

Pf4 Cas9-KO Strategy

Designer: Shilei Zhu

Reviewer: Lingyan Wu

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Project Overview

Project Name

Pf4

Project type

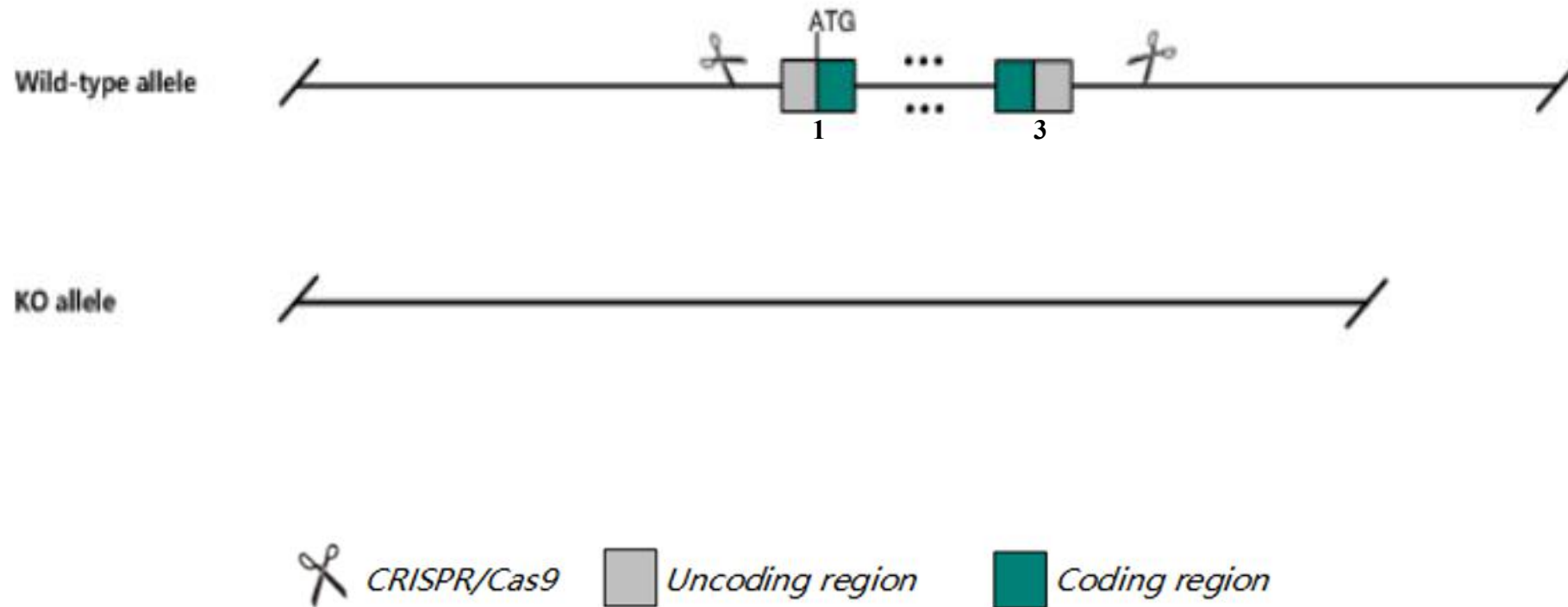
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pf4* gene. The schematic diagram is as follows:



The *Pf4* gene has 3 transcripts. According to the structure of *Pf4* gene, exon1-exon3 of *Pf4*-201(ENSMUST00000031320.7) 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 *Pf4* 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.

According to the existing MGI data, homozygous and heterozygous null mice display increased platelet counts and reduced thrombus formation following vascular injury.

The *Pf4* gene is located on the Chr5. 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.

Less than 5K away from adjacent gene *Ppbp* .

