

Pate2 Cas9-CKO Strategy

Designer: Lingyan Wu

Reviewer: Jiayuan Yao

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Project Overview

Project Name

Pate2

Project type

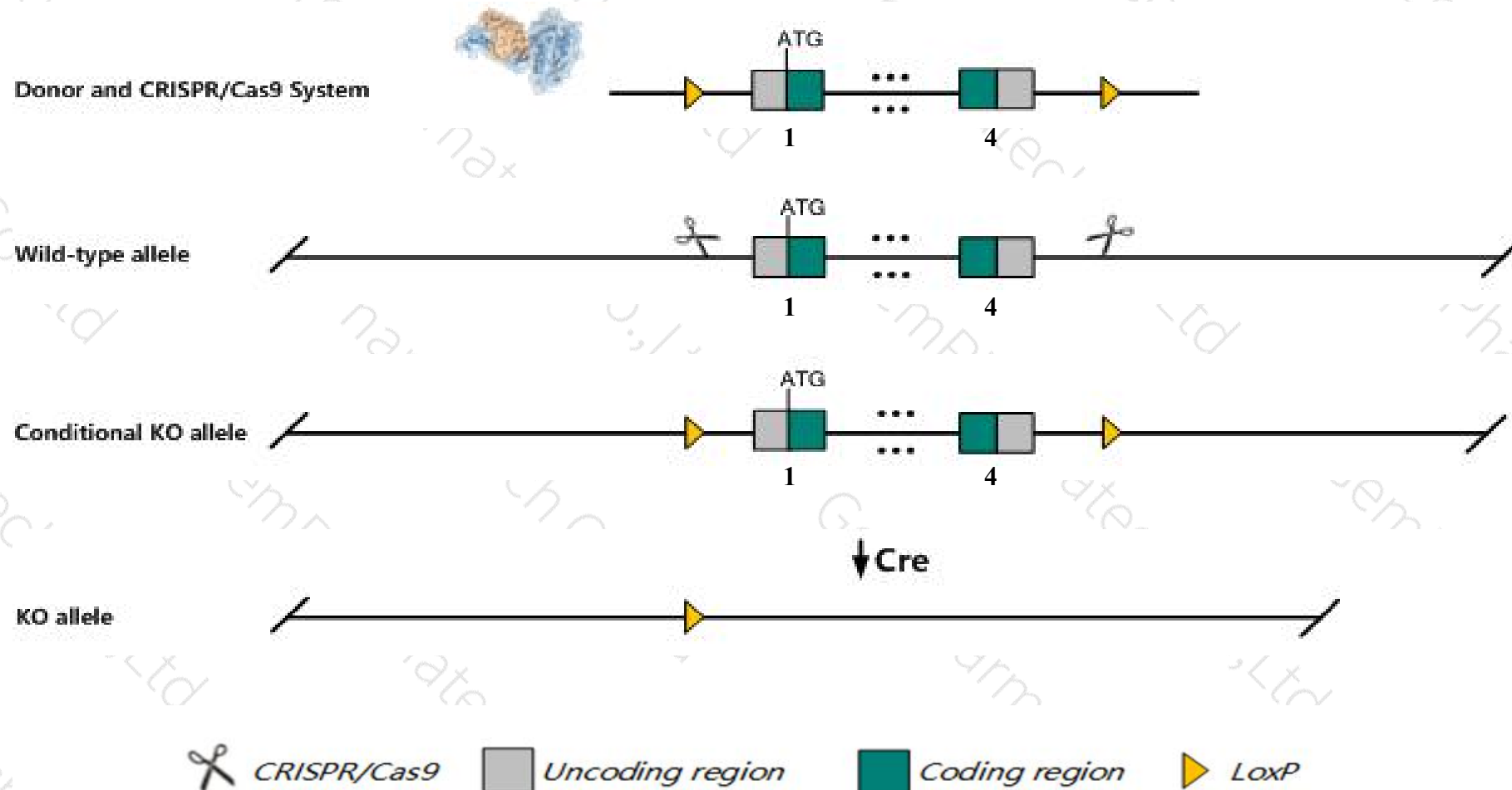
Cas9-CKO

Strain background

C57BL/6J

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pate2* gene. The schematic diagram is as follows:



- The *Pate2* gene has 5 transcripts. According to the structure of *Pate2* gene, exon1-exon4 of *Pate2*-202 (ENSMUST00000118254.1) transcript is recommended as the knockout region. The region contains all of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Pate2* gene. The brief process is as follows: CRISPR/Cas9 system and Donor 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.
- 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

- According to the existing MGI data, male mice exhibit normal spermatozoa and fecundity.
- The *Pate2* 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 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)

