

Pcid2 Cas9-CKO Strategy

Designer: Xueting Zhang

Reviewer: Daohua Shen

Design Date: 2020-6-10

Project Overview

Project Name

Pcid2

Project type

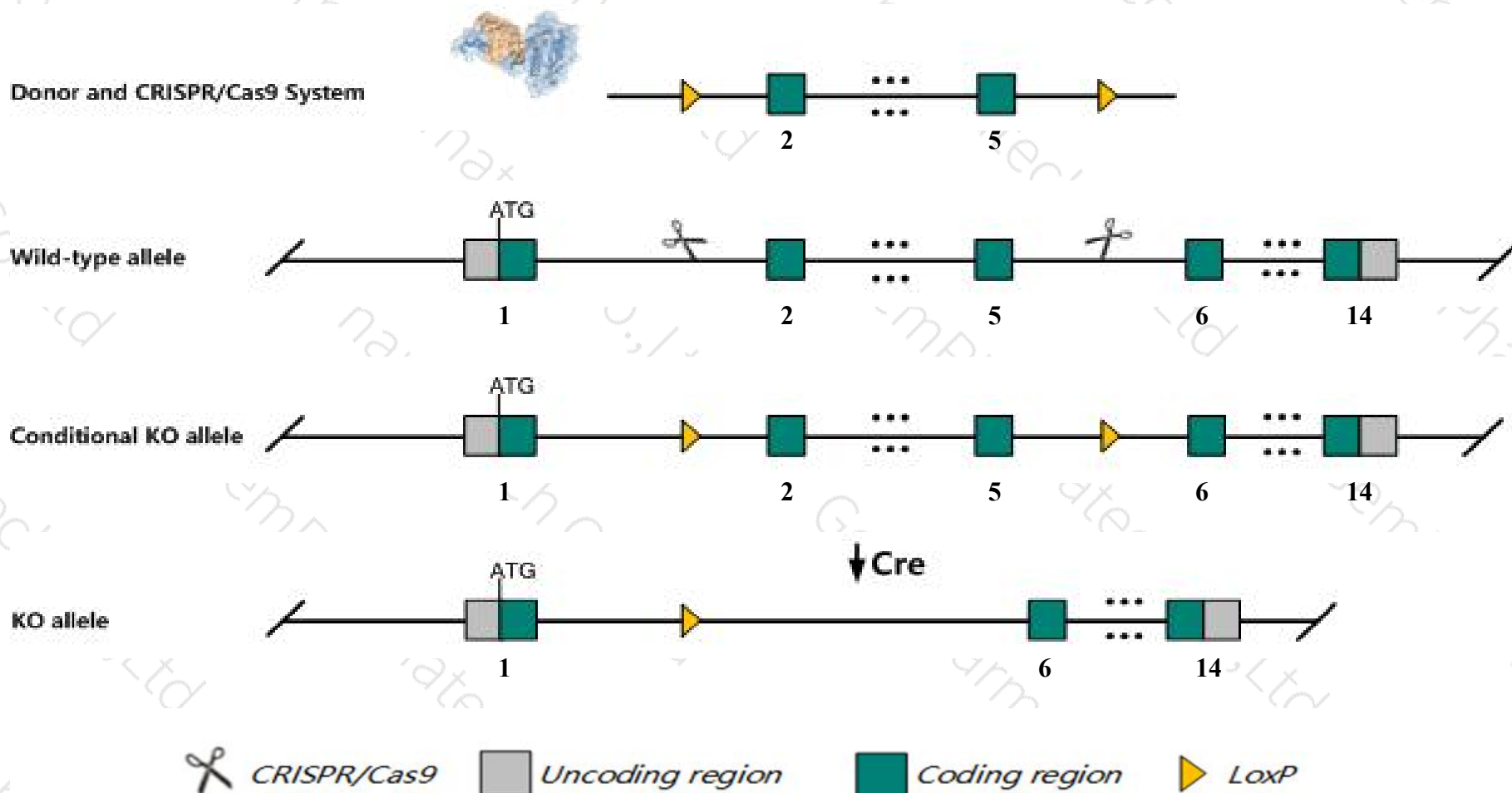
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pcid2* gene. The schematic diagram is as follows:



- The *Pcid2* gene has 6 transcripts. According to the structure of *Pcid2* gene, exon2-exon5 of *Pcid2*-201 (ENSMUST00000164416.7) transcript is recommended as the knockout region. The region contains 272bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Pcid2* 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.

