

Ptprh Cas9-KO Strategy

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Project Overview

Project Name

Ptprh

Project type

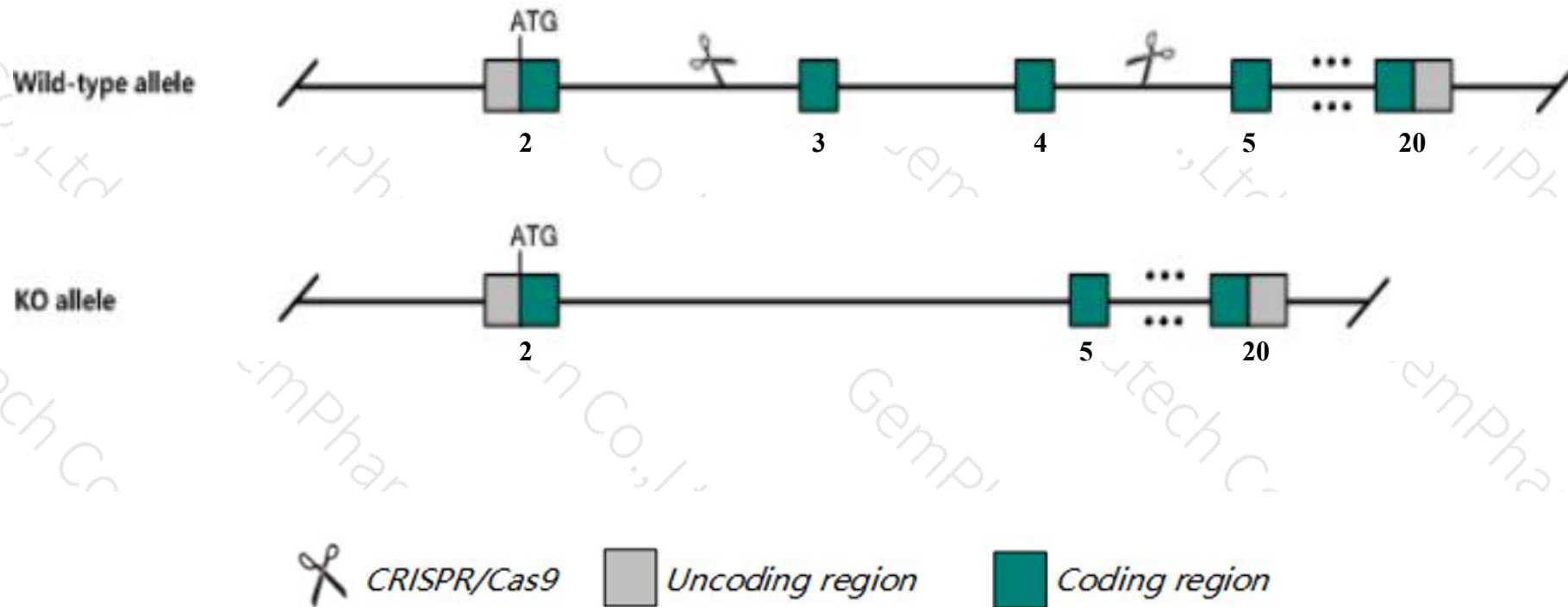
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Ptprh* gene has 5 transcripts. According to the structure of *Ptprh* gene, exon3-exon4 of *Ptprh*-202(ENSMUST00000166650.2) transcript is recommended as the knockout region. The region contains 145bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ptprh* 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, mice homozygous for a null allele exhibit normal intestinal epithelial cell morphology and physiology.
- Transcript *Ptprh*-204 may not be affected.
- The *Ptprh* gene is located on the Chr7. 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)

Ptprh protein tyrosine phosphatase, receptor type, H [Mus musculus (house mouse)]

Gene ID: 545902, updated on 13-Mar-2020

Summary



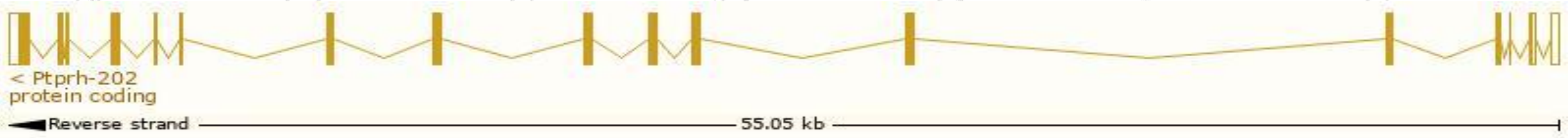
Official Symbol	Ptprh provided by MGI
Official Full Name	protein tyrosine phosphatase, receptor type, H provided by MGI
Primary source	MGI:MGI:3026877
See related	Ensembl:ENSMUSG00000035429
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	R-PTP-H, sap-1
Expression	Biased expression in large intestine adult (RPKM 59.8), small intestine adult (RPKM 50.8) and 3 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

