Ptprt Cas9-KO Strategy

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Project Overview

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

Knockout strategy

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

Technical routes

➢ The *Ptprt* gene has 6 transcripts. According to the structure of *Ptprt* gene, exon3 of *Ptprt-203* (ENSMUST00000109443.7) transcript is recommended as the knockout region.The region contains 272bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Ptprt* gene. The brief process is as follows: CRISPR/Cas9 system v

Notice

- According to the existing MGI data,mice homozygous for a knock-out allele are highly susceptible to carcinogen azoxymethane-induced colon tumors.

- The *Ptprt* gene is located on the Chr2. 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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Ptprt protein tyrosine phosphatase, receptor type, T [*Mus musculus* (house mouse)]

Gene ID: 19281, updated on 12-Aug-2019

Summary

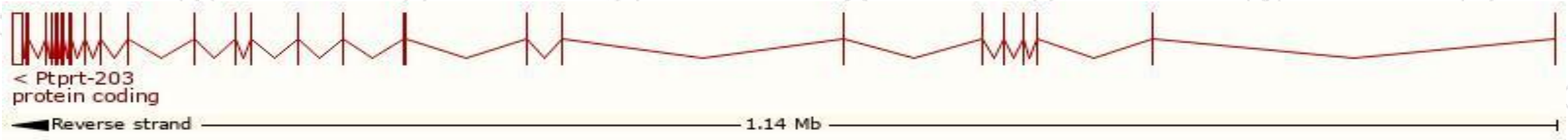
Official Symbol	Ptprt provided by MGI
Official Full Name	protein tyrosine phosphatase, receptor type, T provided by MGI
Primary source	MGI:MGI:1321152
See related	Ensembl:ENSMUSG00000053141
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	R-PTP-T; RPTPrho; RPTP-rfo; RPTP-rho; RPTPmam4; mRPTPrho; mKIAA0283
Expression	Biased expression in frontal lobe adult (RPKM 6.3), cortex adult (RPKM 4.2) and 4 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

The gene has 6 transcripts,all transcripts are shown below:

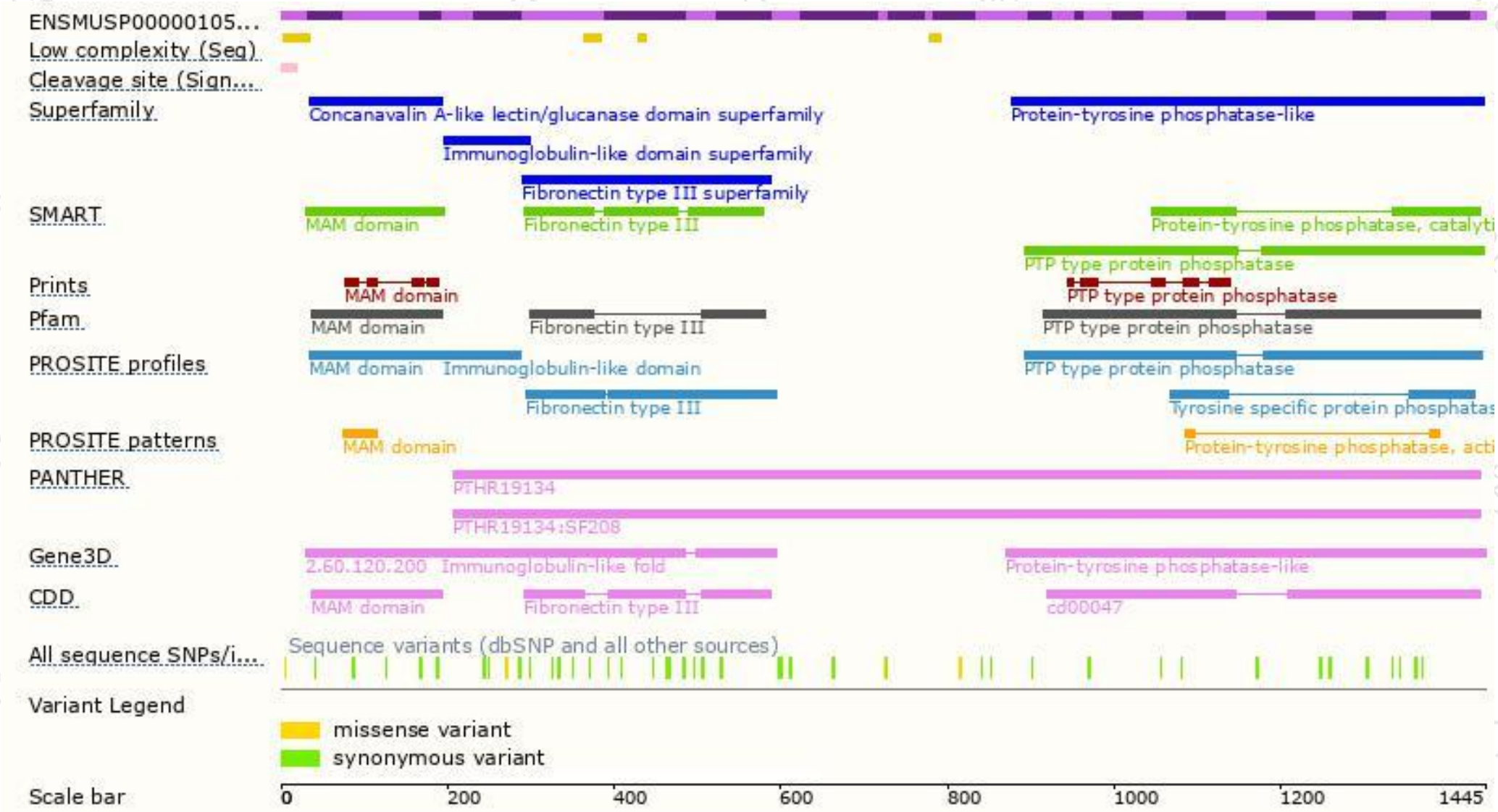
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ptprt-203	ENSMUST00000109443.7	12112	1445aa	Protein coding	CCDS71183	Q99M80	TSL:1 GENCODE basic APPRIS ALT2
Ptprt-204	ENSMUST00000109445.8	12082	1435aa	Protein coding	CCDS17001	Q99M80	TSL:1 GENCODE basic APPRIS P3
Ptprt-201	ENSMUST00000109441.1	6623	1455aa	Protein coding	CCDS71182	Q99M80	TSL:1 GENCODE basic APPRIS ALT2
Ptprt-202	ENSMUST00000109442.7	7719	1454aa	Protein coding	-	B1AQN2	TSL:5 GENCODE basic APPRIS ALT2
Ptprt-206	ENSMUST00000153770.1	608	No protein	Processed transcript	-	-	TSL:3
Ptprt-205	ENSMUST00000129015.1	426	No protein	Processed transcript	-	-	TSL:3

