Ptpru Cas9-KO Strategy

Designer: Daohua Xu
Reviewer: Huimin Su
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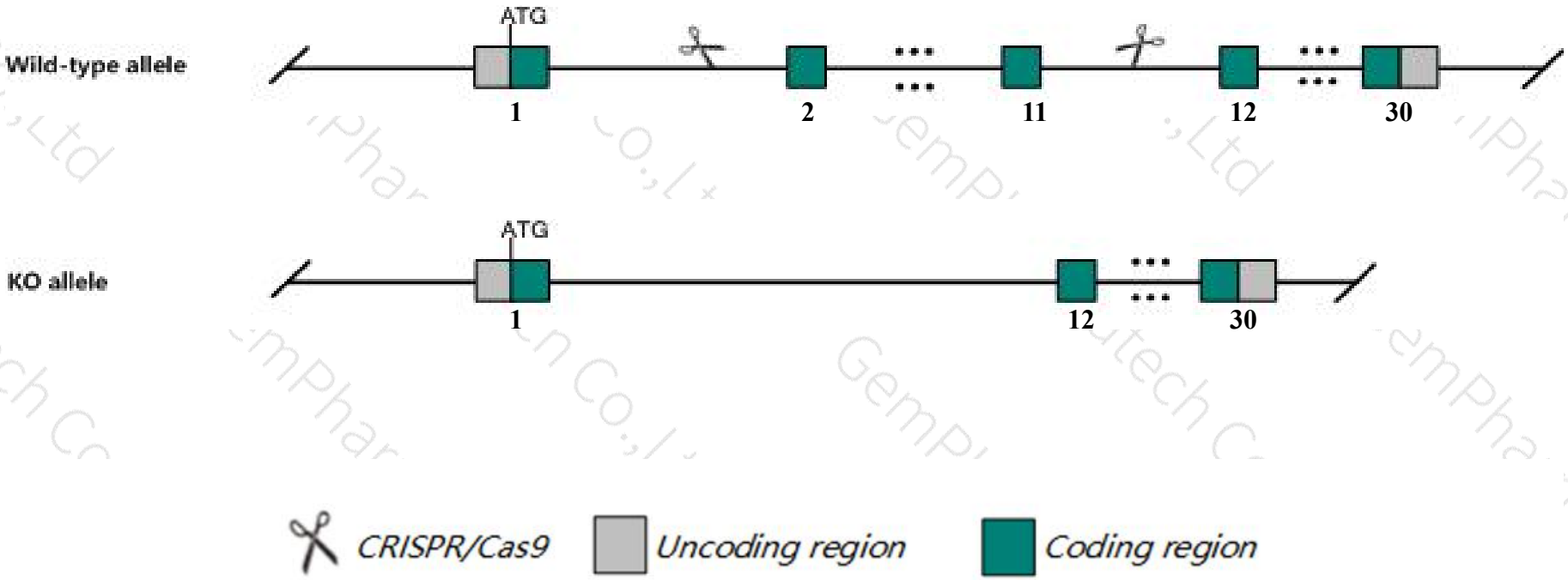
Project Overview

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

Knockout strategy

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



Technical routes

➢ The *Ptpru* gene has 8 transcripts. According to the structure of *Ptpru* gene, exon2-exon11 of *Ptpru-203* (ENSMUST00000105987.8) transcript is recommended as the knockout region.The region contains 1795bp coding sequence. Knock out the region will result in disruption of protein function.

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

Notice

➢ The *Ptpru* gene is located on the Chr4. 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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Ptpru protein tyrosine phosphatase, receptor type, U [Mus musculus (house mouse)]

