

Pde6g Cas9-CKO Strategy

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Project Overview

Project Name

Pde6g

Project type

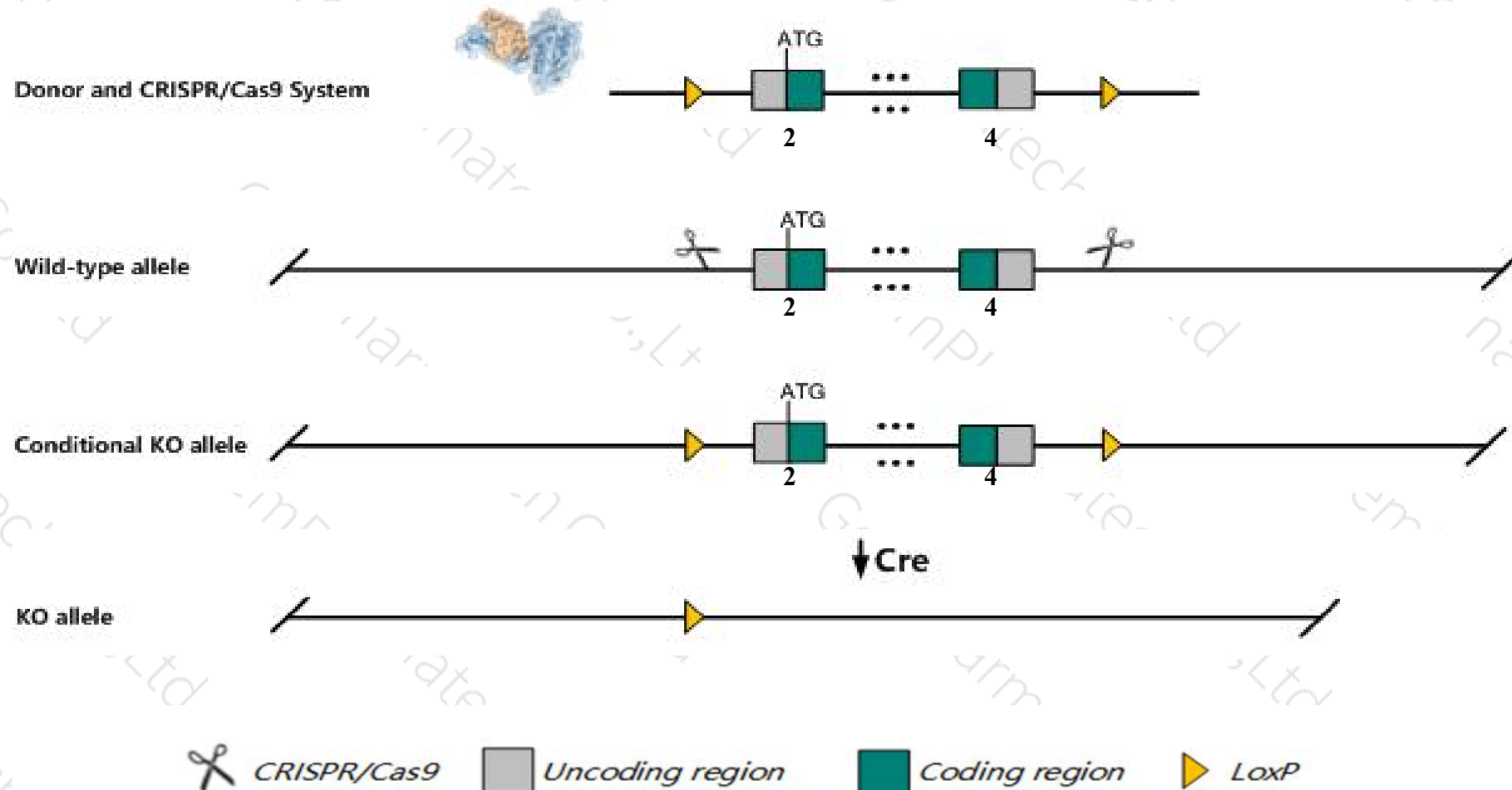
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pde6g* gene. The schematic diagram is as follows:



- The *Pde6g* gene has 3 transcripts. According to the structure of *Pde6g* gene, exon2-exon4 of *Pde6g*-201 (ENSMUST00000026452.2) transcript is recommended as the knockout region. The region contains all of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Pde6g* 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, Mice homozygous for disruptions in this gene have poorly developed photoreceptors that degenerate with age.
- The floxed region is near to the N-terminal of *Ccdc137* gene and *Nploc4* gene and C-terminal of *Tspan10* gene, this strategy may influence the regulatory function of the N-terminal of *Ccdc137* gene and *Nploc4* gene and C-terminal of *Tspan10* gene.
- The *Pde6g* gene is located on the Chr11. 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)



Pde6g phosphodiesterase 6G, cGMP-specific, rod, gamma [*Mus musculus* (house mouse)]

