Plcd1 Cas9-CKO Strategy

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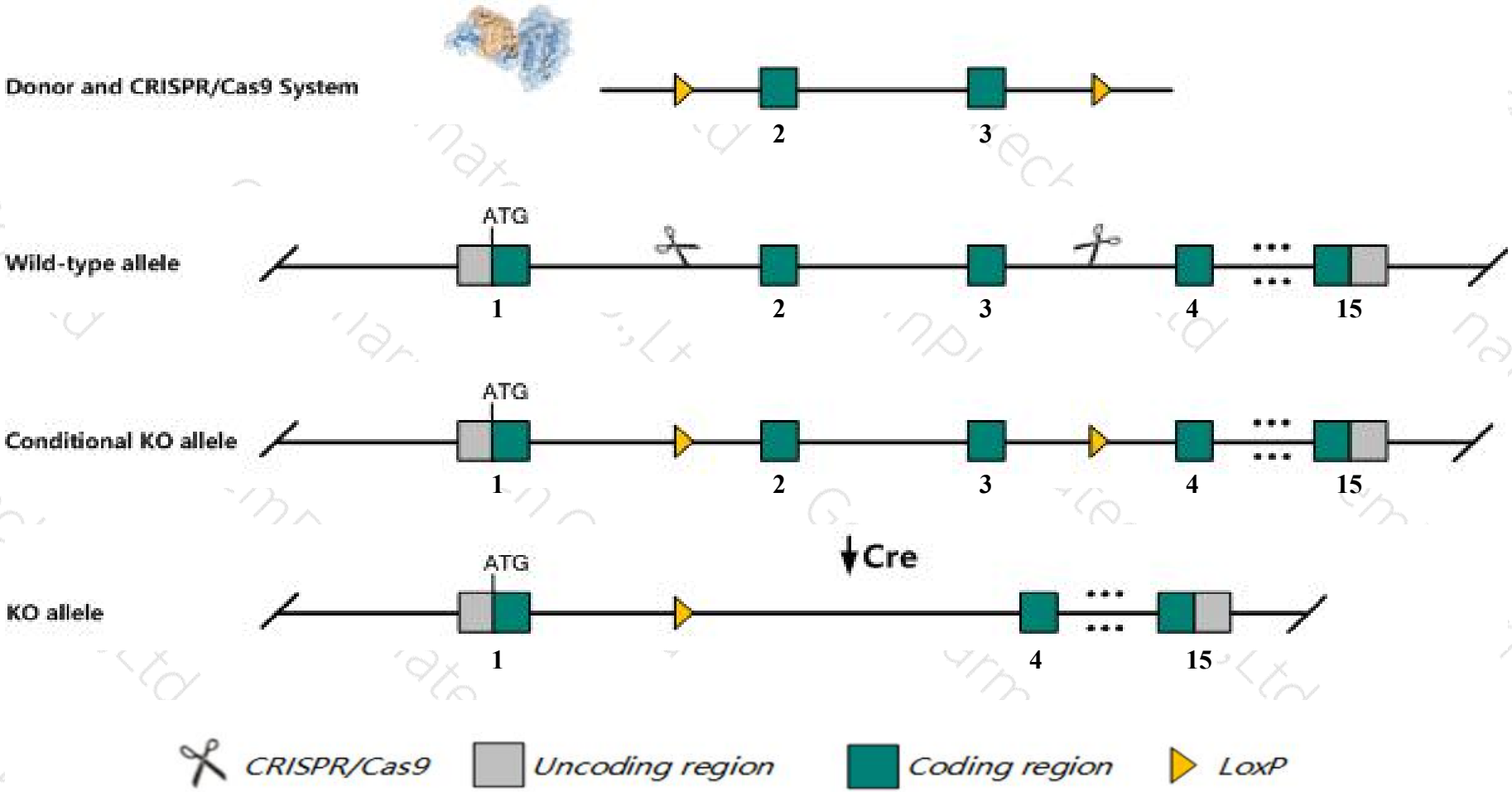
Project Overview

Project Name	***Plcd1***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Plcd1* gene. The schematic diagram is as follows:



Technical routes

- The *Plcd1* gene has 4 transcripts. According to the structure of *Plcd1* gene, exon2-exon3 of *Plcd1-201* (ENSMUST00000010804.3) transcript is recommended as the knockout region.The region contains 394bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Plcd1* 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

➢ According to the existing MGI data,Mice homozygous for disruptions in this gene show reduced body size and various abnormalities of the skin and hair including alopecia, epidermal hyperplasia, enlarged sebaceous glands, various kinds of cysts, and skin tumors.