Pf4 platelet factor 4 [Mus musculus (house mouse)]

Gene ID: 56744, updated on 13-Mar-2020

Summary



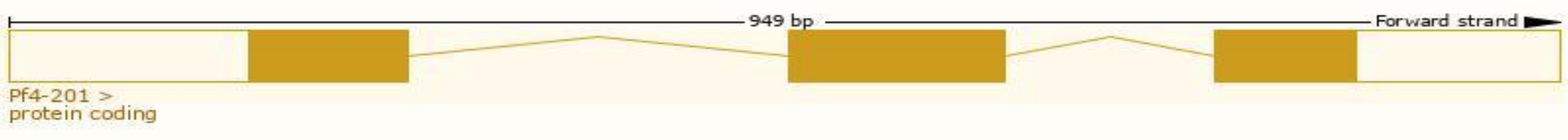
Official Symbol	Pf4 provided by MGI
Official Full Name	platelet factor 4 provided by MGI
Primary source	MGI:MGI:1888711
See related	Ensembl:ENSMUSG00000029373
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Cxcl4, Scyb4
Expression	Biased expression in liver E14 (RPKM 119.8), liver E14.5 (RPKM 114.1) and 13 other tissues See more
Orthologs	human all

Transcript information Ensembl

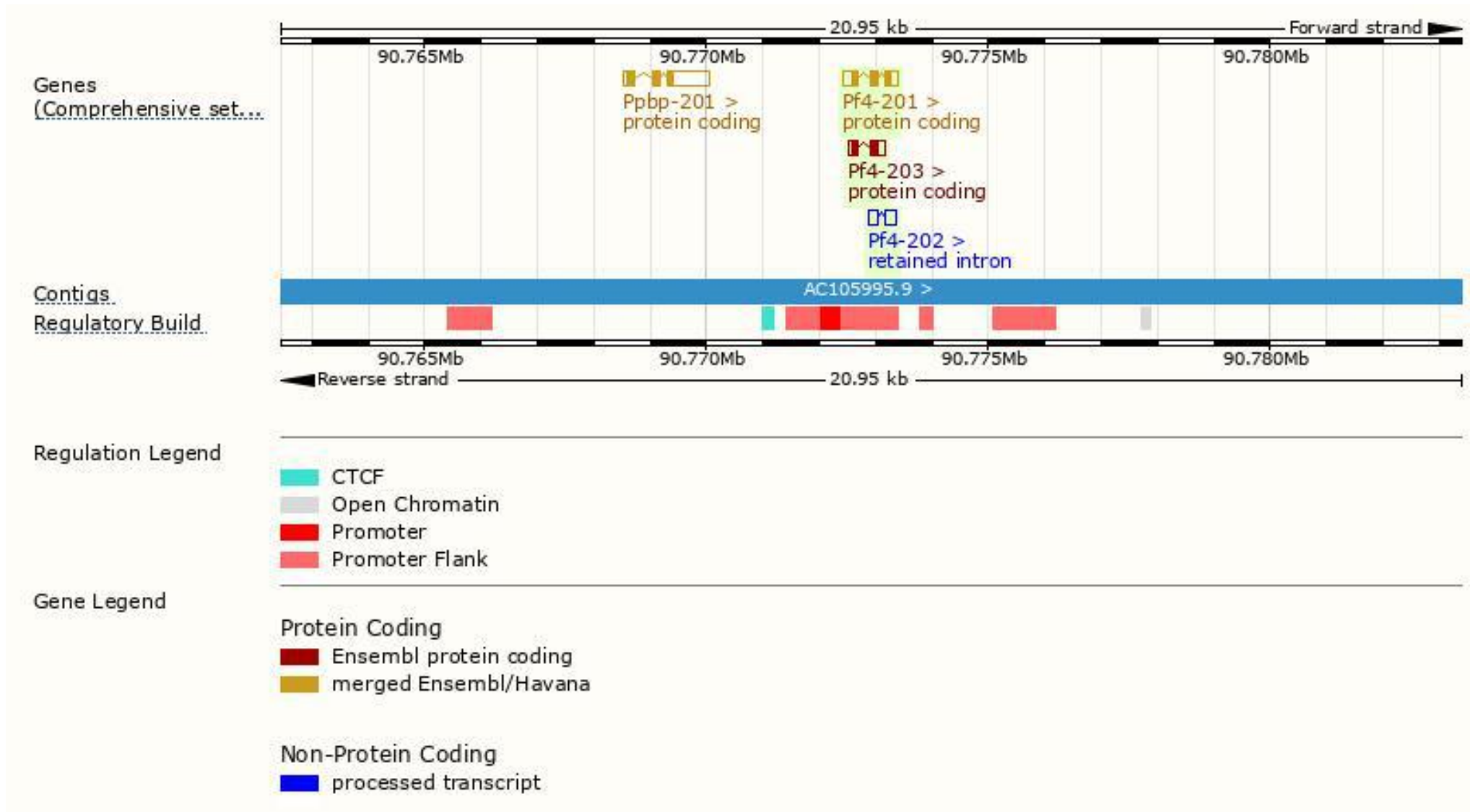
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pf4-201	ENSMUST00000031320.7	588	105aa	Protein coding	CCDS19416	Q3TVN6 Q9Z126	TSL:1 GENCODE basic APPRIS P1
Pf4-203	ENSMUST00000202625.1	411	77aa	Protein coding	-	A0A0J9YTR7	TSL:2 GENCODE basic
Pf4-202	ENSMUST00000201990.1	360	No protein	Retained intron	-	-	TSL:2