The strategy is based on the design of *Ptprt-203* transcript,the transcription is shown below:

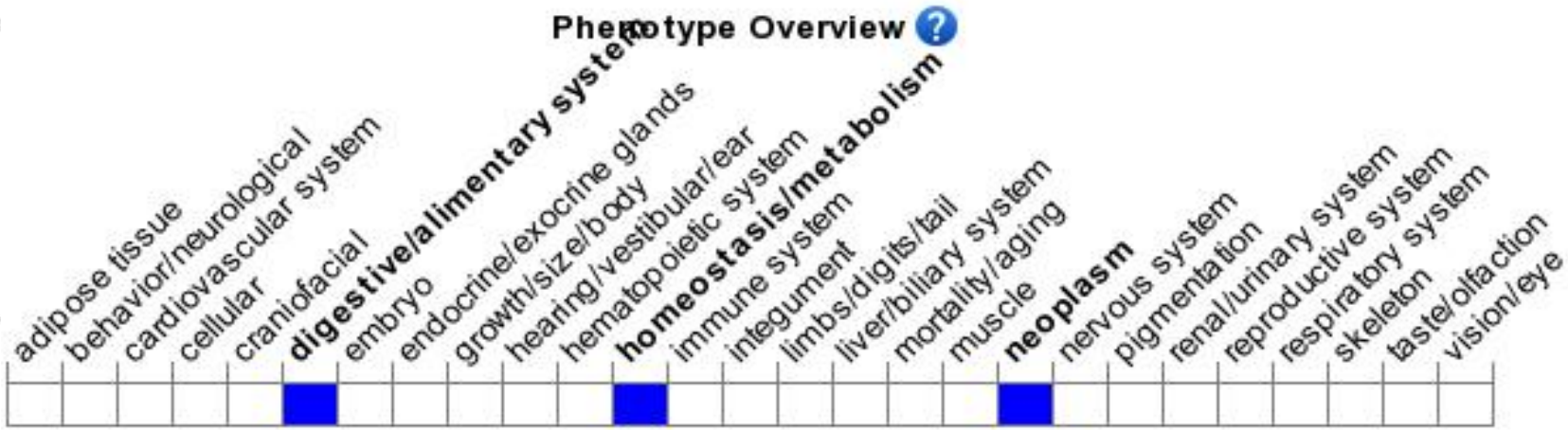


Genomic location distribution

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/).

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

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