Gene ID: 18588, updated on 12-Aug-2019

Summary

- Official Symbol** Pde6g provided by MGI
- Official Full Name** phosphodiesterase 6G, cGMP-specific, rod, gamma provided by MGI
- Primary source** MGI:MGI:97526
- See related** Ensembl:ENSMUSG00000025386
- 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** Pdeg; p3AT
- Expression** Low expression observed in reference dataset See more
- Orthologs** human all

Genomic context

Location: 11 E2; 11 84.14 cM See Pde6g in Genome Data Viewer

Exon count: 5

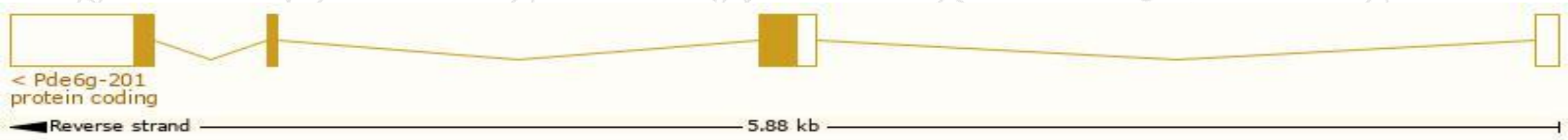
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	11	NC_000077.6 (120447607..120453500, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	11	NC_000077.5 (120308924..120314797, complement)

Transcript information (Ensembl)

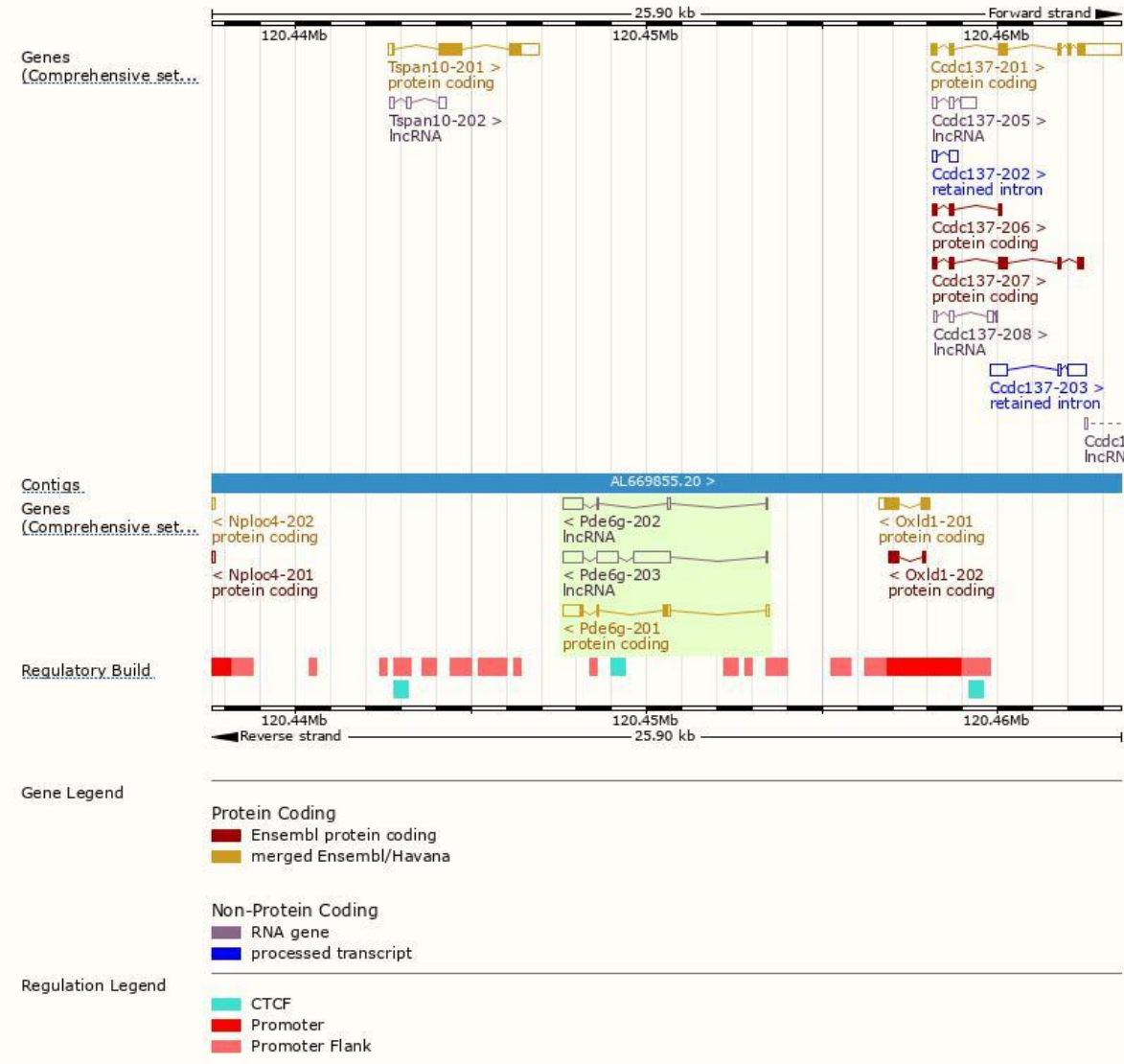
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pde6g-201	ENSMUST00000026452.2	900	87aa	Protein coding	CCDS36389	P09174 Q542R6	TSL:1 GENCODE basic APPRIS P1
Pde6g-203	ENSMUST00000155421.1	2250	No protein	lncRNA	-	-	TSL:1
Pde6g-202	ENSMUST00000141795.1	731	No protein	lncRNA	-	-	TSL:2

