

Pde6d Cas9-KO Strategy

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Project Overview

Project Name

Pde6d

Project type

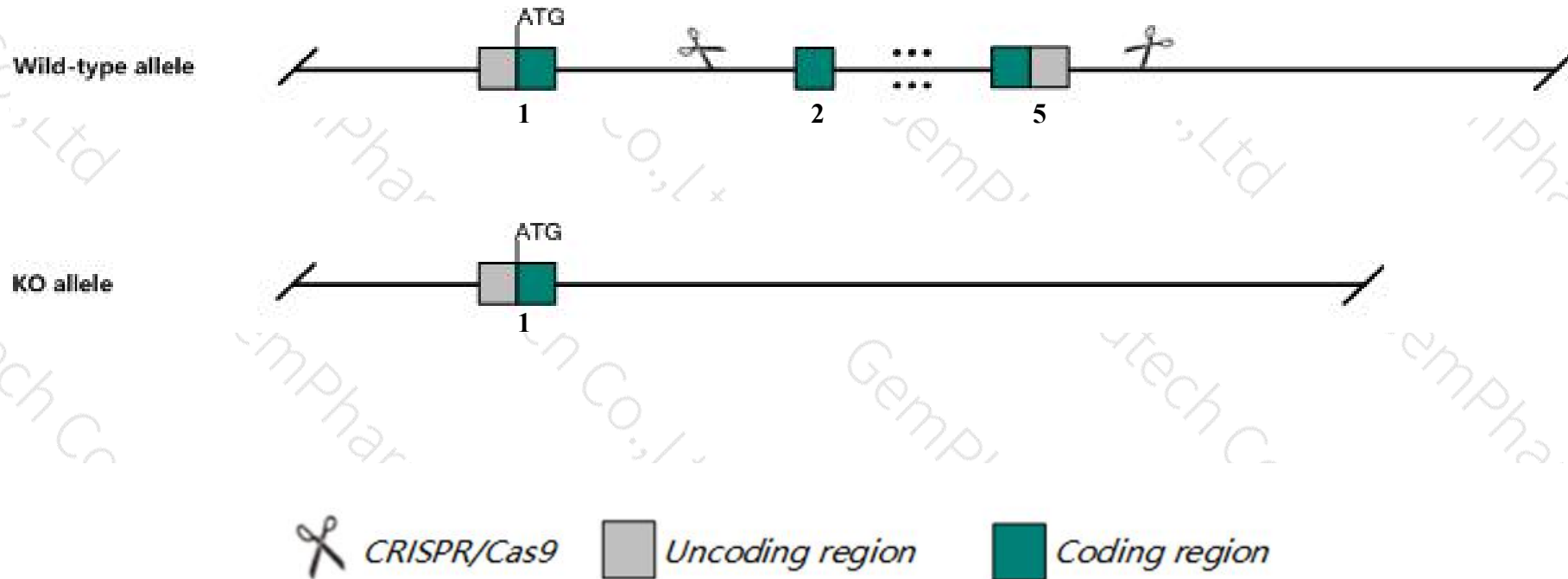
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pde6d* gene. The schematic diagram is as follows:



Technical routes

- The *Pde6d* gene has 5 transcripts. According to the structure of *Pde6d* gene, exon2-exon5 of *Pde6d-201* (ENSMUST00000027444.14) transcript is recommended as the knockout region. The region contains most 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 *Pde6d* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous null mice exhibit progressive retinal degeneration with progressive loss of rod and cone neurons.
- The *Pde6d* gene is located on the Chr1. 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Pde6d phosphodiesterase 6D, cGMP-specific, rod, delta [*Mus musculus* (house mouse)]

Gene ID: 18582, updated on 14-Aug-2019

Summary

- Official Symbol** Pde6d provided by [MGI](#)
- Official Full Name** phosphodiesterase 6D, cGMP-specific, rod, delta provided by [MGI](#)
- Primary source** [MGI:MGI:1270843](#)
- See related** [Ensembl:ENSMUSG00000026239](#)
- 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** AI841218; PrBP/delta
- Expression** Ubiquitous expression in CNS E18 (RPKM 26.2), testis adult (RPKM 22.8) and 28 other tissues [See more](#)
- Orthologs** [human](#) [all](#)

Genomic context

Location: 1; 1 C5 See Pde6d in [Genome Data Viewer](#)

Exon count: 6

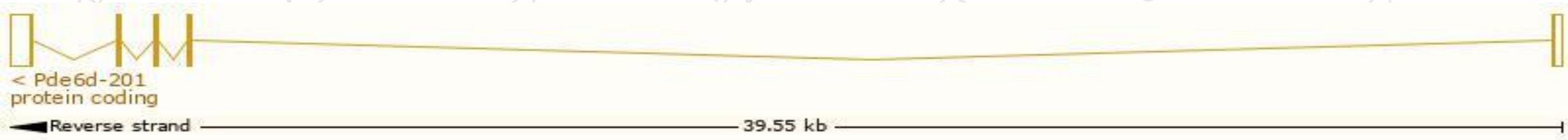
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	1	NC_000067.6 (86543012..86582785, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	1	NC_000067.5 (88439590..88479076, complement)

