

***Plrg1* Cas9-CKO Strategy**

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Project Overview

Project Name

Plrg1

Project type

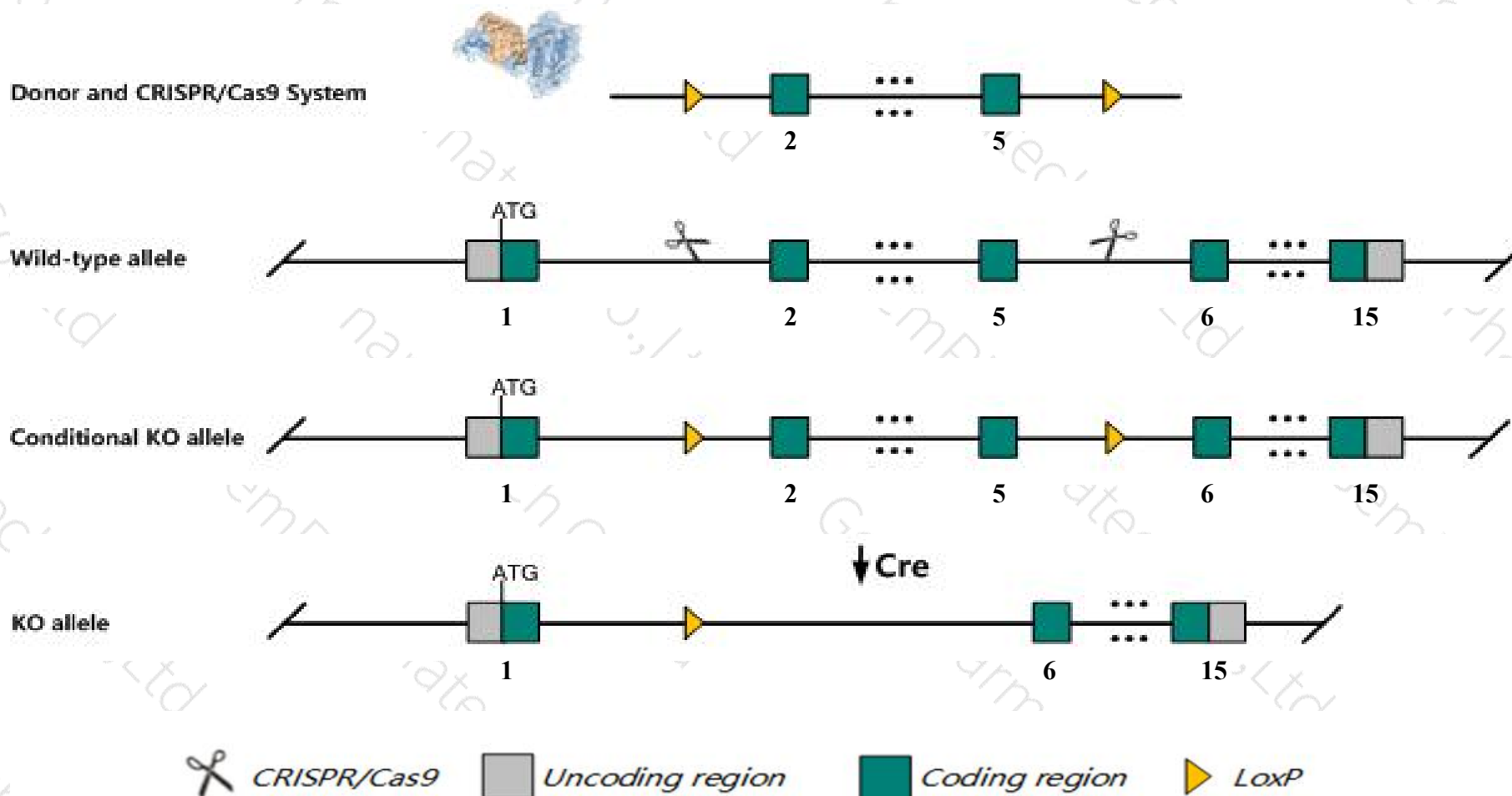
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Plrg1* gene. The schematic diagram is as follows:



Technical routes

- The *Plrg1* gene has 5 transcripts. According to the structure of *Plrg1* gene, exon2-exon5 of *Plrg1*-204(ENSMUST00000150268.7) transcript is recommended as the knockout region. The region contains 395bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Plrg1* gene. The brief process is as follows: gRNA was transcribed in vitro, donor was constructed. Cas9, gRNA 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.

