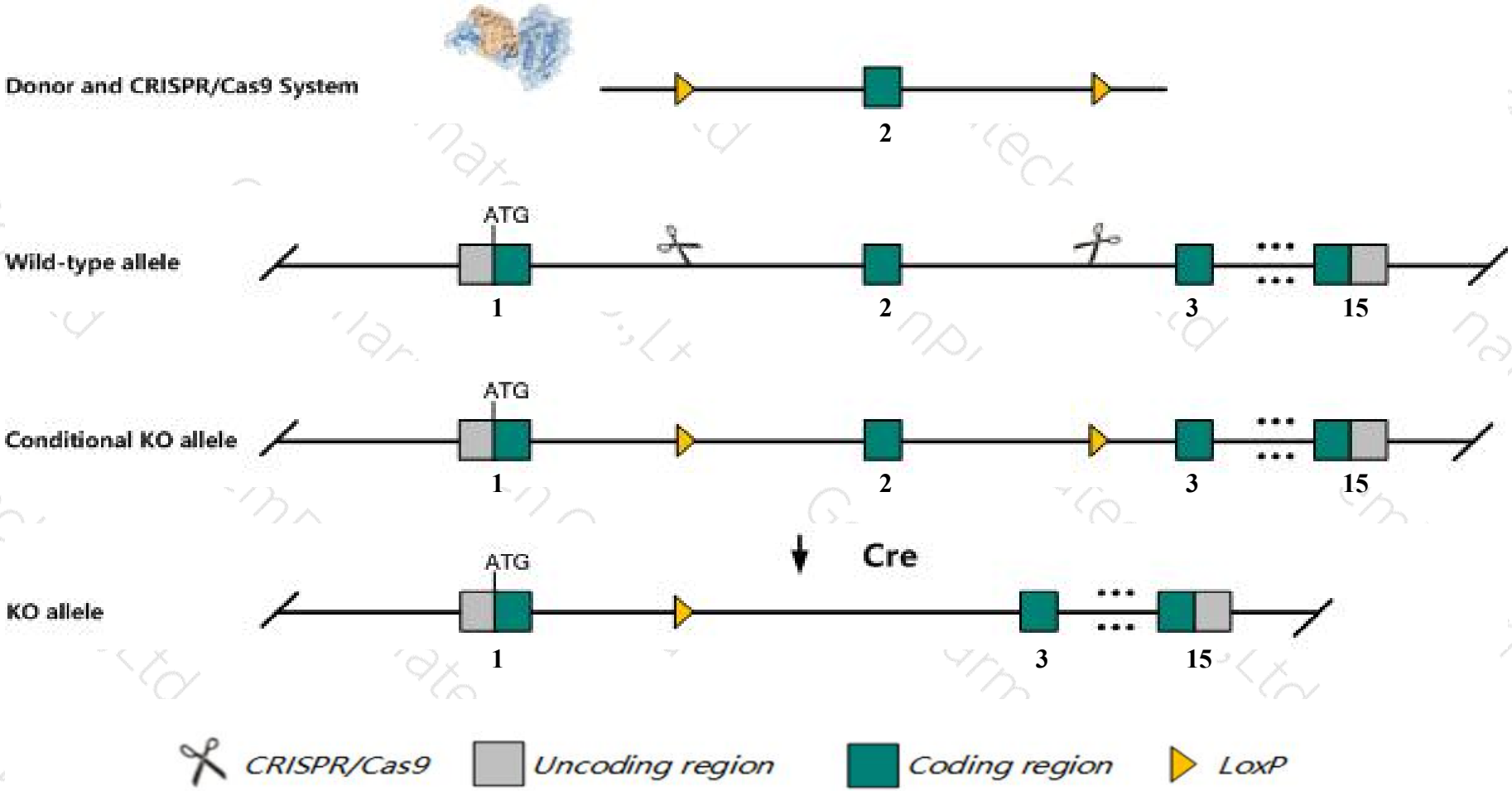
Project Overview

Project Name	***Ppp4r3a***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

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



Technical routes

- 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 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.

Notice

➢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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information （NCBI）

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

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

Summary

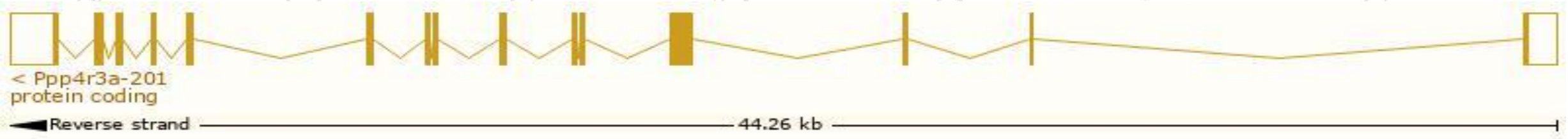
Official Symbol	Ppp4r3a provided by MGI
Official Full Name	protein phosphatase 4 regulatory subunit 3A provided by MGI
Primary source	MGI:MGI:1915984
See related	Ensembl:ENSMUSG00000041846
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Smek1; BC064465; mKIAA2010; 1110034C04Rik
Expression	Ubiquitous expression in CNS E11.5 (RPKM 18.5), placenta adult (RPKM 11.4) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

