

Pde5a Cas9-CKO Strategy

Designer:

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Design Date:

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Project Overview

Project Name

Pde5a

Project type

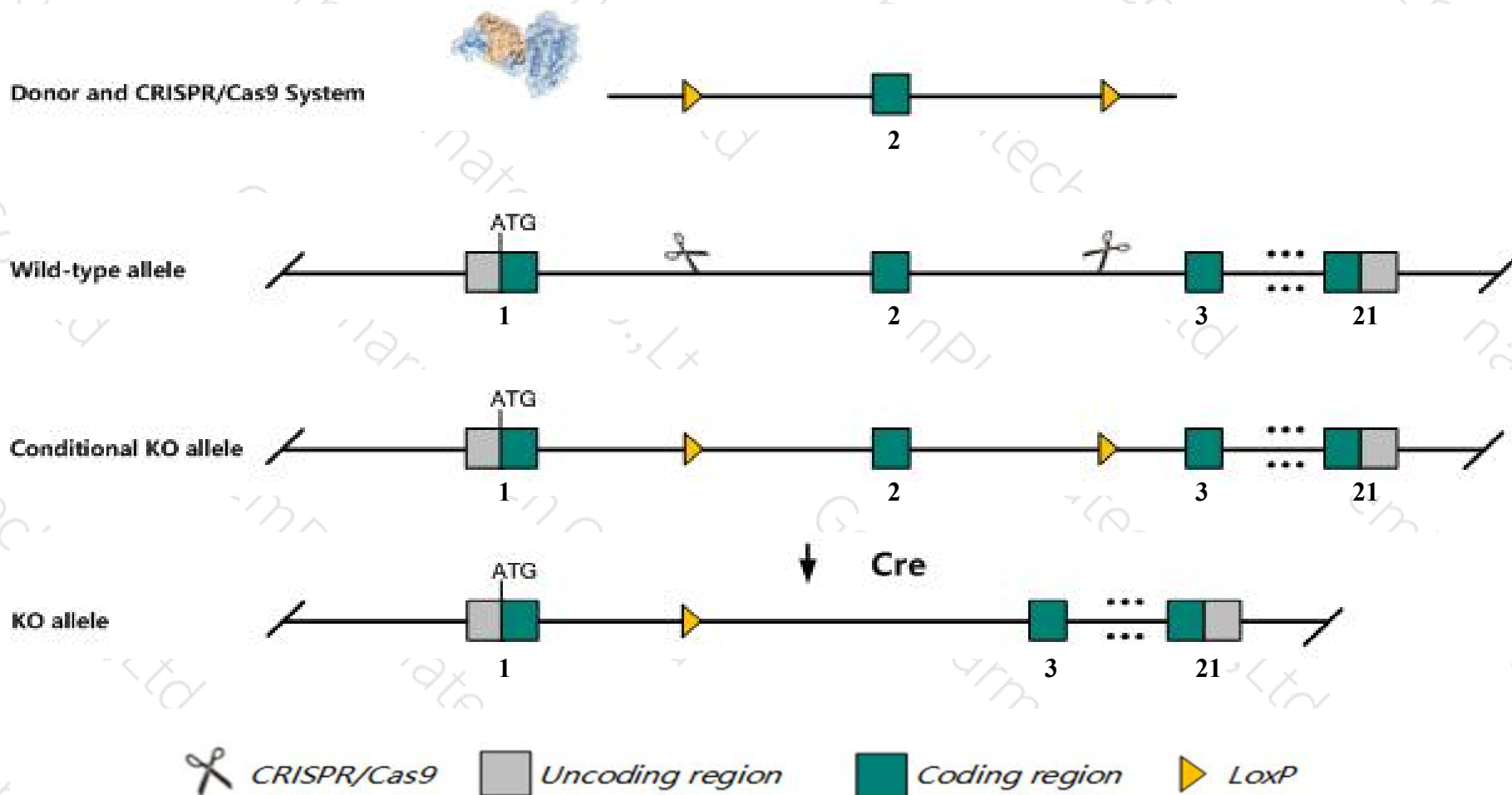
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pde5a* gene. The schematic diagram is as follows:



Technical routes

- The *Pde5a* gene has 4 transcripts. According to the structure of *Pde5a* gene, exon2 of *Pde5a-201* (ENSMUST00000066728.9) transcript is recommended as the knockout region. The region contains 589bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Pde5a* 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

- The *Pde5a* gene is located on the Chr3. 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)

Pde5a phosphodiesterase 5A, cGMP-specific [Mus musculus (house mouse)]

