Pde5a Cas9-KO Strategy

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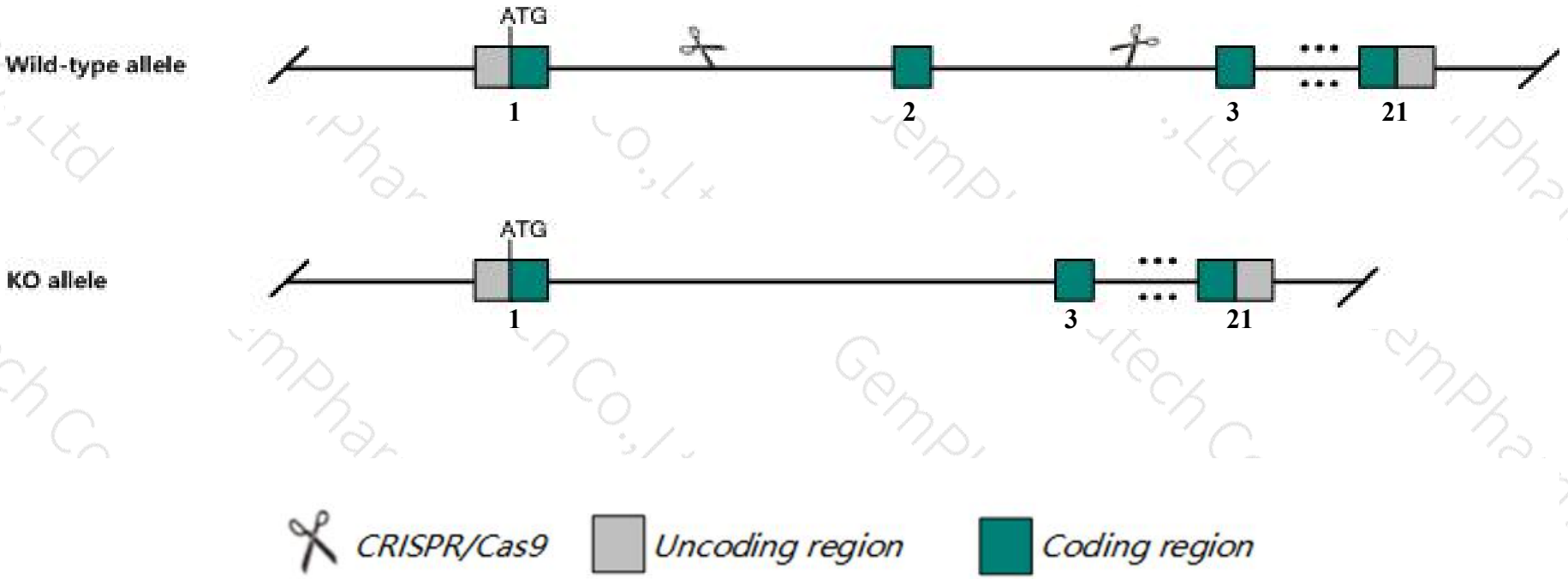
Project Overview

Project Name	***Pde5a***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

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

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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information（NCBI）

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

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

Summary

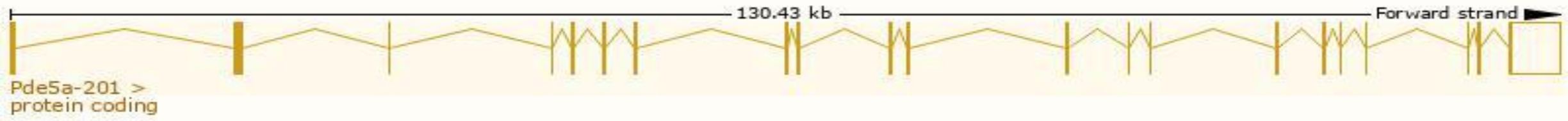
Official Symbol	Pde5a provided by MGI
Official Full Name	phosphodiesterase 5A, cGMP-specific provided by MGI
Primary source	MGI:MGI:2651499
See related	Ensembl:ENSMUSG00000053965
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; 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）