- According to the existing MGI data, mice homozygous for a knock-out allele exhibit embryonic lethality by E1.5.
- The *Plrg1* gene is located on the Chr3. 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)

Plrg1 pleiotropic regulator 1 [Mus musculus (house mouse)]

Gene ID: 53317, updated on 13-Mar-2020

Summary



Official Symbol	Plrg1 provided by MGI
Official Full Name	pleiotropic regulator 1 provided by MGI
Primary source	MGI:MGI:1858197
See related	Ensembl:ENSMUSG00000027998
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	AA958940, C80566, Tango4
Expression	Ubiquitous expression in CNS E11.5 (RPKM 34.5), CNS E14 (RPKM 30.5) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

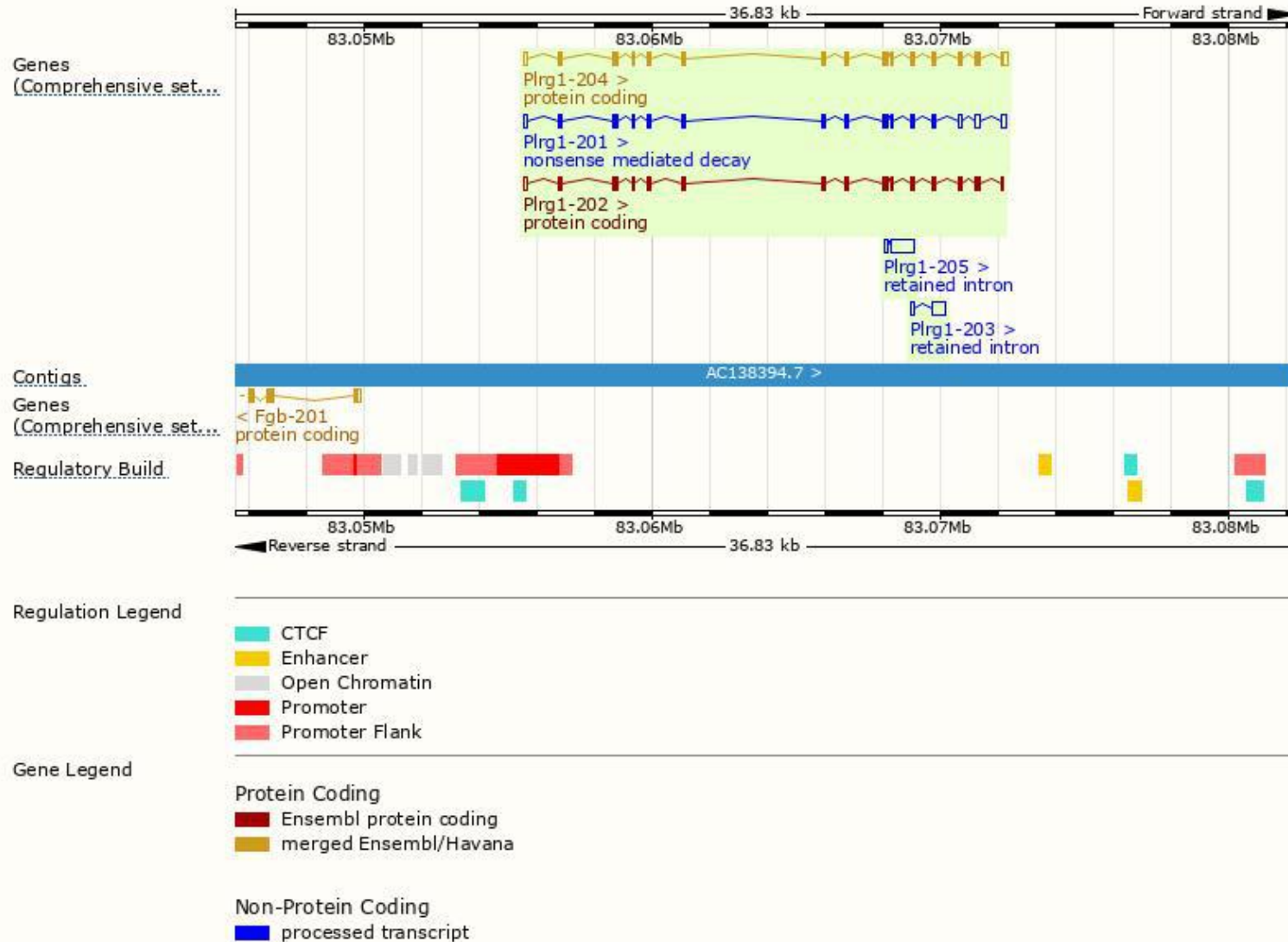
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Plrg1-204	ENSMUST00000150268.7	1851	513aa	Protein coding	CCDS17433	Q922V4	TSL:1 GENCODE basic APPRIS P1
Plrg1-202	ENSMUST00000122128.1	1608	504aa	Protein coding	-	D3Z4V1	TSL:5 GENCODE basic
Plrg1-201	ENSMUST00000029628.10	1749	383aa	Nonsense mediated decay	-	F8WI31	TSL:1
Plrg1-205	ENSMUST00000151915.1	911	No protein	Retained intron	-	-	TSL:3
Plrg1-203	ENSMUST00000135813.1	564	No protein	Retained intron	-	-	TSL:3

