

Pde3b Cas9-CKO Strategy

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Project Overview

Project Name

Pde3b

Project type

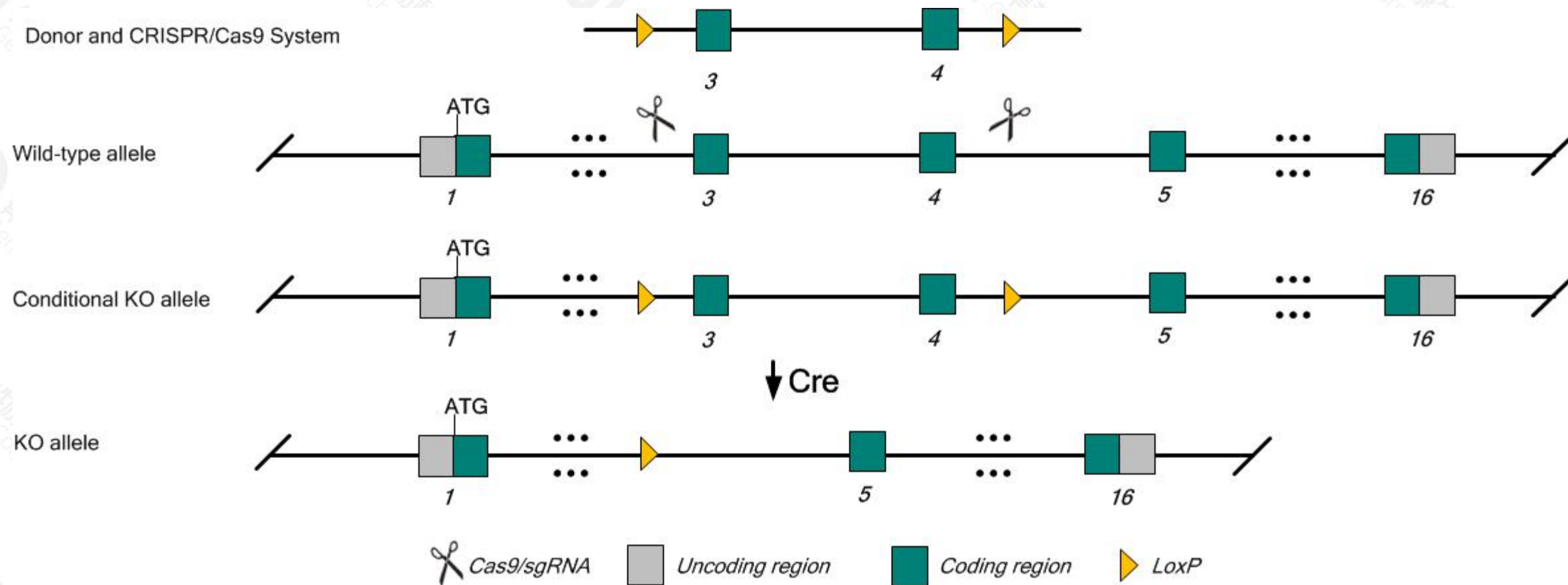
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pde3b* gene. The schematic diagram is as follows:



- The *Pde3b* gene has 4 transcripts. According to the structure of *Pde3b* gene, exon3-exon4 of *Pde3b-201*(ENSMUST00000032909.9) transcript is recommended as the knockout region. The region contains 389bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Pde3b* 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, Mutants show abnormalities in glycerol and fatty acid levels, along with changes in adipocyte morphology and decreased body fat percentage.
- Transcript *Pde3b-202*, *Pde3b-203*, *Pde3b-204* may not be affected.
- The *Pde3b* gene is located on the Chr7. 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)

Pde3b phosphodiesterase 3B, cGMP-inhibited [*Mus musculus* (house mouse)]

Download Datasets

Gene ID: 18576, updated on 23-Jun-2021

Summary

Official Symbol Pde3b provided by [MGI](#)
Official Full Name phosphodiesterase 3B, cGMP-inhibited provided by [MGI](#)
Primary source [MGI:MGI:1333863](#)
See related [Ensembl:ENSMUSG00000030671](#)
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 AI847709; 9830102A01Rik
Expression Ubiquitous expression in mammary gland adult (RPKM 10.0), adrenal adult (RPKM 8.2) and 27 other tissues [See more](#)
Orthologs [human](#) [all](#)