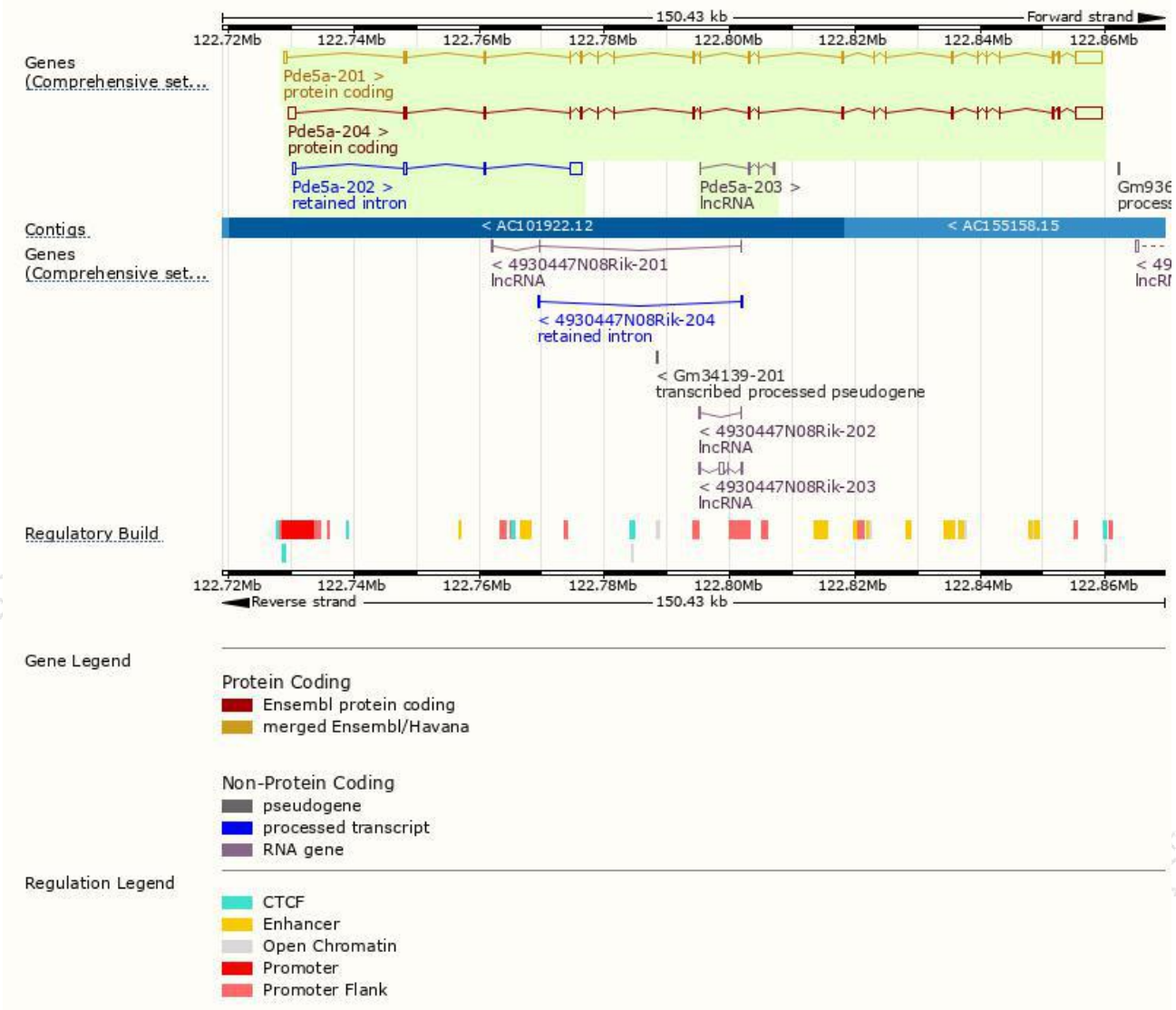
The gene has 4 transcripts,all transcripts are shown below:

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

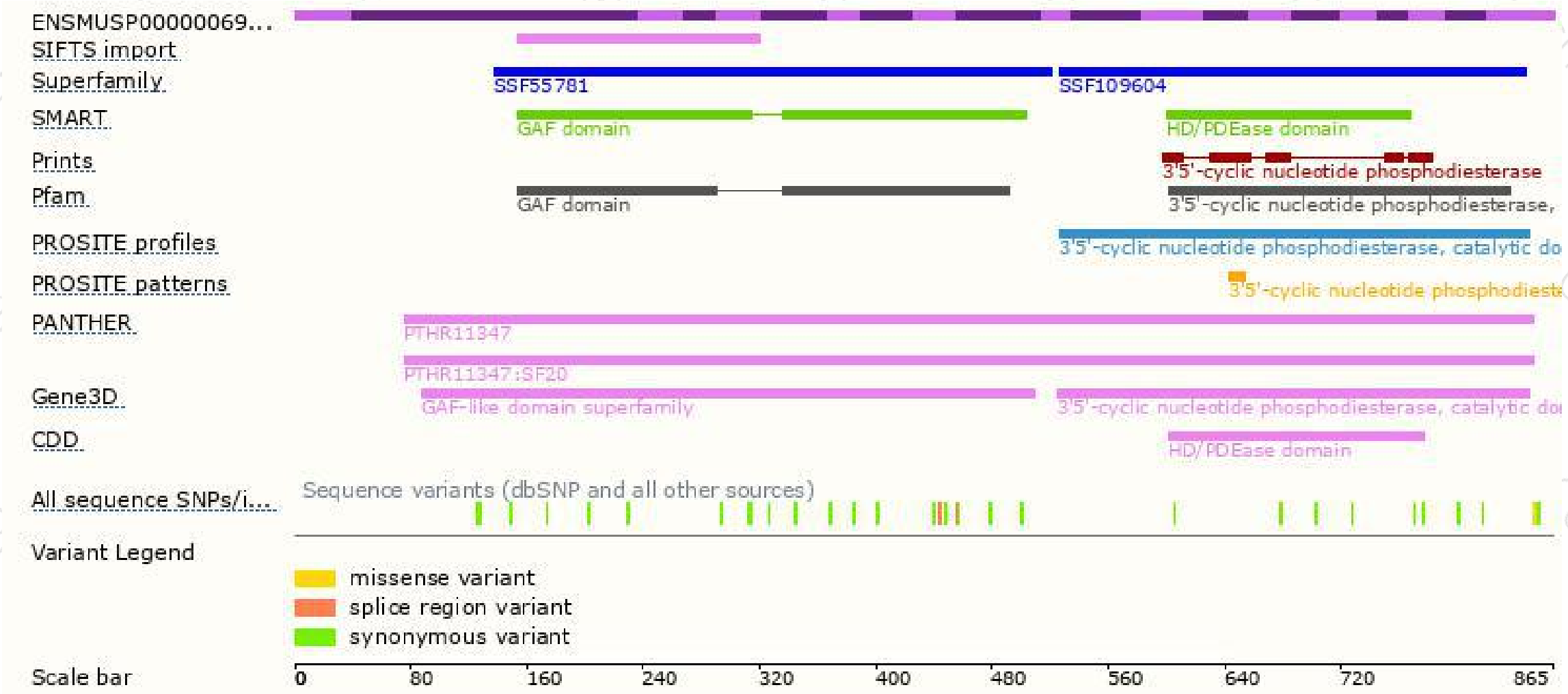
The strategy is based on the design of *Pde5a-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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