Transcript information (Ensembl)

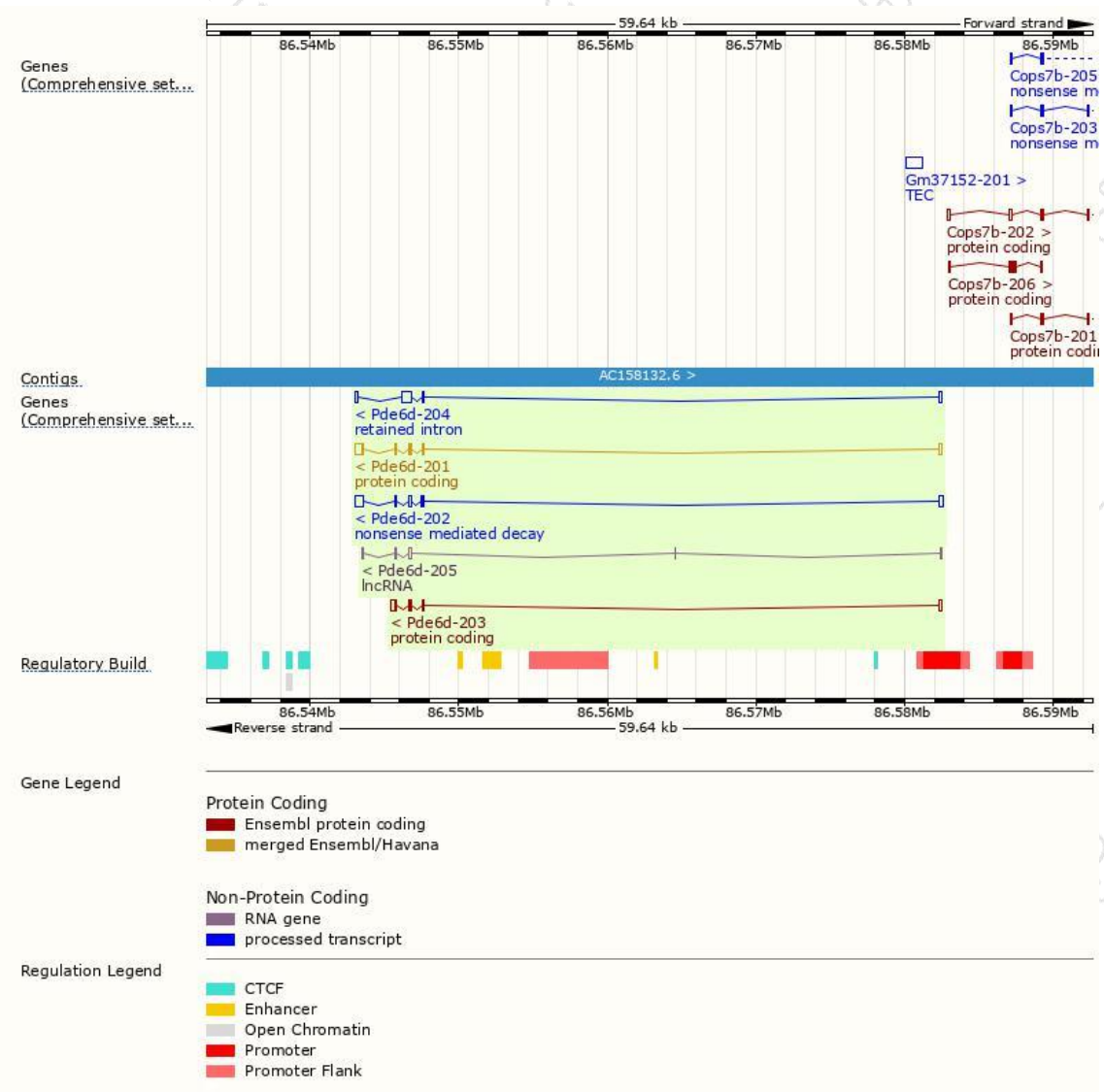
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pde6d-201	ENSMUST00000027444.14	1159	150aa	Protein coding	CCDS15121	O55057 Q3TDQ8	TSL:1 GENCODE basic APPRIS P1
Pde6d-203	ENSMUST00000146220.1	879	124aa	Protein coding	-	M0QWG6	TSL:2 GENCODE basic
Pde6d-202	ENSMUST00000143674.7	1306	70aa	Nonsense mediated decay	-	M0QWR1	TSL:1
Pde6d-204	ENSMUST00000148683.1	1169	No protein	Retained intron	-	-	TSL:5
Pde6d-205	ENSMUST00000150653.1	469	No protein	lncRNA	-	-	TSL:5