NEW Try the new [Gene table](#)
Try the new [Transcript table](#)

Genomic context

Location: 7 F1; 7 59.46 cM

See Pde3b in [Genome Data Viewer](#)

Exon count: 17

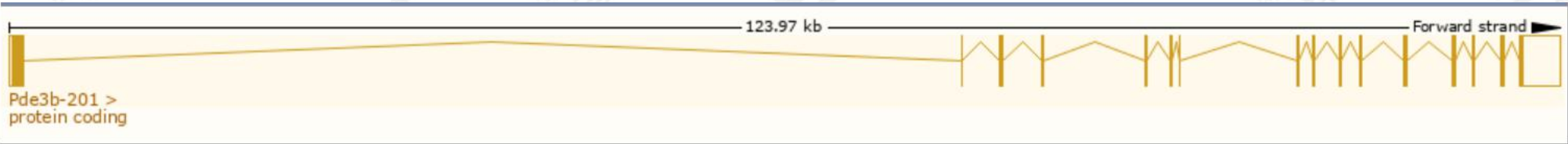
Annotation release	Status	Assembly	Chr	Location
109	current	GRCm39 (GCF_000001635.27)	7	NC_000073.7 (114014388..114137173)
108.20200622	previous assembly	GRCm38.p6 (GCF_000001635.26)	7	NC_000073.6 (114415222..114537938)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	7	NC_000073.5 (121558768..121681451)

Transcript information (Ensembl)

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

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt Match	Flags
Pde3b-201	ENSMUST00000032909.9	6573	1099aa	Protein coding	CCDS21760	E9QLQ3	GENCODE basic APPRIS P1 TSL:1
Pde3b-204	ENSMUST00000210411.2	2658	No protein	Retained intron	-	-	TSL:NA
Pde3b-203	ENSMUST00000149455.2	719	No protein	Retained intron	-	-	TSL:5
Pde3b-202	ENSMUST00000140007.2	485	No protein	Retained intron	-	-	TSL:3

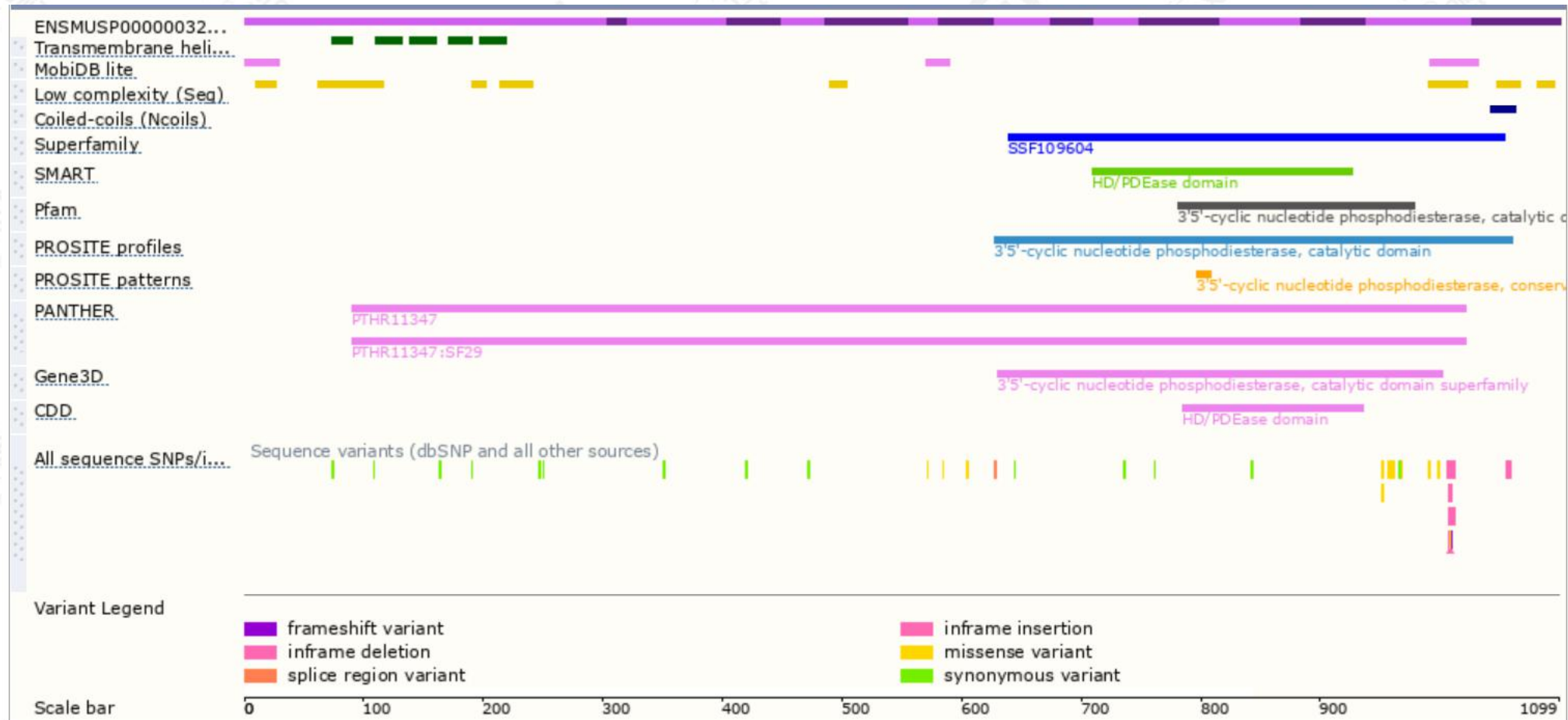
The strategy is based on the design of *Pde3b-201* transcript,the transcription is shown below:



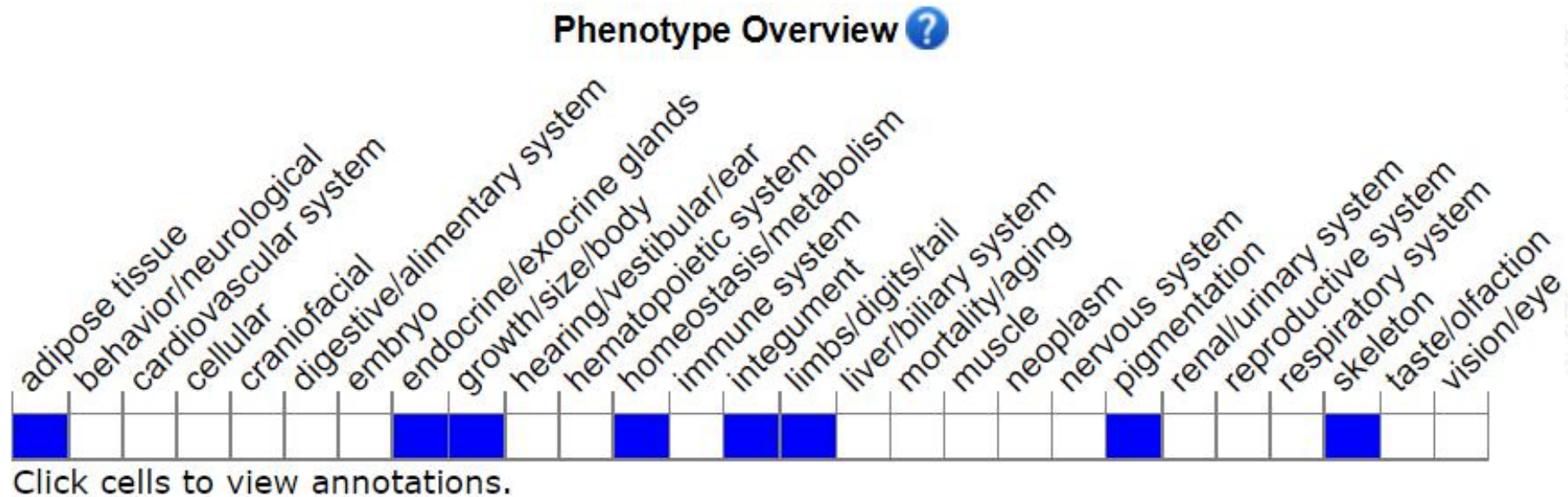
Genomic location distribution



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/>).

Mutants show abnormalities in glycerol and fatty acid levels, along with changes in adipocyte morphology and decreased body fat percentage.

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