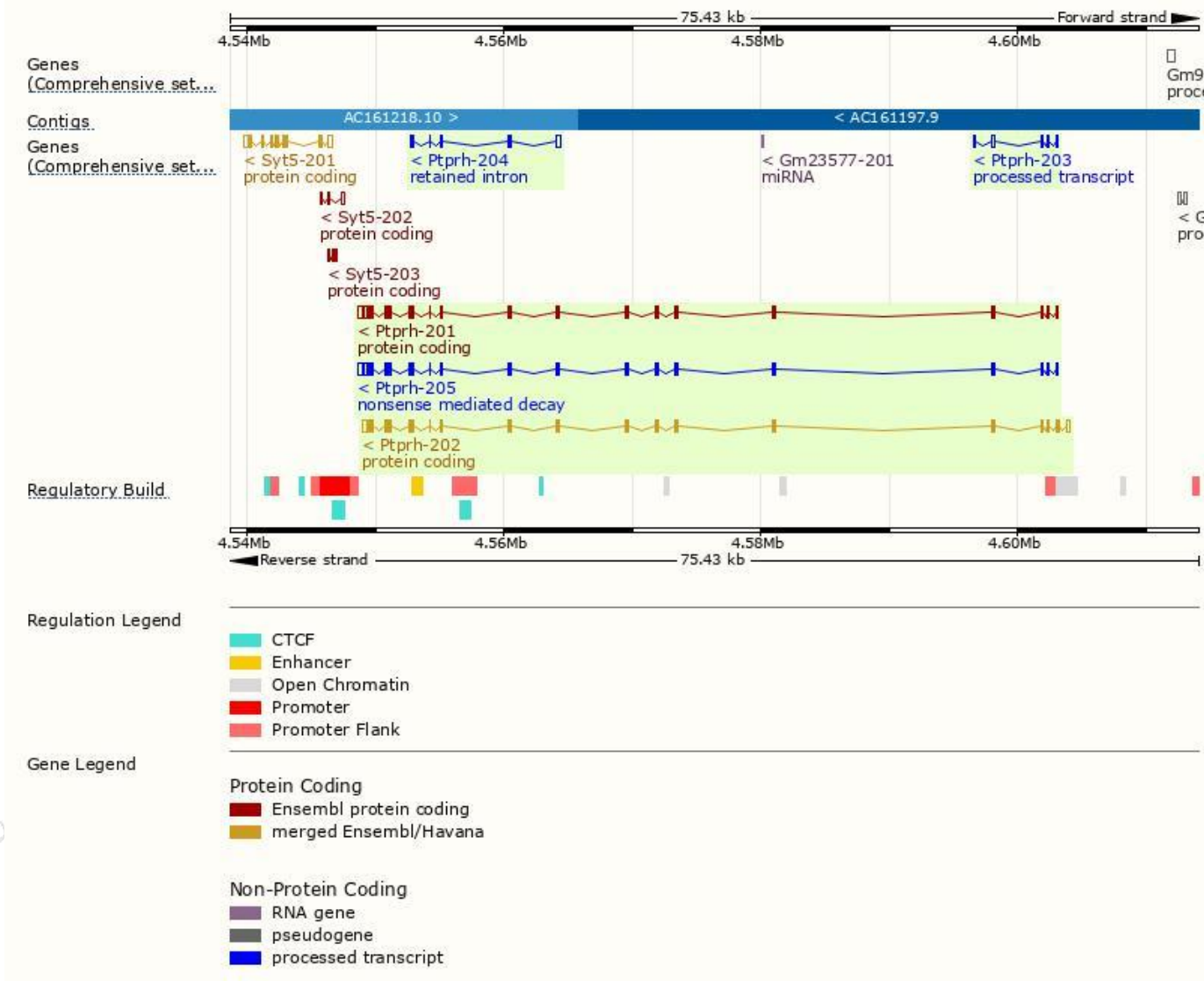
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ptprh-202	ENSMUST00000166650.2	3642	971aa	Protein coding	CCDS51974	E9Q0N2	TSL:5 GENCODE basic APPRIS P1
Ptprh-201	ENSMUST00000049113.13	3495	971aa	Protein coding	CCDS51974	E9Q0N2	TSL:1 GENCODE basic APPRIS P1
Ptprh-205	ENSMUST00000206999.1	3495	971aa	Nonsense mediated decay	-	E9Q0N2	TSL:1
Ptprh-203	ENSMUST00000205341.1	660	No protein	Processed transcript	-	-	TSL:5
Ptprh-204	ENSMUST00000205417.1	805	No protein	Retained intron	-	-	TSL:3