- According to the existing MGI data, homozygotes for a targeted null mutation implant, but die prior to embryonic day 7.5. heterozygotes also exhibit excess embryonic loss.
- The floxed region is near to the N-terminal of *Cul4a* gene, this strategy may influence the regulatory function of the N-terminal of *Cul4a* gene.
- Transcript *Pcid2*-202 may not be affected.
- The *Pcid2* gene is located on the Chr8. 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)

Pcid2 PCI domain containing 2 [Mus musculus (house mouse)]

Gene ID: 234069, updated on 13-Mar-2020

Summary



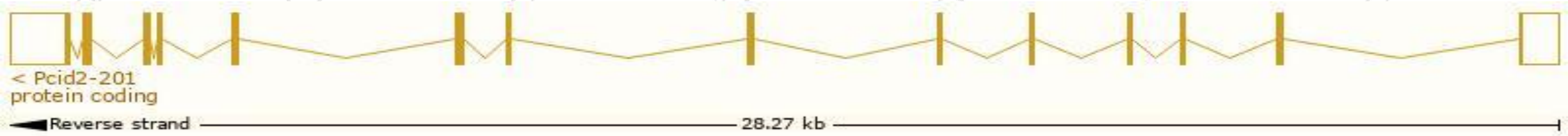
Official Symbol	Pcid2 provided by MGI
Official Full Name	PCI domain containing 2 provided by MGI
Primary source	MGI:MGI:2443003
See related	Ensembl:ENSMUSG00000038542
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	A730042J05Rik
Expression	Ubiquitous expression in testis adult (RPKM 8.8), thymus adult (RPKM 6.3) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