The strategy is based on the design of *Pf4-201* transcript,the transcription is shown below:



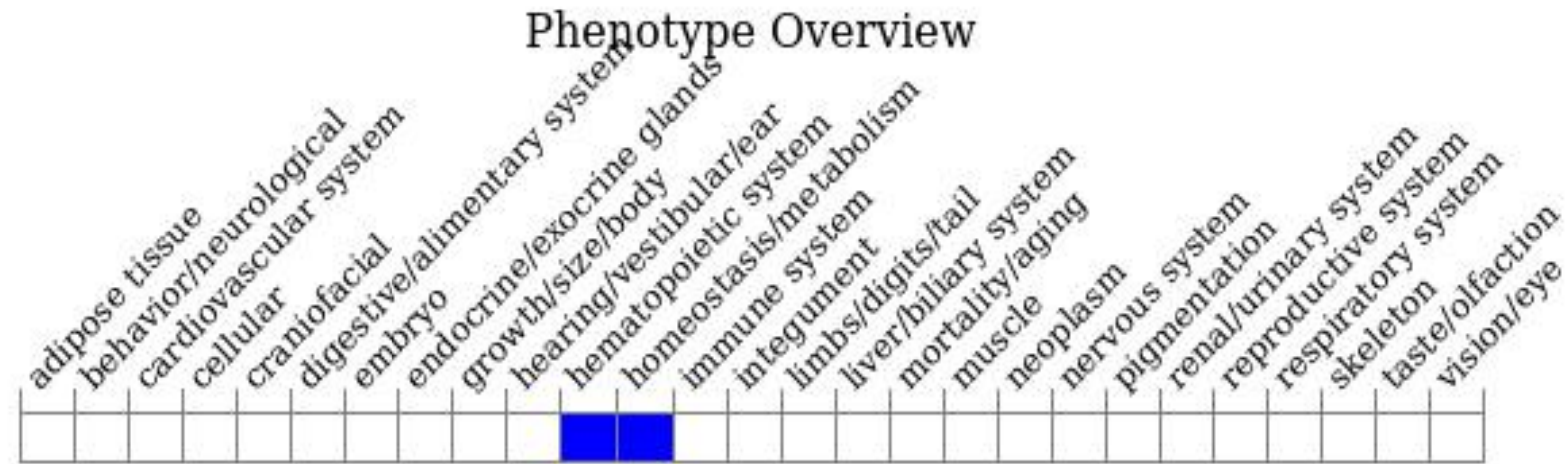
Genomic location distribution



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/>).

According to the existing MGI data, homozygous and heterozygous null mice display increased platelet counts and reduced thrombus formation following vascular injury.

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