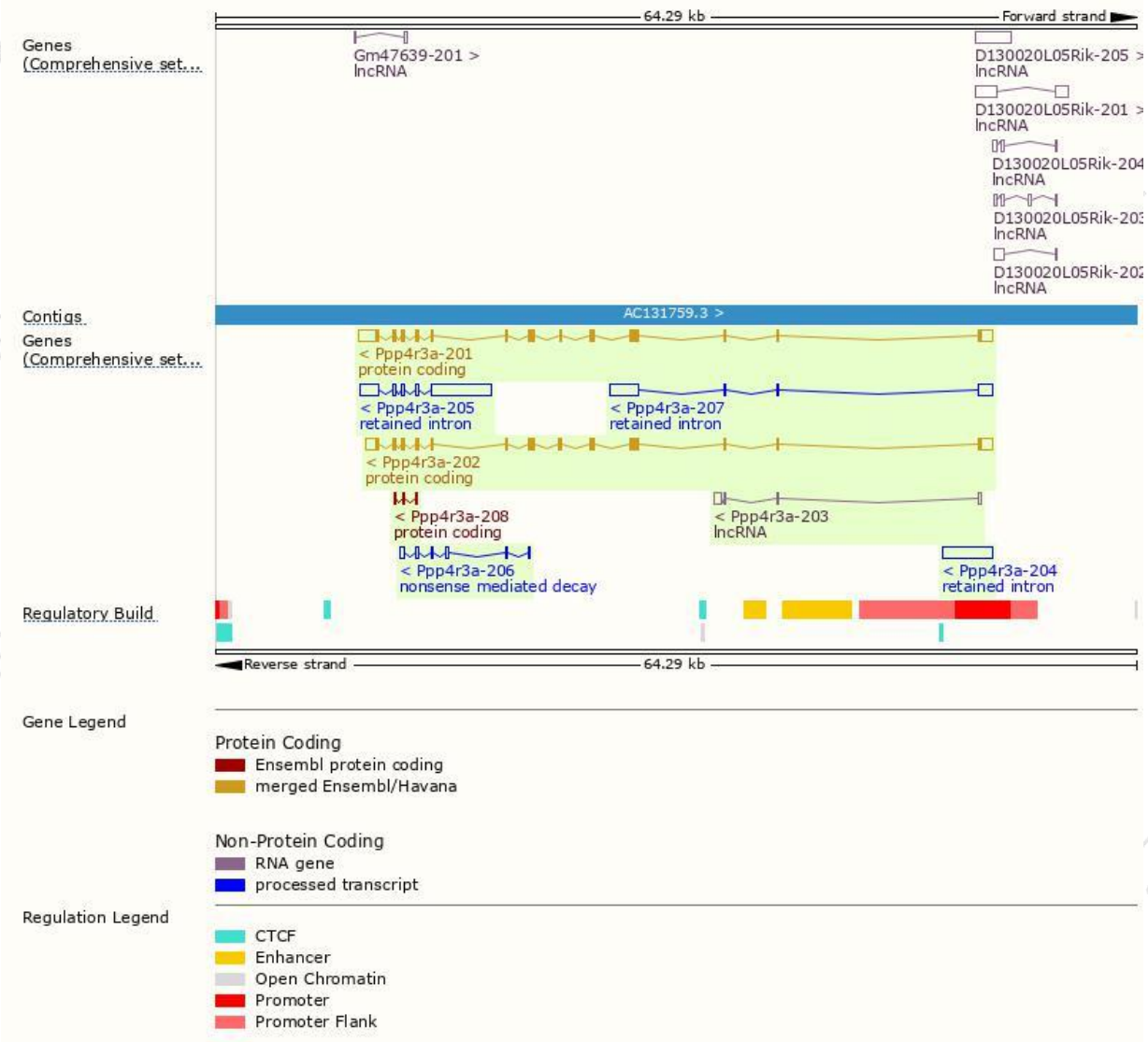
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ppp4r3a-201	ENSMUST00000048305.9	4516	820aa	Protein coding	CCDS26111	Q6P2K6	TSL:1 GENCODE basic APPRIS P3
Ppp4r3a-202	ENSMUST00000163095.8	4083	833aa	Protein coding	CCDS49142	E9Q481	TSL:5 GENCODE basic APPRIS ALT1
Ppp4r3a-208	ENSMUST00000223459.1	445	148aa	Protein coding	-	A0A1Y7VJG9	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	ENSMUST00000223091.1	1065	77aa	Nonsense mediated decay	-	A0A1Y7VMI3	CDS 5' incomplete TSL:5
Ppp4r3a-205	ENSMUST00000222956.1	6009	No protein	Retained intron	-	-	TSL:1
Ppp4r3a-204	ENSMUST00000222302.1	3455	No protein	Retained intron	-	-	TSL:NA
Ppp4r3a-207	ENSMUST00000223161.1	3100	No protein	Retained intron	-	-	TSL:1
Ppp4r3a-203	ENSMUST00000221912.1	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

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

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