Pate2 prostate and testis expressed 2 [Mus musculus (house mouse)]

Gene ID: 330921, updated on 13-Mar-2020

Summary



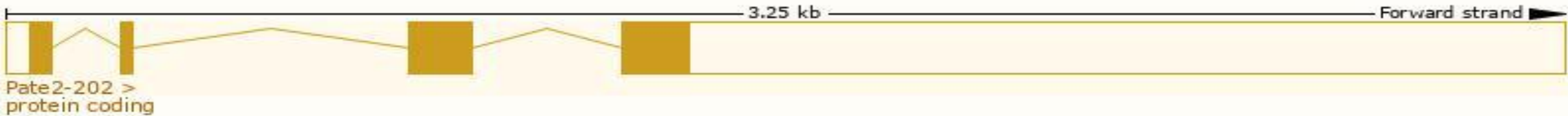
Official Symbol	Pate2 provided by MGI
Official Full Name	prostate and testis expressed 2 provided by MGI
Primary source	MGI:MGI:2685692
See related	Ensembl:ENSMUSG00000074452
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Gm846, Pate-M, mANLP1
Expression	Biased expression in genital fat pad adult (RPKM 12.2) and testis adult (RPKM 0.3) See more
Orthologs	human all

Transcript information (Ensembl)

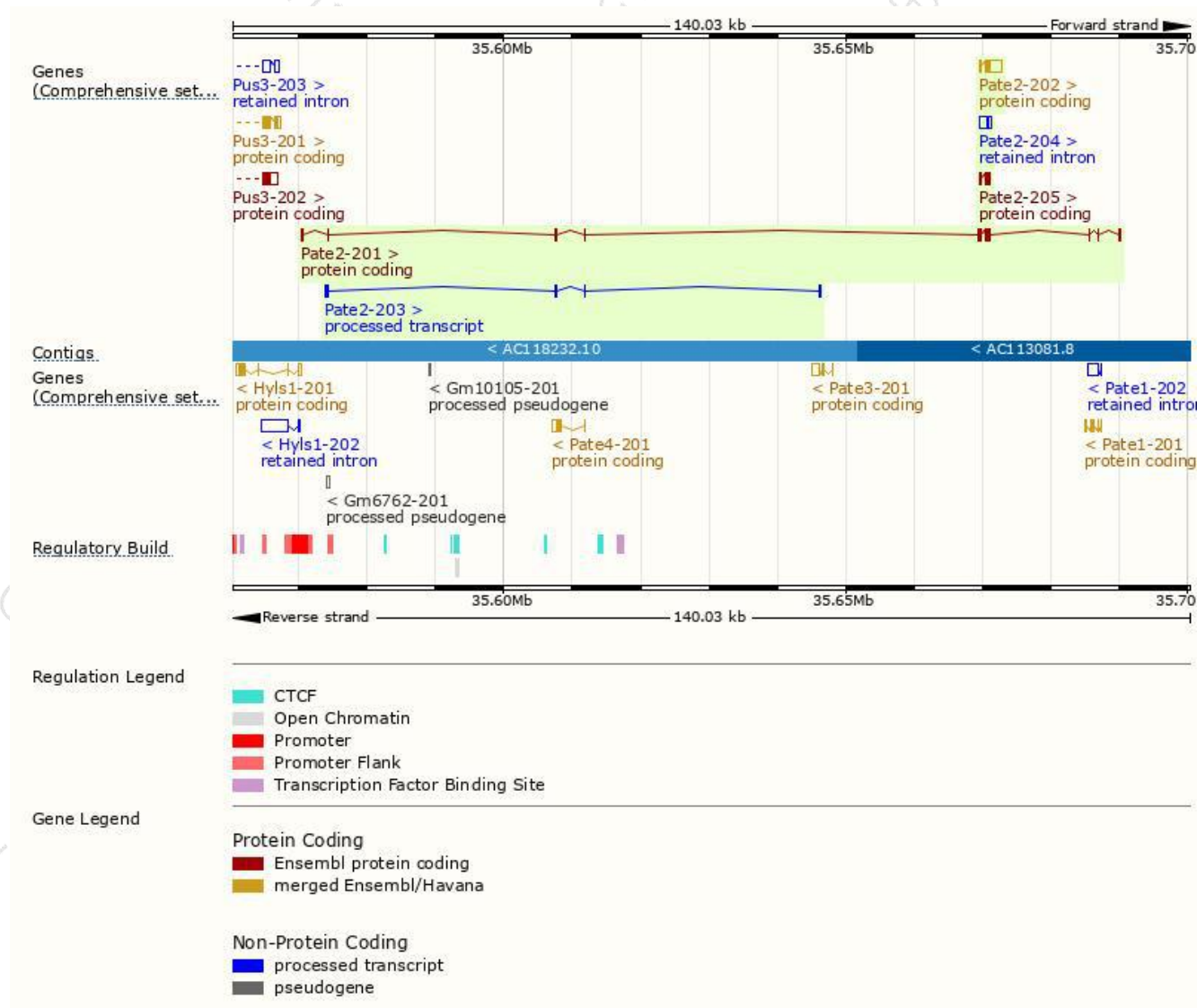
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pate2-202	ENSMUST00000118254.1	2215	111aa	Protein coding	CCDS52756	Q3UW31	TSL:1 GENCODE basic APPRIS P2
Pate2-201	ENSMUST00000098906.8	1690	149aa	Protein coding	-	D3Z1P9	TSL:2 GENCODE basic APPRIS ALT 2
Pate2-205	ENSMUST00000217565.1	326	108aa	Protein coding	-	A0A1L1SRF3	CDS 5' incomplete TSL:5
Pate2-203	ENSMUST00000137309.1	826	No protein	Processed transcript	-	-	TSL:3
Pate2-204	ENSMUST00000173488.1	1449	No protein	Retained intron	-	-	TSL:1