➢ The *Plcd1* gene is located on the Chr9. 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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Plcd1 phospholipase C, delta 1 [Mus musculus (house mouse)]

Gene ID: 18799, updated on 31-Jan-2019

Summary

Official Symbol	Plcd1 provided by MGI
Official Full Name	phospholipase C, delta 1 provided by MGI
Primary source	MGI:MGI:97614
See related	Ensembl:ENSMUSG00000010660
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	AW212592, C79986
Expression	Ubiquitous expression in bladder adult (RPKM 20.0), colon adult (RPKM 17.5) and 24 other tissues See more
Orthologs	human all

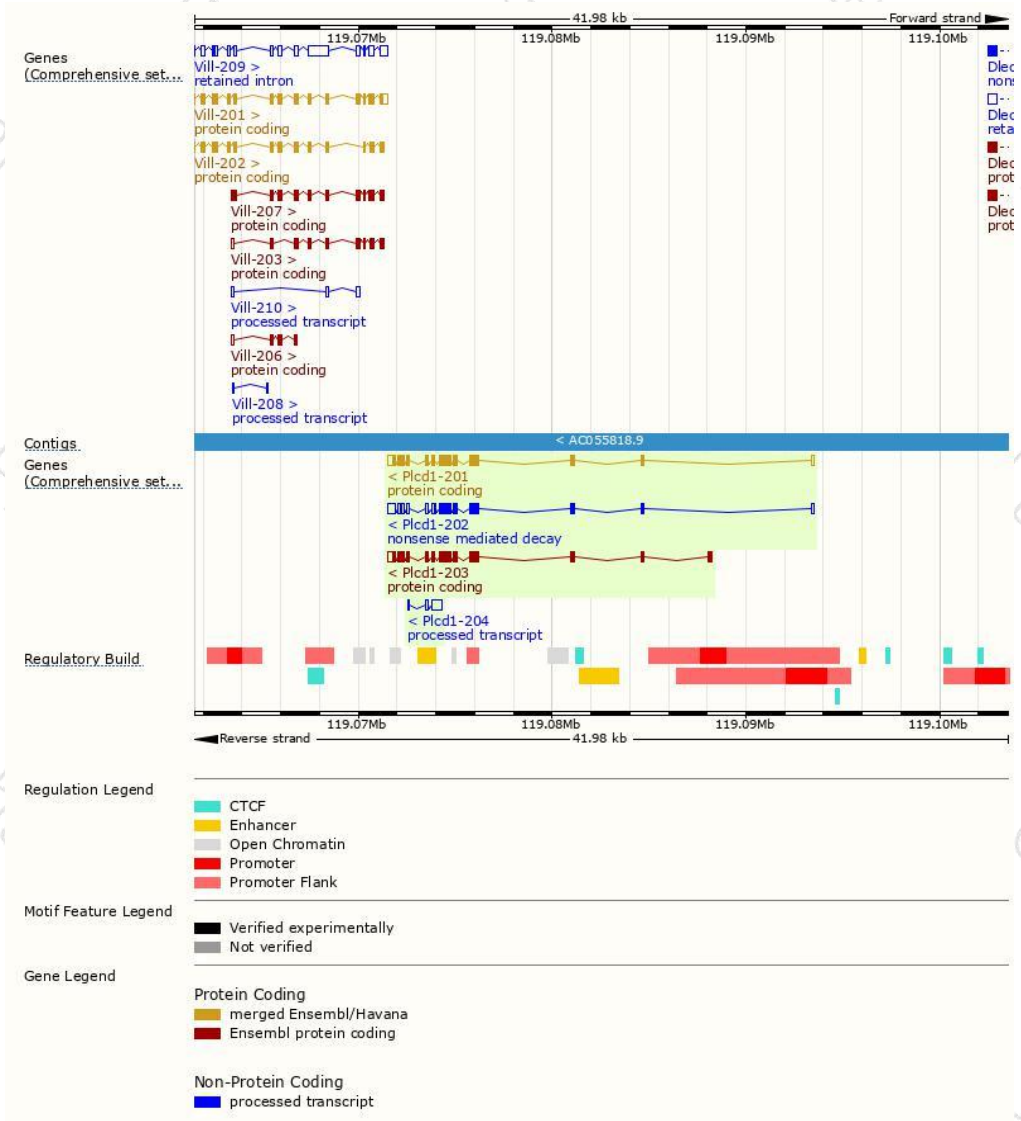
Transcript information（Ensembl）