Gene ID: 19273, updated on 31-Jan-2019

Summary

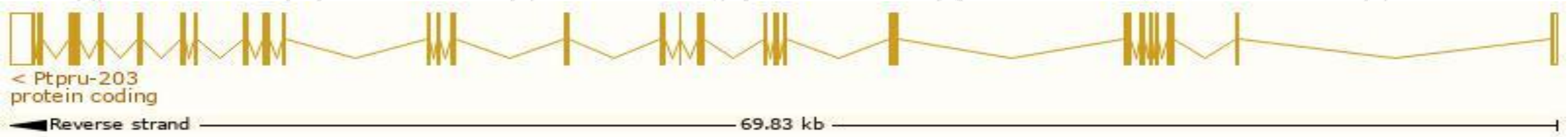
Official Symbol	Ptpru provided by MGI
Official Full Name	protein tyrosine phosphatase, receptor type, U provided by MGI
Primary source	MGI:MGI:1321151
See related	Ensembl:ENSMUSG00000028909
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Ftp-1, PCP-2, PTP, PTP-lambda, PTPlambda, Pcp2, Ptpf, Ptprl, R-PTP-U, R-PTP-psi, RPTPlambda
Expression	Broad expression in adrenal adult (RPKM 20.7), bladder adult (RPKM 17.6) and 22 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

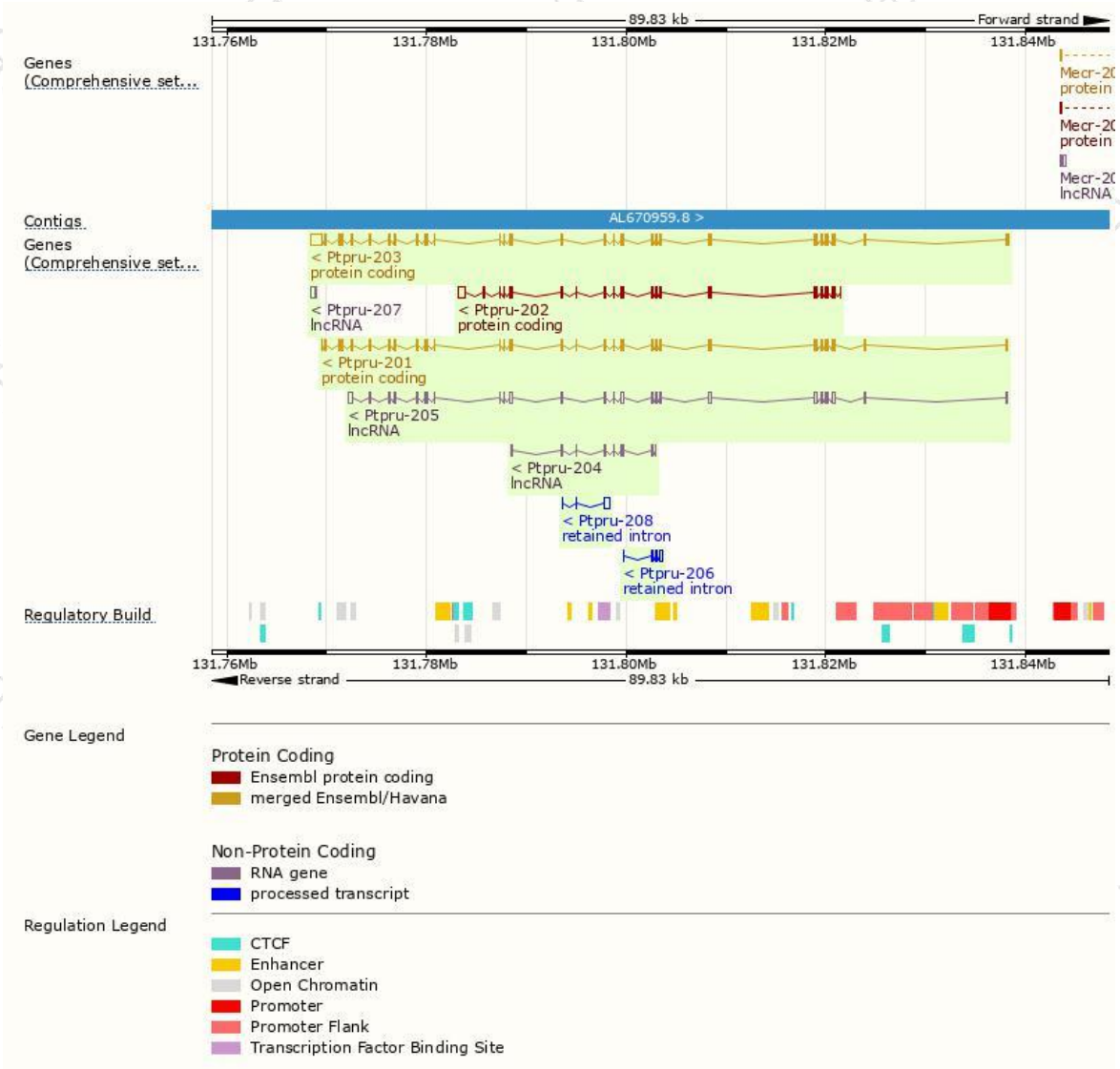
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ptpru-203	ENSMUST00000105987.8	5484	1436aa	Protein coding	CCDS18714	B1AUH1	TSL:1 GENCODE basic APPRIS P3
Ptpru-201	ENSMUST00000030741.8	4416	1446aa	Protein coding	CCDS38896	B1AUH1	TSL:5 GENCODE basic APPRIS ALT1
Ptpru-202	ENSMUST00000097860.2	3365	907aa	Protein coding	-	Q3V360	TSL:1 GENCODE basic
Ptpru-208	ENSMUST00000154224.1	625	No protein	Retained intron	-	-	TSL:3
Ptpru-206	ENSMUST00000139641.1	599	No protein	Retained intron	-	-	TSL:5
Ptpru-205	ENSMUST00000127633.7	4292	No protein	lncRNA	-	-	TSL:1
Ptpru-204	ENSMUST00000123878.7	714	No protein	lncRNA	-	-	TSL:3
Ptpru-207	ENSMUST00000144136.1	389	No protein	lncRNA	-	-	TSL:5

