

Pdia6 Cas9-CKO Strategy

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Design Date: 2019-8-9

Project Overview

Project Name

Pdia6

Project type

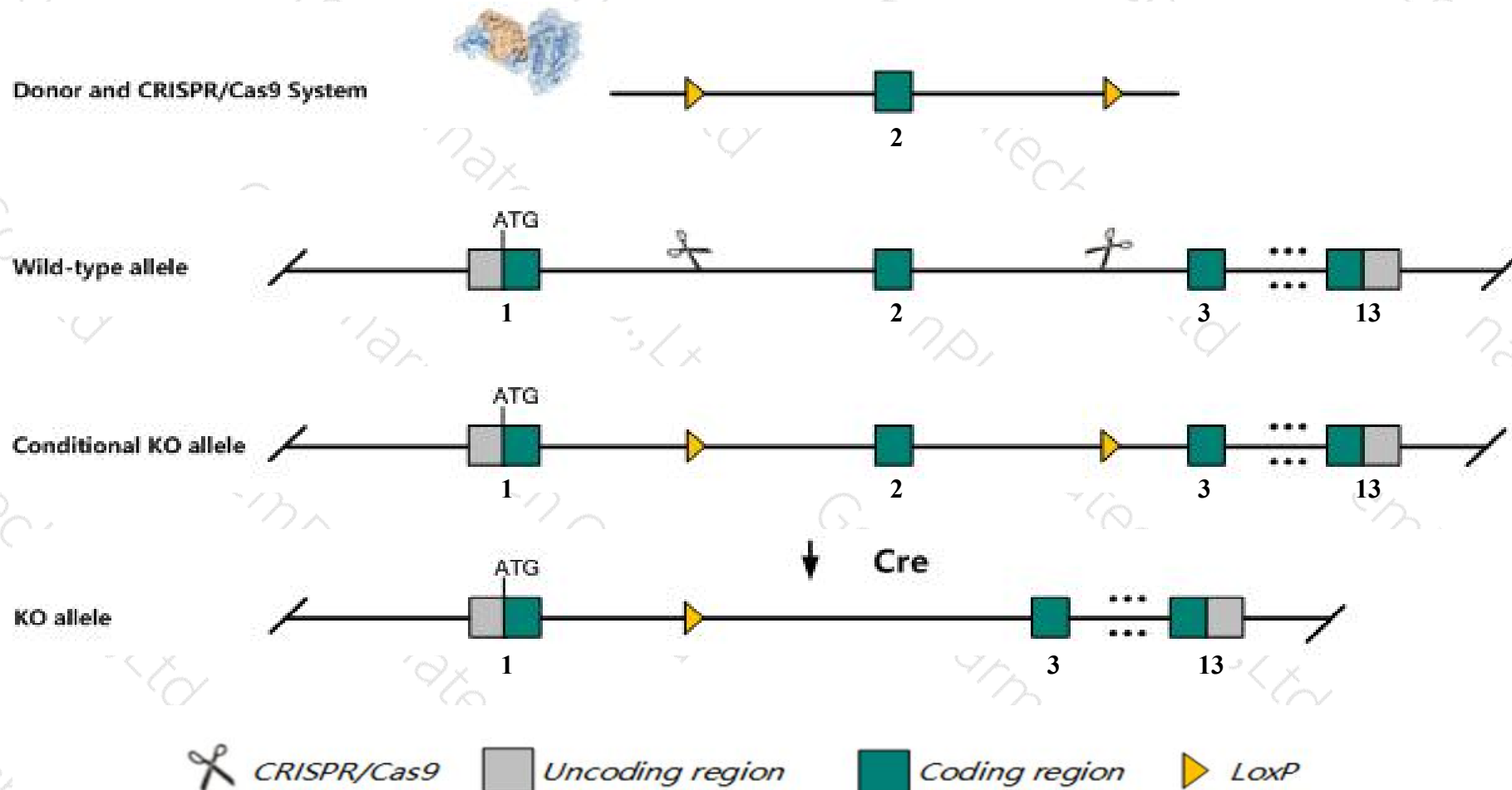
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pdia6* gene. The schematic diagram is as follows:



- The *Pdia6* gene has 5 transcripts. According to the structure of *Pdia6* gene, exon2 of *Pdia6-201* (ENSMUST00000057288.5) transcript is recommended as the knockout region. The region contains 142bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Pdia6* 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