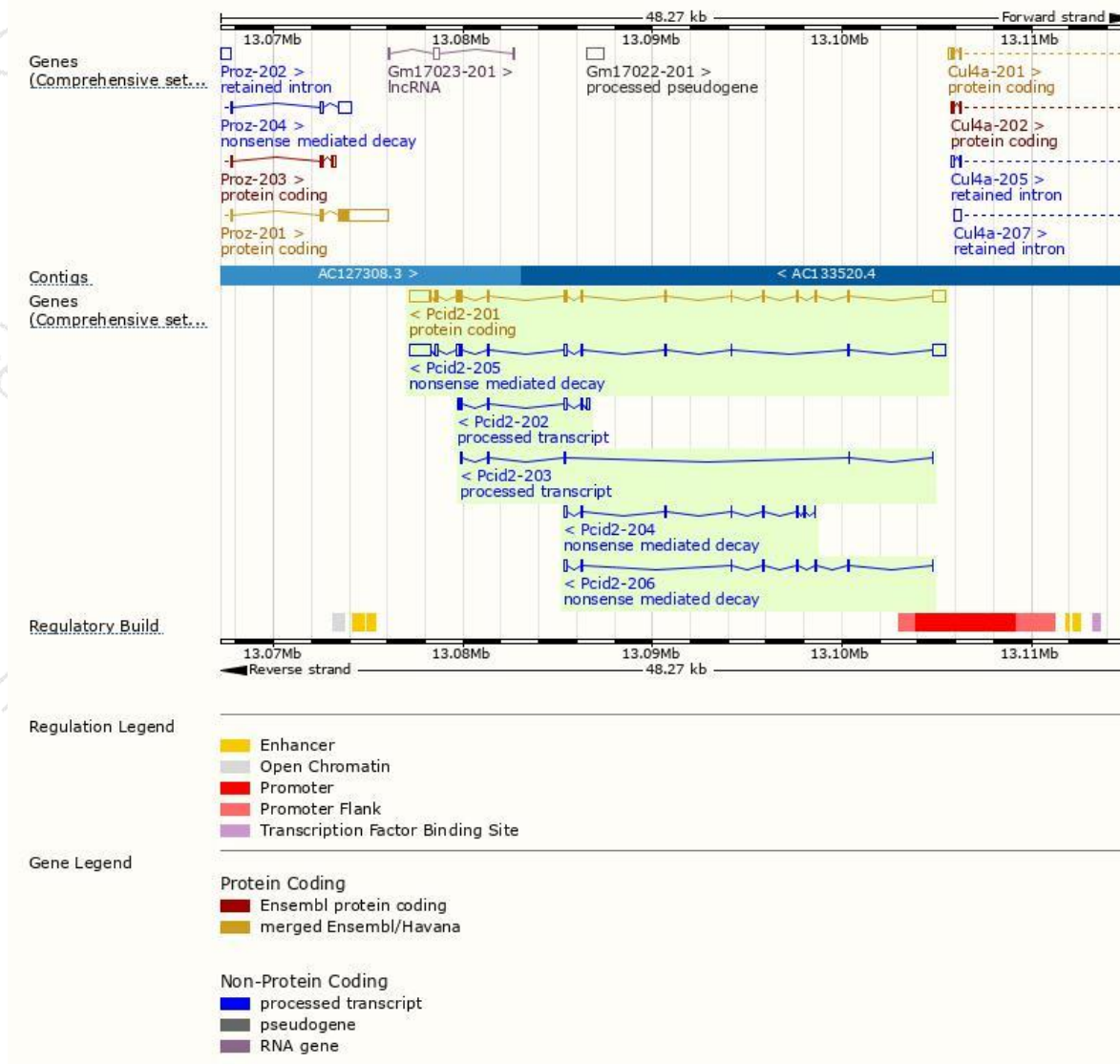
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pcid2-201	ENSMUST00000164416.7	2860	399aa	Protein coding	CCDS52484	Q8BFV2	TSL:1 GENCODE basic APPRIS P1
Pcid2-205	ENSMUST00000168164.7	2678	52aa	Nonsense mediated decay	-	E9Q5V9	TSL:1
Pcid2-204	ENSMUST00000167198.1	627	23aa	Nonsense mediated decay	-	F6QZZ3	CDS 5' incomplete TSL:5
Pcid2-206	ENSMUST00000172443.1	541	128aa	Nonsense mediated decay	-	E9Q1H5	TSL:5
Pcid2-202	ENSMUST00000165097.7	558	No protein	Processed transcript	-	-	TSL:3
Pcid2-203	ENSMUST00000166881.1	374	No protein	Processed transcript	-	-	TSL:2