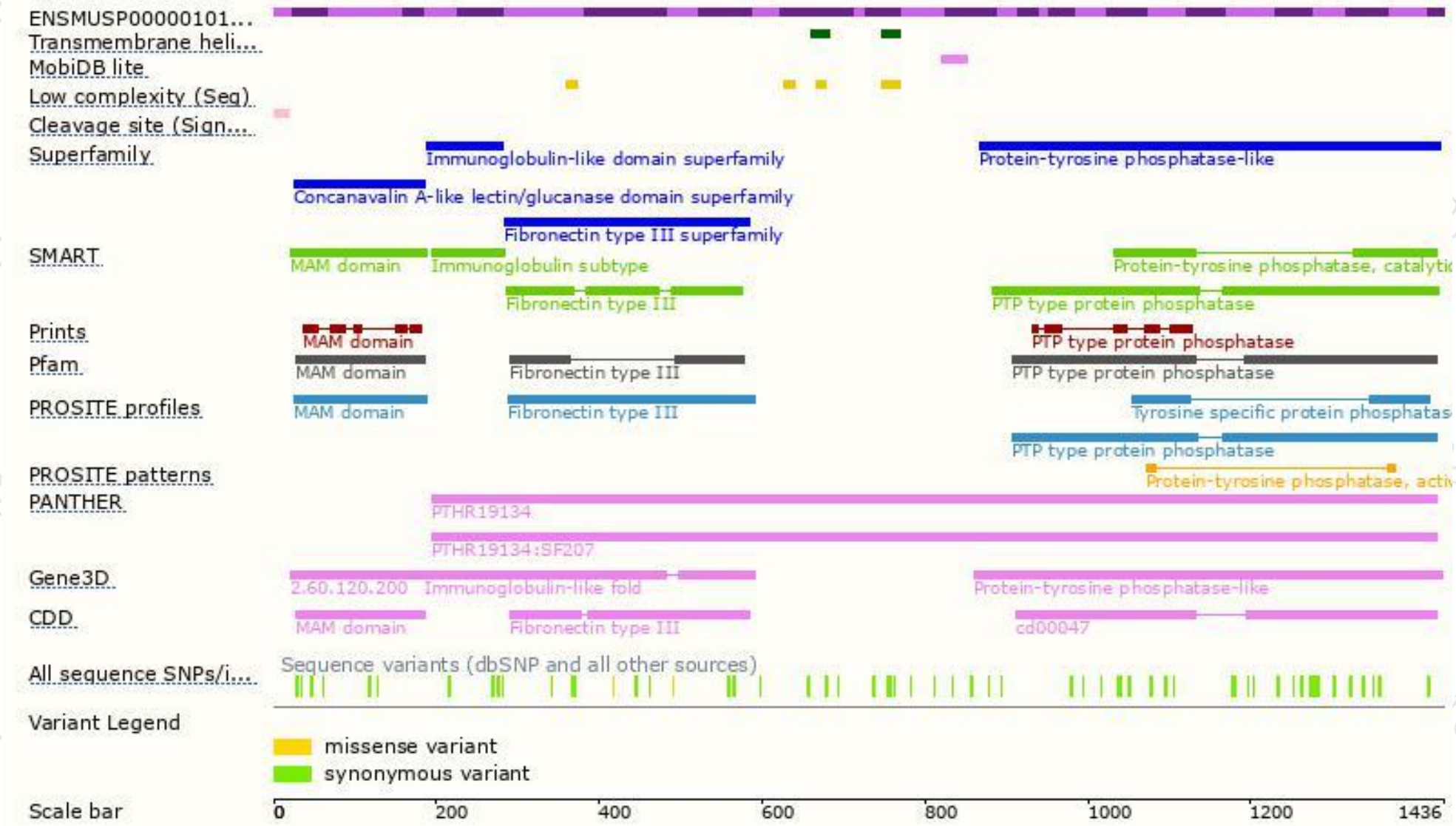
The strategy is based on the design of *Ptpru-203* transcript,The transcription is shown below