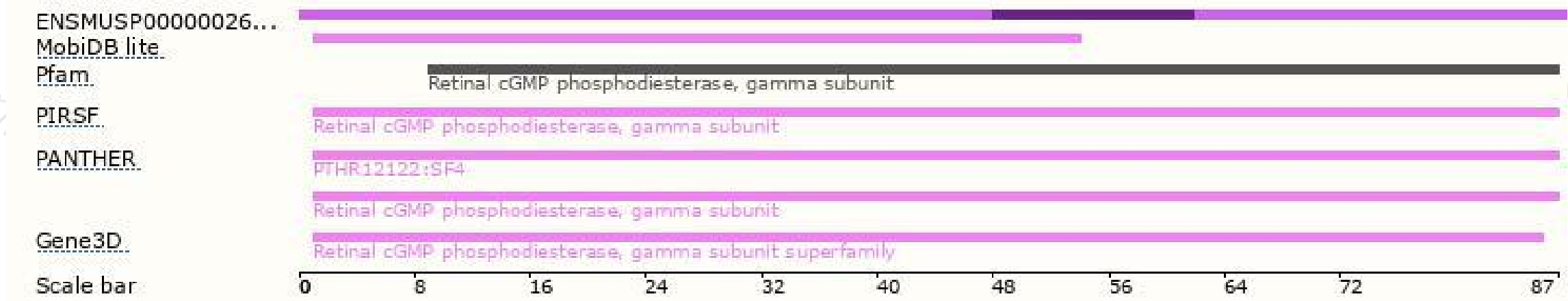
The strategy is based on the design of *Pde6g-201* transcript,The transcription is shown below



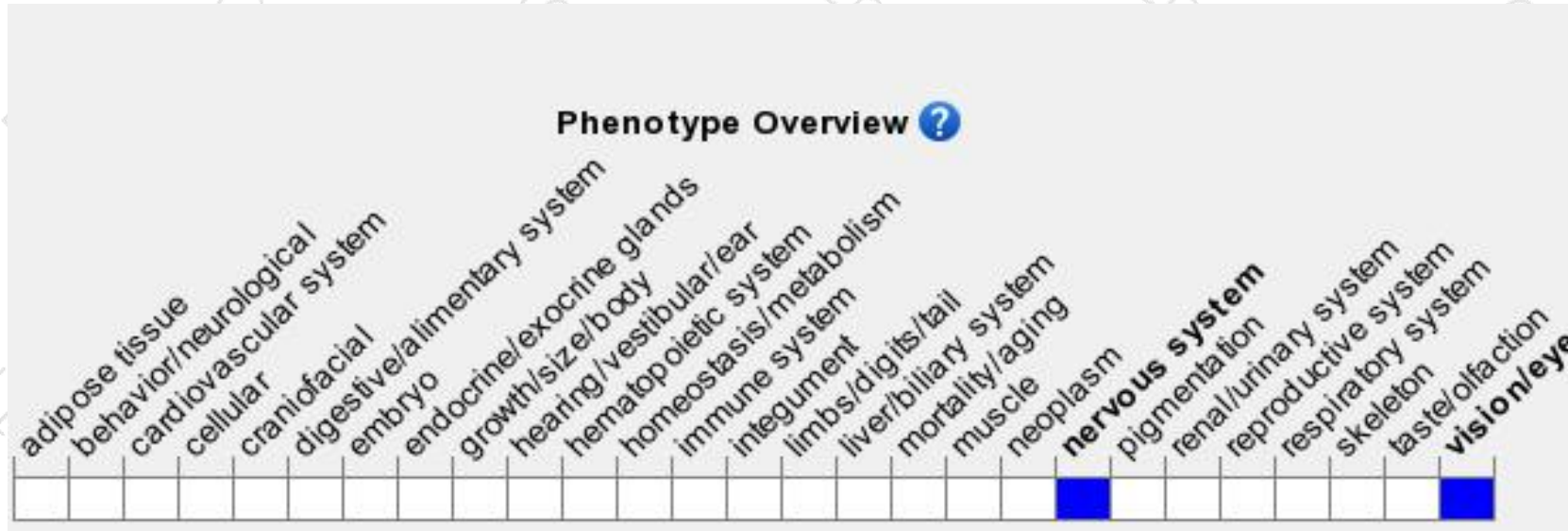
Genomic location distribution



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/>).

According to the existing MGI data, Mice homozygous for disruptions in this gene have poorly developed photoreceptors that degenerate with age.

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

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