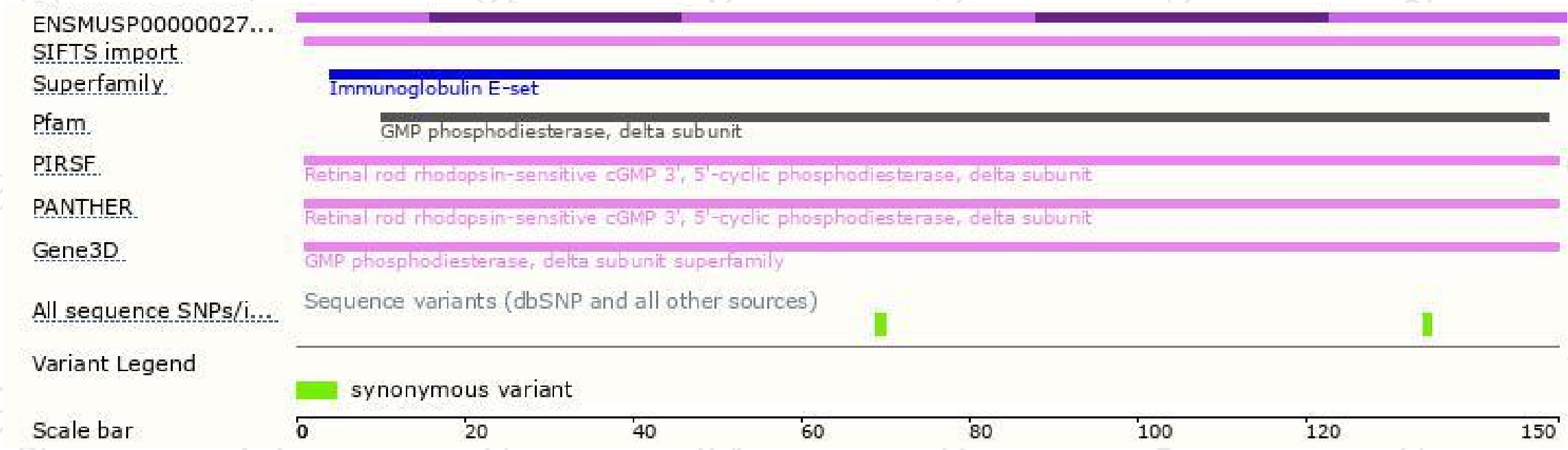
The strategy is based on the design of *Pde6d-201* transcript,The transcription is shown below



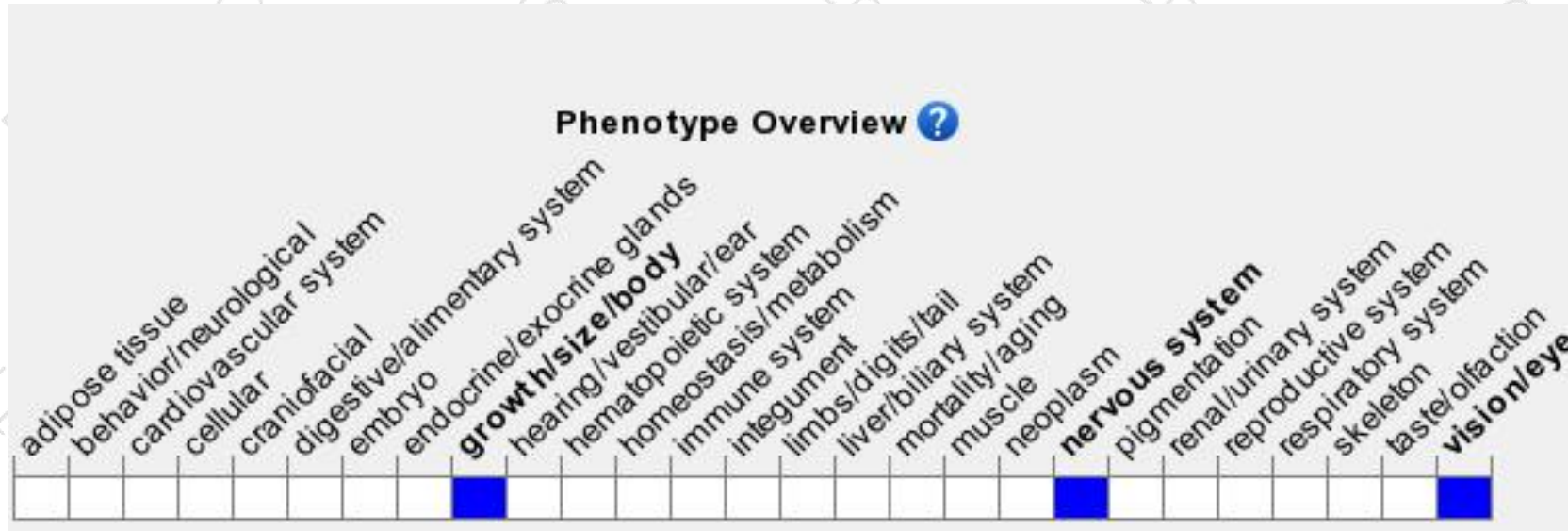
Genomic location distribution



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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