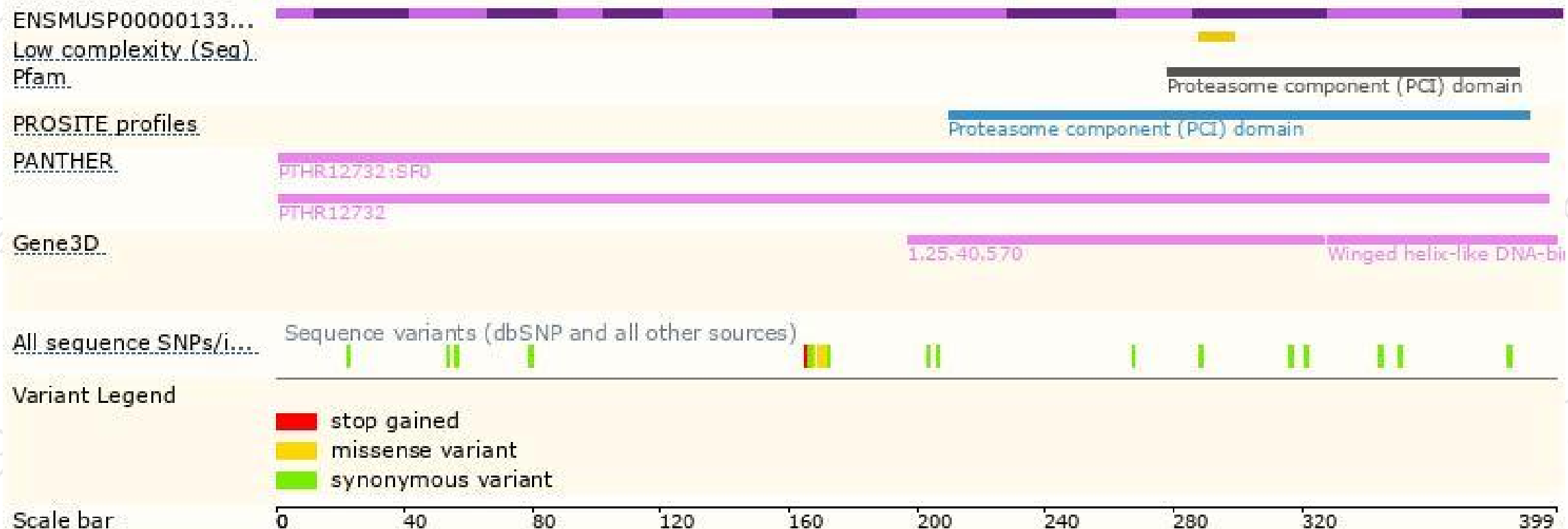
The strategy is based on the design of *Pcid2-201* transcript,the transcription is shown below:



Genomic location distribution

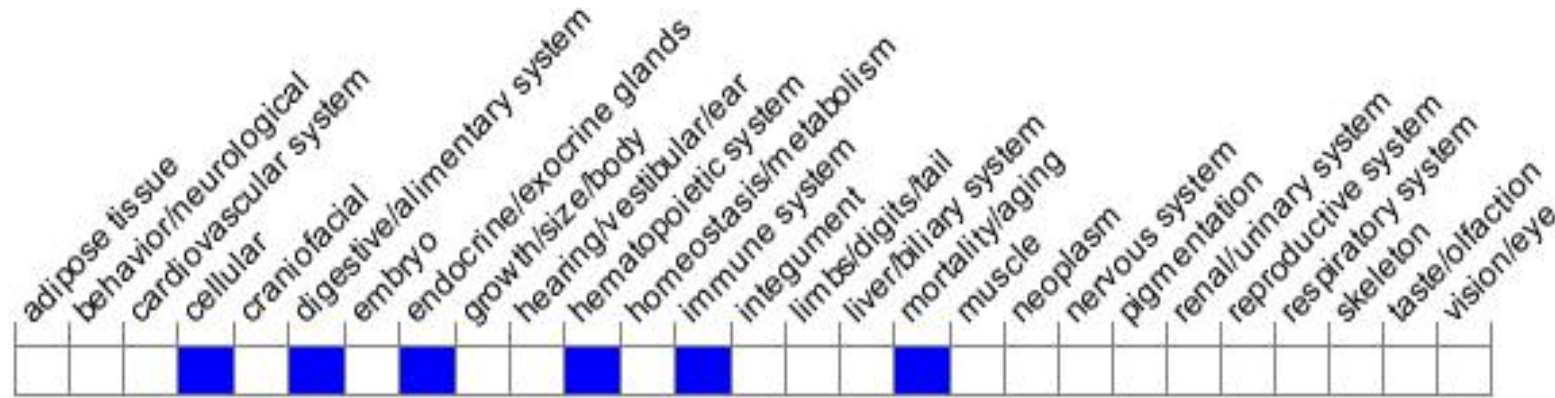


Protein domain



Mouse phenotype description(MGI)

Phenotype Overview



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

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7.5. Heterozygotes also exhibit excess embryonic loss.

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

Tel: 400-9660890