Gene ID: 242202, updated on 31-Jan-2019

Summary



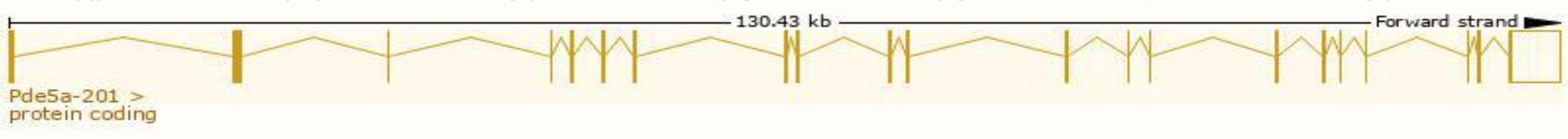
Official Symbol	Pde5a provided by MGI
Official Full Name	phosphodiesterase 5A, cGMP-specific provided by MGI
Primary source	MGI:MGI:2651499
See related	Ensembl:ENSMUSG00000053965
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Cgbpde, Cn5n, PDE5a2, Pde5, Pde5a1
Expression	Biased expression in bladder adult (RPKM 49.4), lung adult (RPKM 12.8) and 6 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

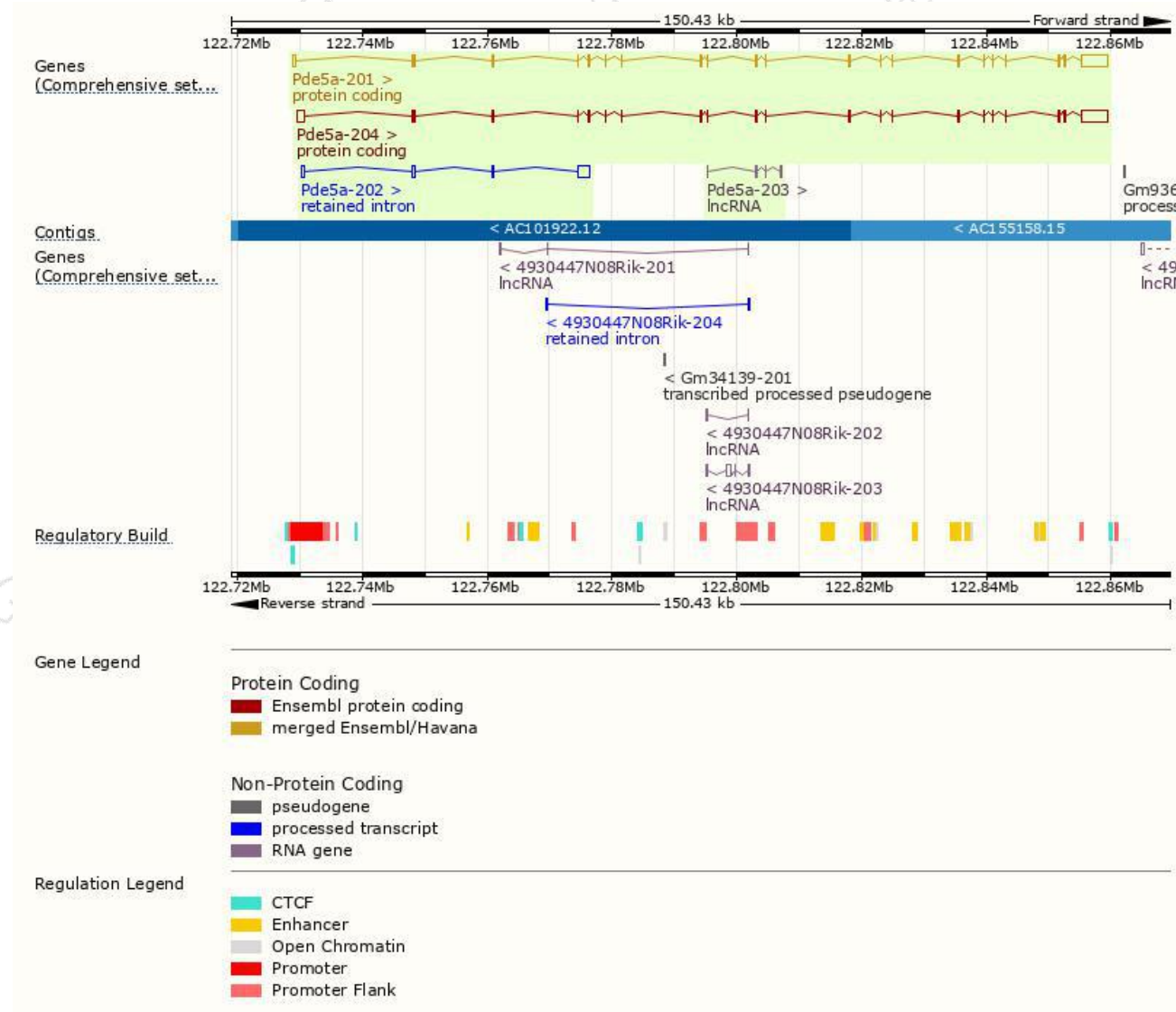
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pde5a-201	ENSMUST00000066728.9	6939	865aa	Protein coding	CCDS17812	Q8CG03	TSL:1 GENCODE basic
Pde5a-204	ENSMUST00000200389.1	7603	833aa	Protein coding	-	A0A0G2JF67	TSL:5 GENCODE basic APPRIS P1
Pde5a-202	ENSMUST00000198314.1	2987	No protein	Retained intron	-	-	TSL:2
Pde5a-203	ENSMUST00000199253.1	418	No protein	lncRNA	-	-	TSL:2