- Transcript *Pdia6*-202&205 may not be affected.
- The *Pdia6* 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)

Pdia6 protein disulfide isomerase associated 6 [Mus musculus (house mouse)]

Gene ID: 71853, updated on 21-Feb-2019

Summary



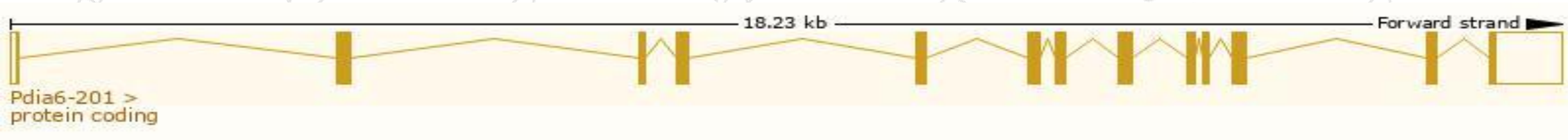
Official Symbol	Pdia6 provided by MGI
Official Full Name	protein disulfide isomerase associated 6 provided by MGI
Primary source	MGI:MGI:1919103
See related	Ensembl:ENSMUSG00000020571
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1700015E05Rik, AL023058, C77895, CaBP5, P5, Txndc7
Expression	Broad expression in placenta adult (RPKM 219.9), CNS E11.5 (RPKM 121.2) and 24 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

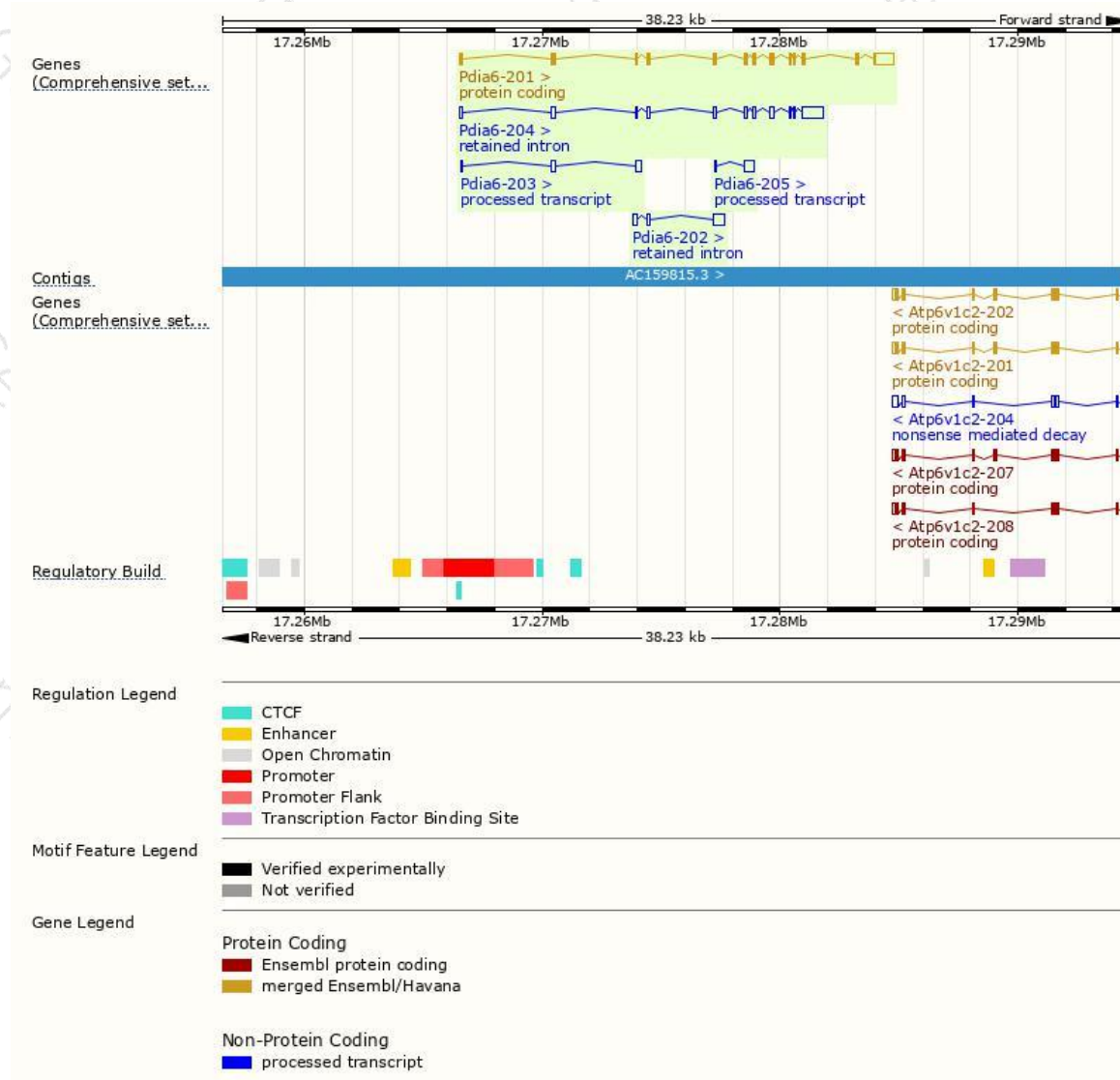
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pdia6-201	ENSMUST00000057288.5	2175	445aa	Protein coding	CCDS25826	Q3TML0	TSL:1 GENCODE basic APPRIS P1
Pdia6-205	ENSMUST00000163000.1	491	No protein	Processed transcript	-	-	TSL:1
Pdia6-203	ENSMUST00000161853.1	436	No protein	Processed transcript	-	-	TSL:2
Pdia6-204	ENSMUST00000162936.7	1986	No protein	Retained intron	-	-	TSL:1
Pdia6-202	ENSMUST00000159434.1	738	No protein	Retained intron	-	-	TSL:3