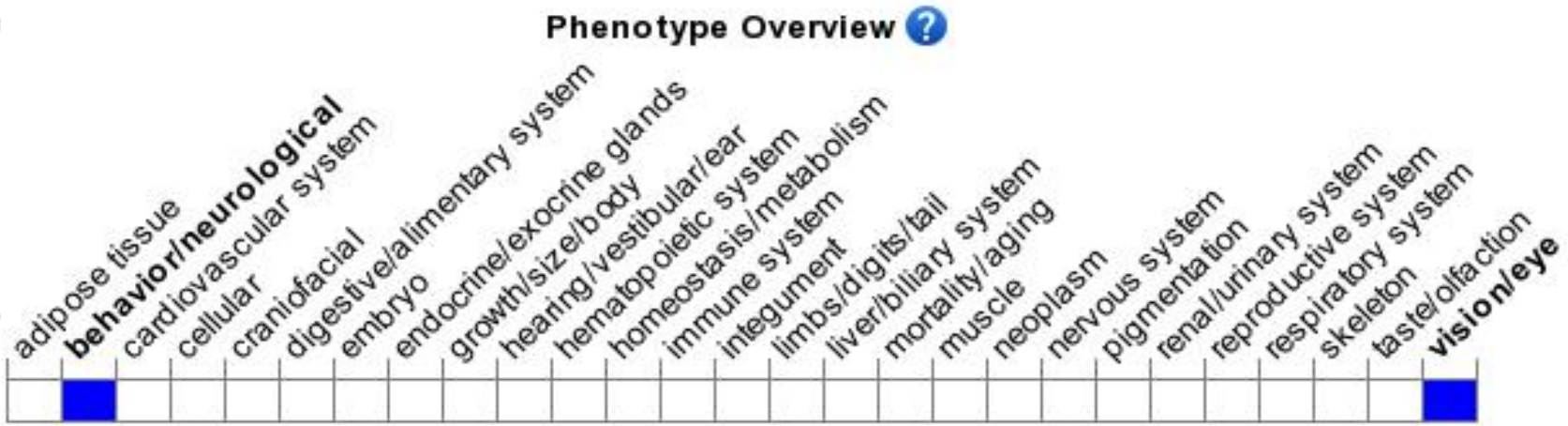
Genomic location distribution



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.

Tel: 400-9660890

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