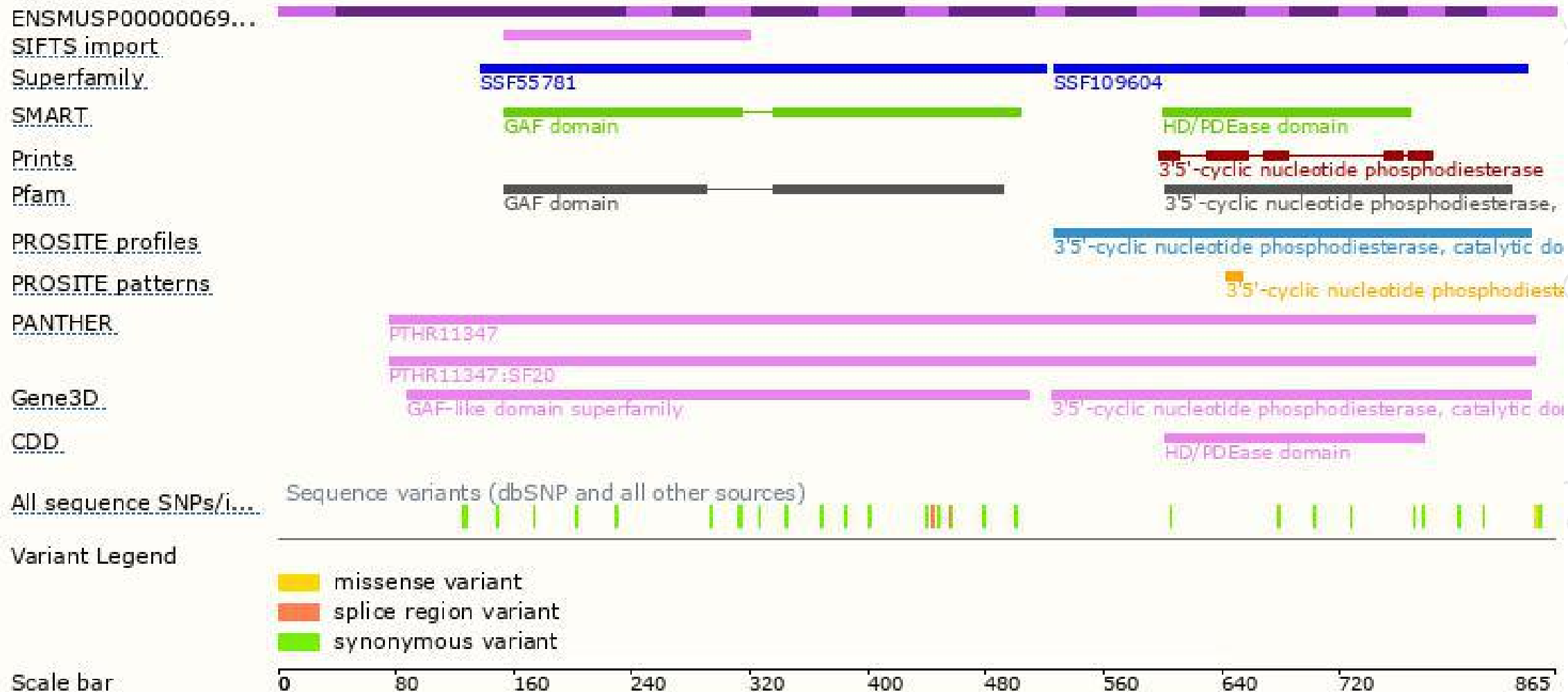
The strategy is based on the design of *Pde5a-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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