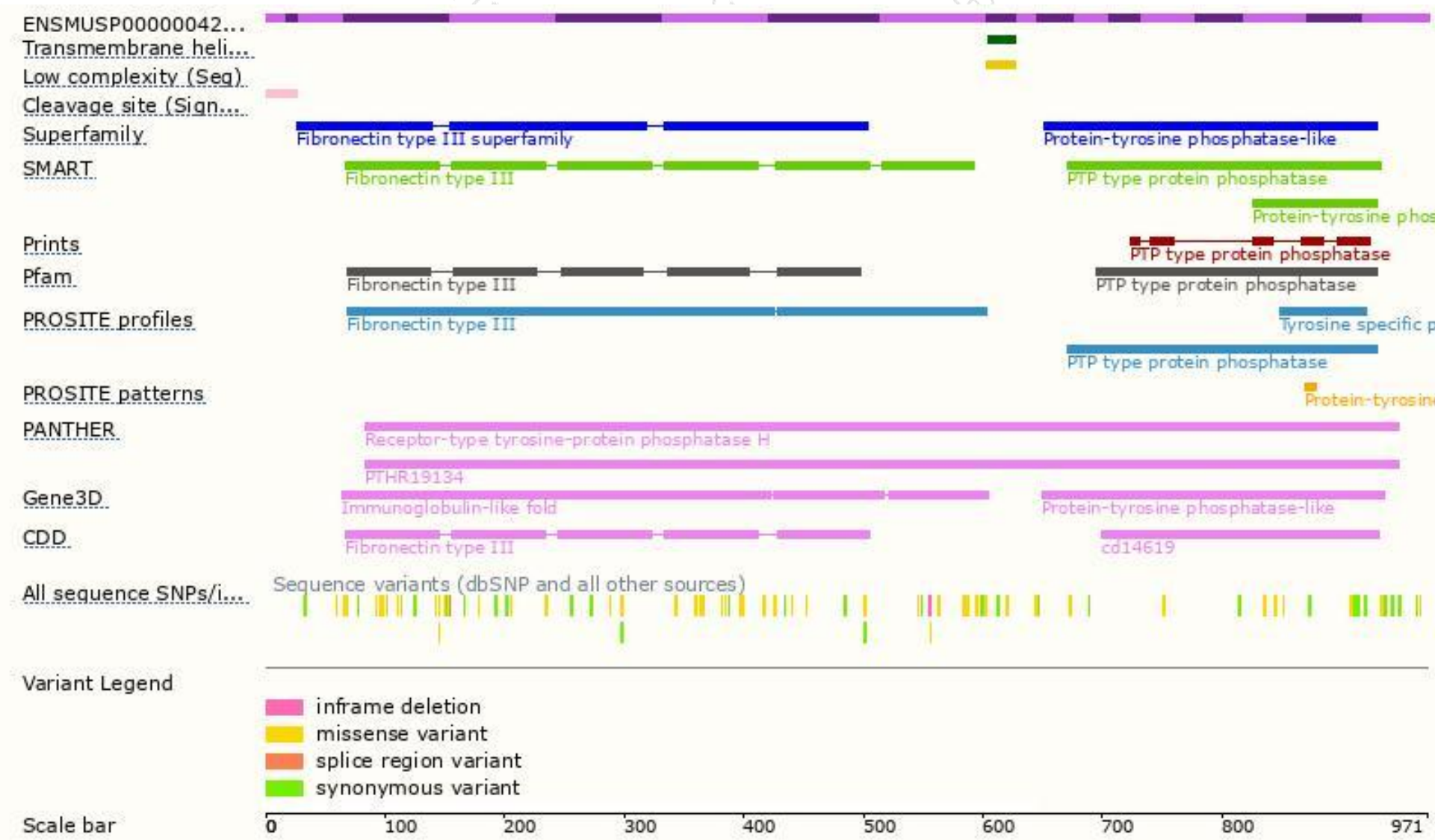
The strategy is based on the design of *Ptprh-202* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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