

Pate4 Cas9-KO Strategy

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Project Overview

Project Name

Pate4

Project type

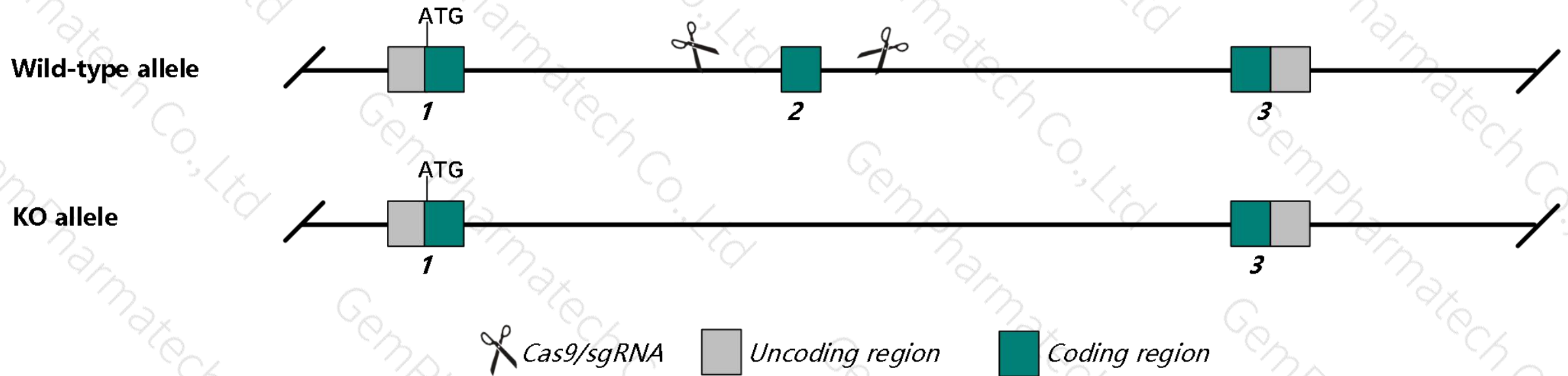
Cas9-KO

Strain background

C57BL/6J

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pate4* gene. The schematic diagram is as follows:



- The *Pate4* gene has 1 transcripts. According to the structure of *Pate4* gene, exon2 of *Pate4-201* (ENSMUST00000034610.3) transcript is recommended as the knockout region. The region contains 111bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Pate4* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6J 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/6J mice.

- According to the existing MGI data, Mice homozygous for a knockout allele do not exhibit defects in viability, bone formation or remodeling, organ gross morphology or fertility.
- The KO region contains functional region of the *Pate2* gene. Knockout the region may affect the function of *Pate2* gene.
- The KO region deletes most of the coding sequence, but does not result in frameshift.
- The *Pate4* gene is located on the Chr9. 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 gene transcription and translation processes, all risks cannot be predicted under existing information.

Gene information (NCBI)

Pate4 prostate and testis expressed 4 [*Mus musculus* (house mouse)]

Gene ID: 56872, updated on 31-Jan-2019

Summary

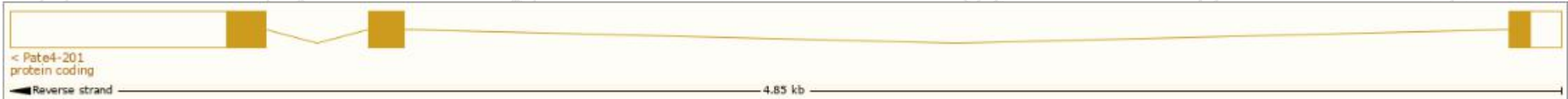
Official Symbol	Pate4 provided by MGI
Official Full Name	prostate and testis expressed 4 provided by MGI
Primary source	MGI:MGI:1930790
See related	Ensembl:ENSMUSG00000032099
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Svs7; Pate-B; 9530004K16Rik
Expression	Low expression observed in reference dataset See more
Orthologs	human all

Transcript information (Ensembl)

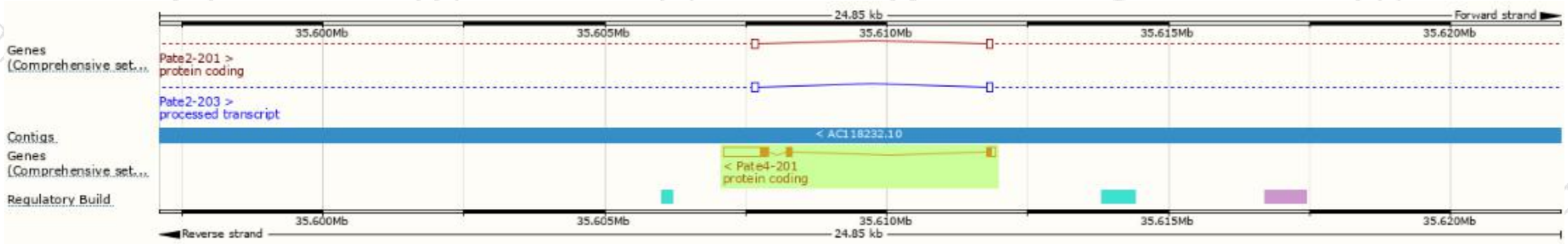
The gene has 1 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pate4-201	ENSMUST00000034610.3	1072	99aa	Protein coding	CCDS22967.4	Q09098.4	TSL:1 Gencode basic APPRIS P1

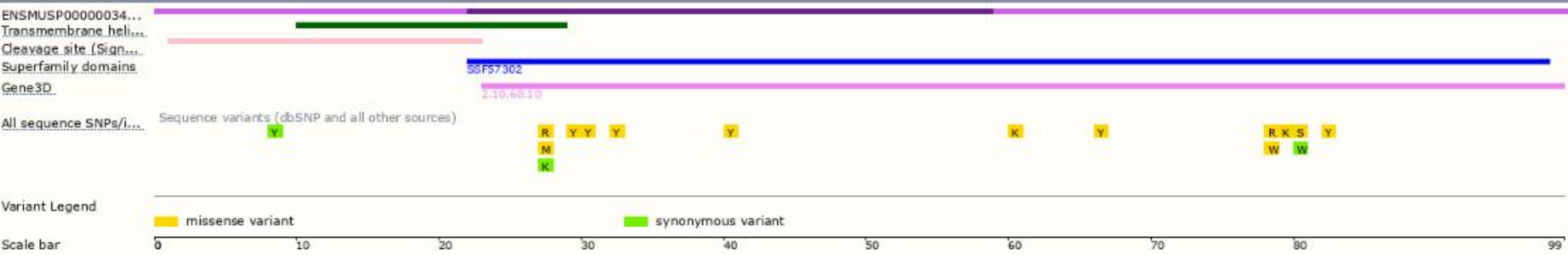
The strategy is based on the design of *Pate4-201* transcript,The transcription is shown below



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/>).

Mice homozygous for a knockout allele do not exhibit defects in viability, bone formation or remodeling, organ gross morphology or fertility.

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

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