Pde3b Cas9-KO Strategy

Designer: Qiong Zhou

Project Overview

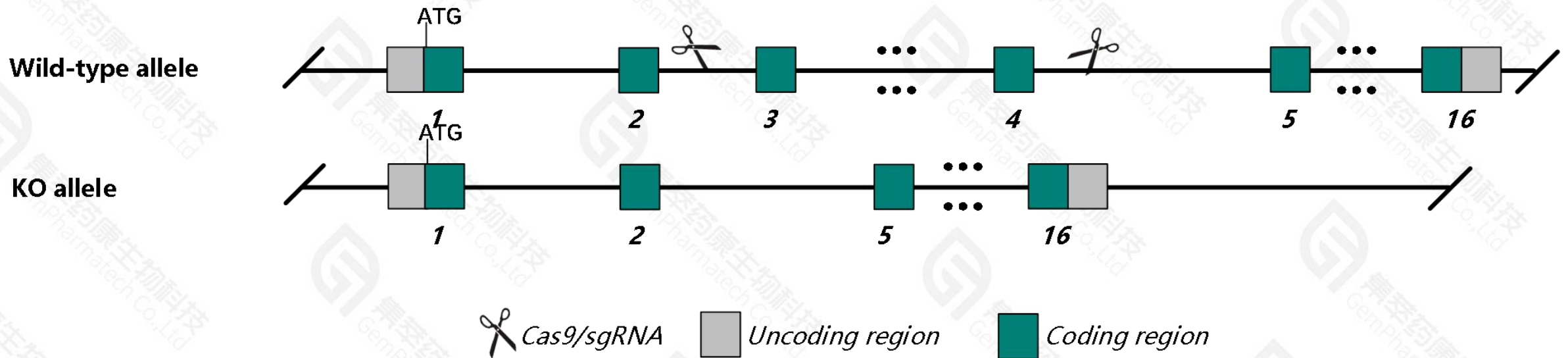|	
Project Name	*Pde3b*
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

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

Technical routes

➤ 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 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.

Notice

➤ 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology 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:
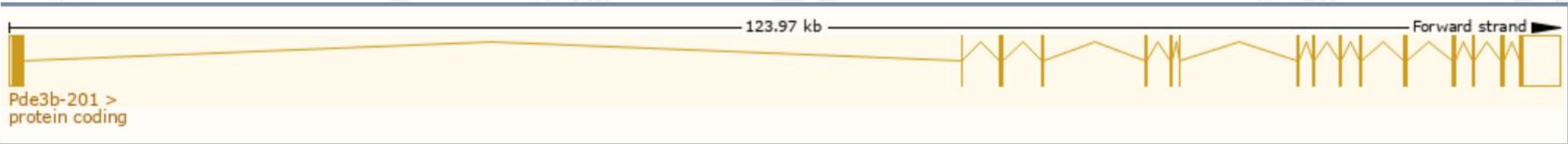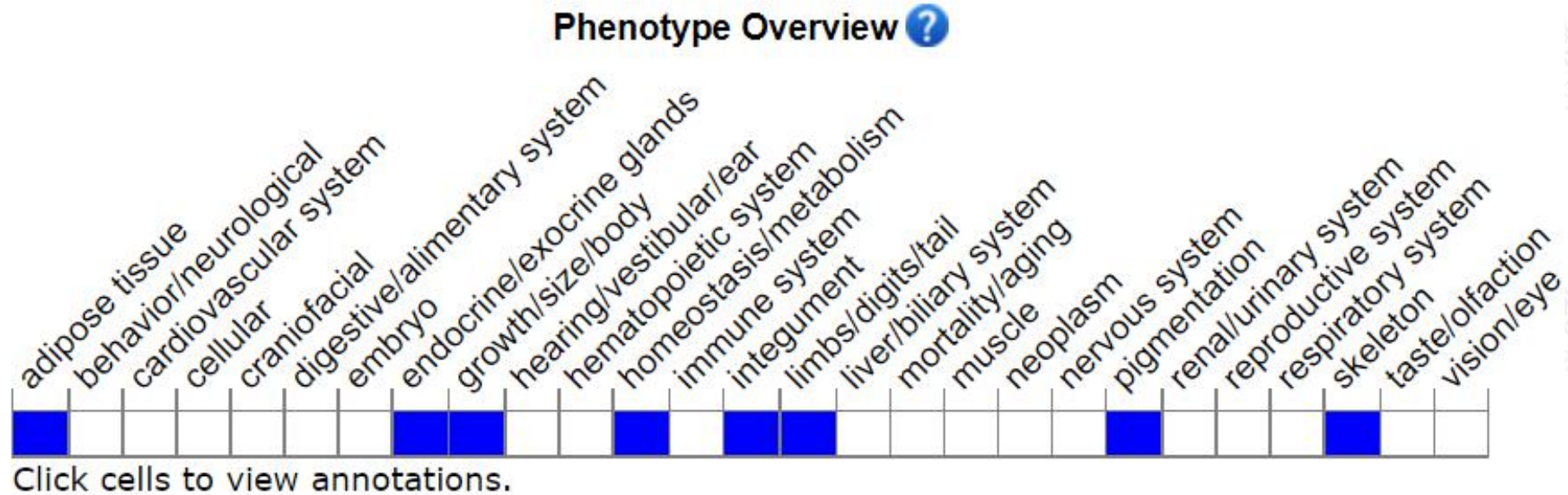
Genomic location distribution