The strategy is based on the design of *Pdia6-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain

ENSMUSP00000052...

Transmembrane heli...

MobiDB lite

Low complexity (Seg)

Conserved Domains

Cleavage site (Sign...

hmmpanther

TIGRFAM domain

Superfamily domains

Prints domain

Pfam domain

PROSITE profiles

PROSITE patterns

Gene3D

All sequence SNPs/i...

Variant Legend

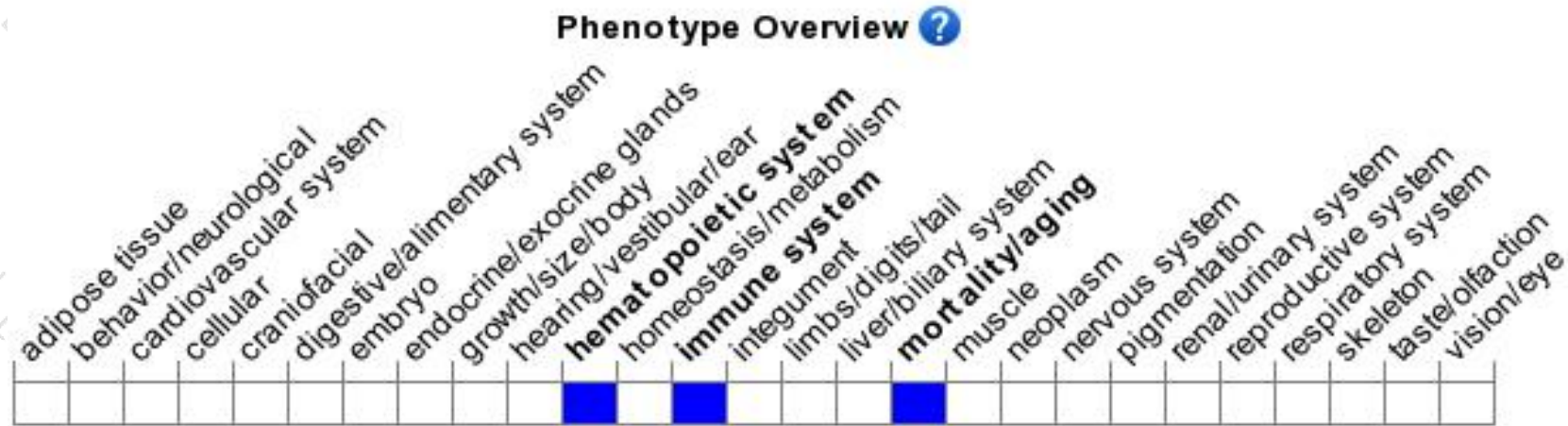


Scale bar

0 40 80 120 160 200 240 280 320 360 400 445

missense variant
synonymous variant

Mouse phenotype description(MGI)



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

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

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