The strategy is based on the design of *Plrg1-204* transcript,the transcription is shown below:



Genomic location distribution



Protein domain

ENSMUSP00000114...

[Superfamily](#)

[SMART](#)

[Prints](#)

[Pfam](#)

[PROSITE profiles](#)

[PROSITE patterns](#)

[PANTHER](#)

[Gene3D](#)

[CDD](#)

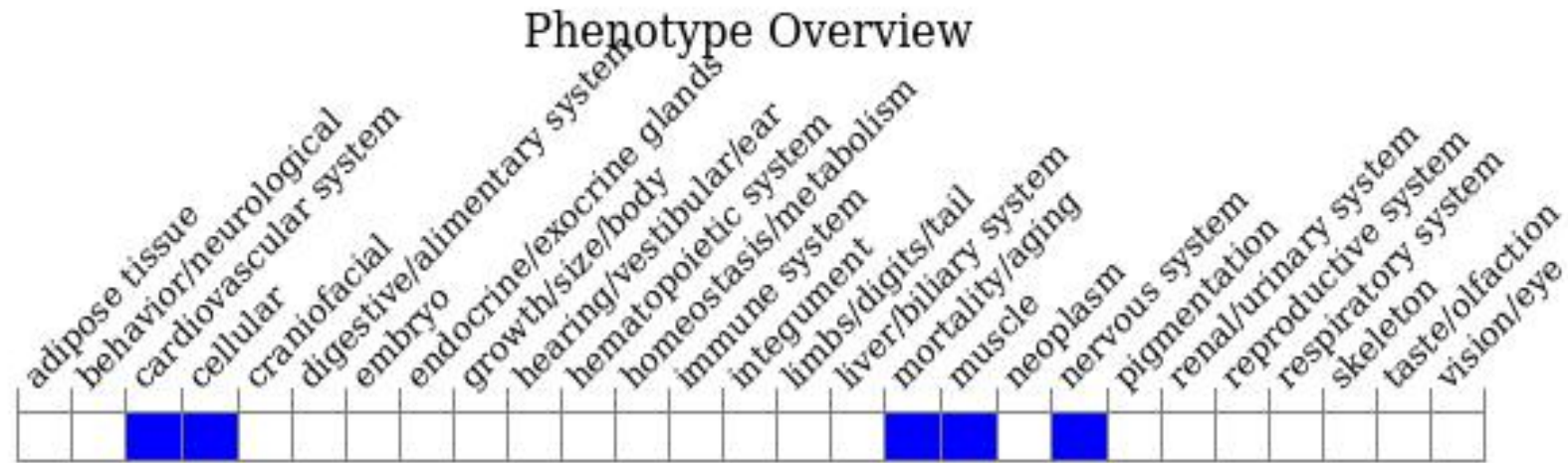
[All sequence SNPs/i...](#)

[Variant Legend](#)

[Scale bar](#)



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 knock-out allele exhibit embryonic lethality by E1.5.

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

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