Protein domain
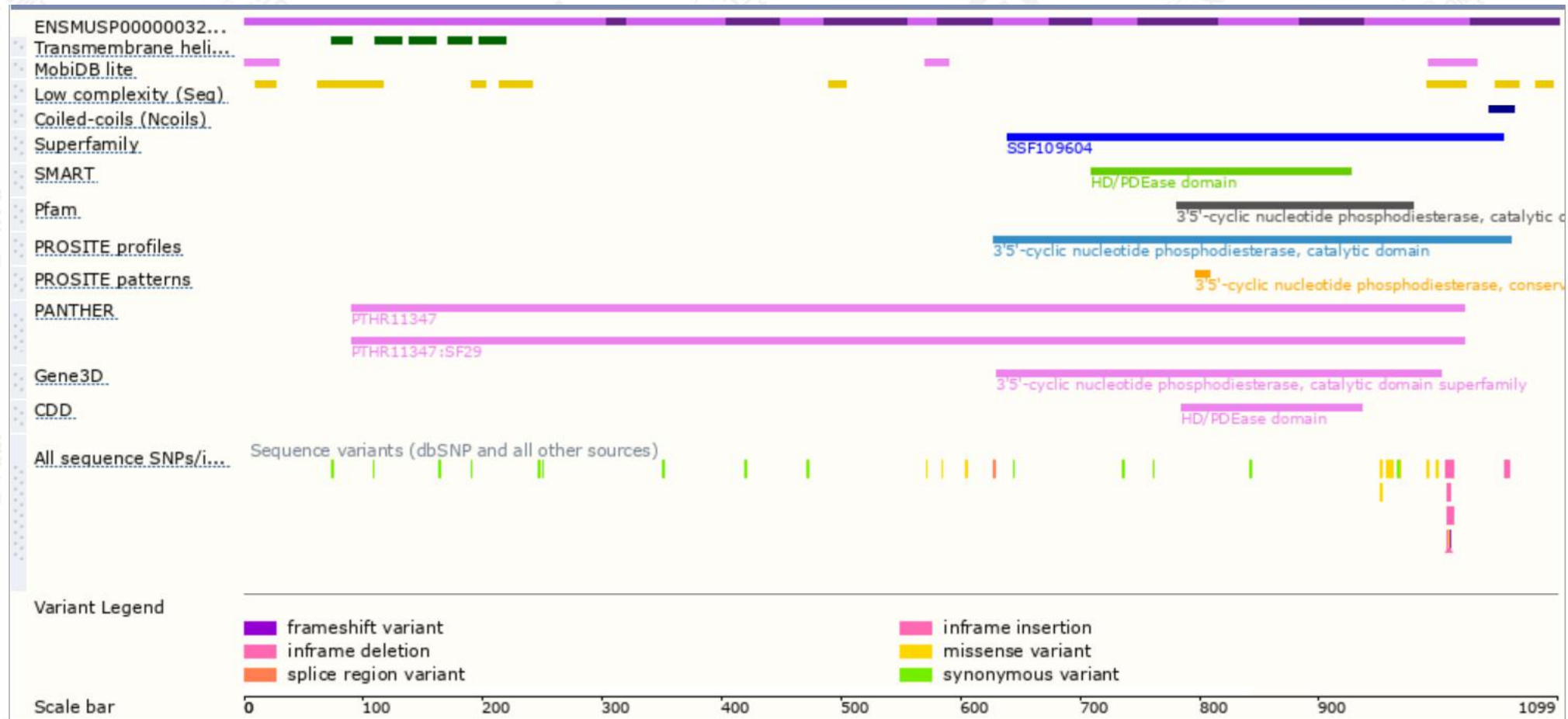
Mouse phenotype description(MGI)

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

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If you have any questions, you are welcome to inquire.
Tel: 400-9660890