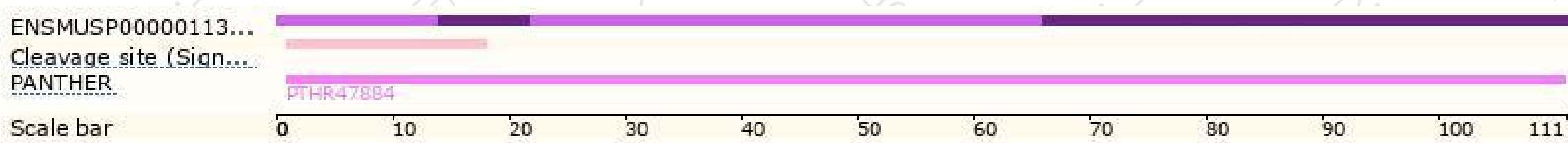
The strategy is based on the design of *Pate2-202* transcript,the transcription is shown below:



Genomic location distribution

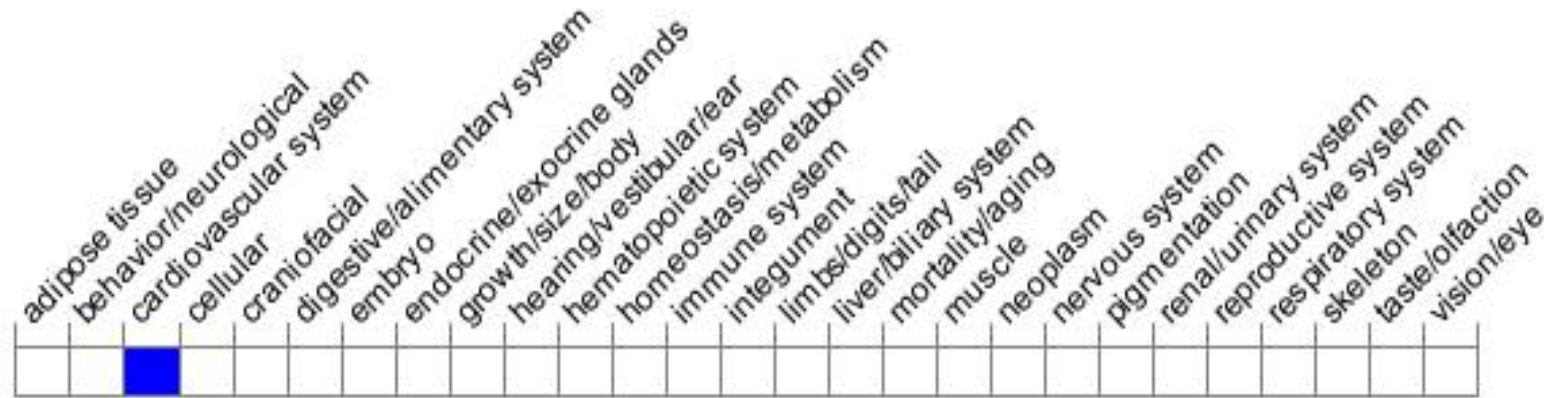


Protein domain



Mouse phenotype description(MGI)

Phenotype Overview



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

According to the existing MGI data, male mice exhibit normal spermatozoa and fecundity.

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

Tel: 400-9660890