The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Plcd1-201	ENSMUST00000010804.3	2657	756aa	Protein coding	CCDS23607	Q8R3B1	TSL:1 GENCODE basic APPRIS P1
Plcd1-202	ENSMUST00000213464.1	2715	503aa	Nonsense mediated decay	-	Q05DG3	TSL:1
Plcd1-203	ENSMUST00000214470.1	2706	782aa	Protein coding	-	G5DDB7	TSL:1 GENCODE basic
Plcd1-204	ENSMUST00000214491.1	674	No protein	lncRNA	-	-	TSL:5

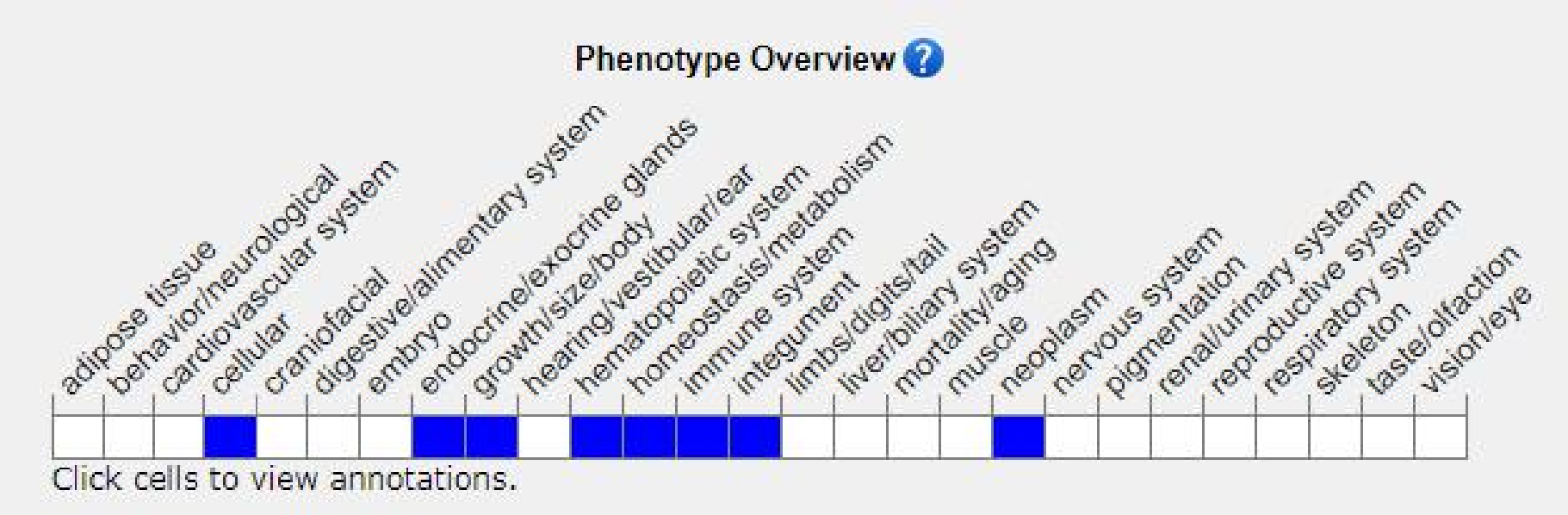
The strategy is based on the design of *Plcd1-201* transcript,The transcription is shown below

Genomic location distribution



Protein domain

Mouse phenotype description(MGI)



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

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

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