

Ptbp3 Cas9-CKO Strategy

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Project Overview

Project Name

Ptbp3

Project type

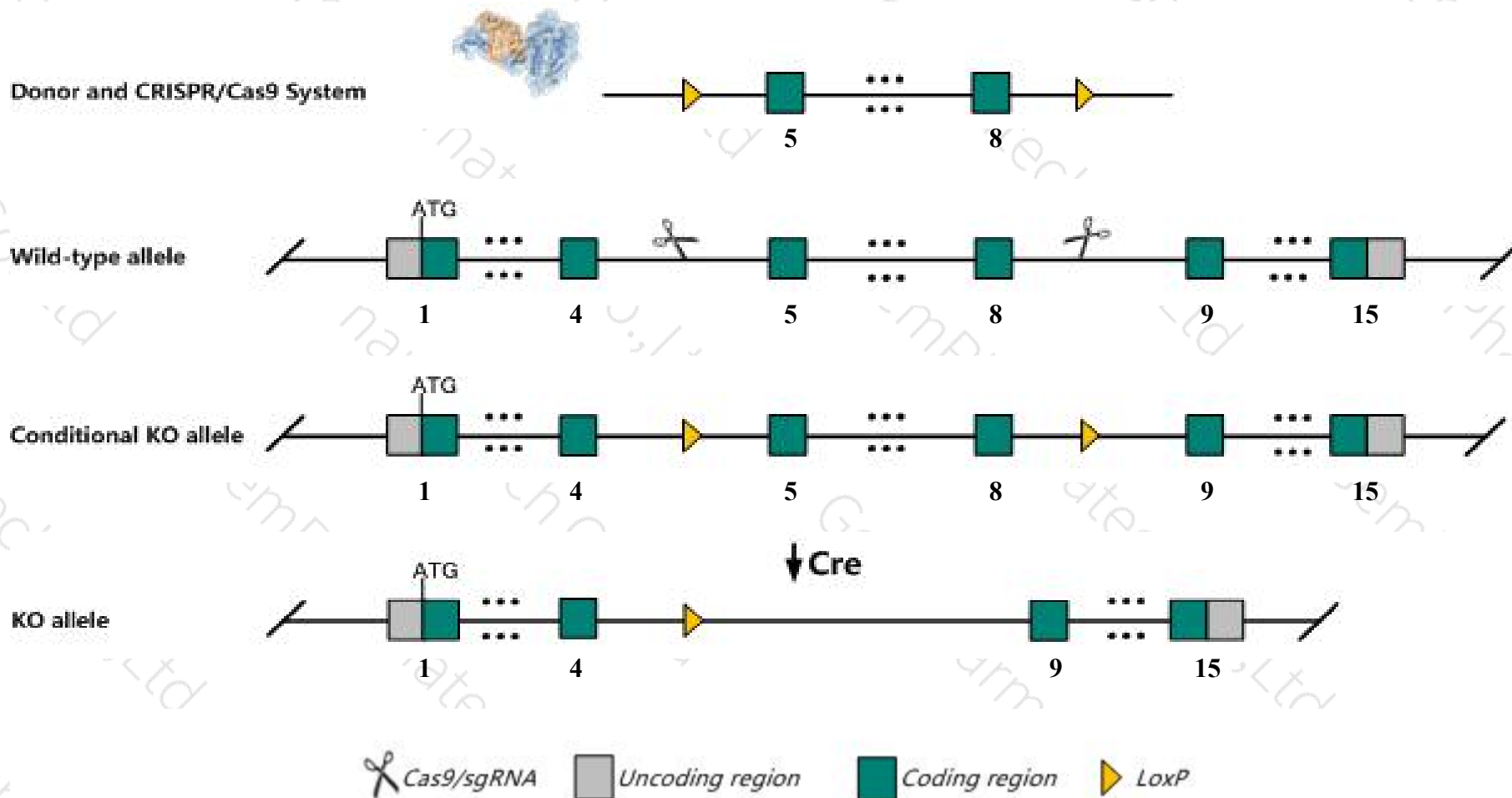
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ptbp3* gene. The schematic diagram is as follows:



Technical routes

- The *Ptbp3* gene has 13 transcripts. According to the structure of *Ptbp3* gene, exon5-exon8 of *Ptbp3*-202(ENSMUST00000102883.10) transcript is recommended as the knockout region. The region contains 598bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ptbp3* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA and Donor 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.
- The flox mice was 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.

- The *Ptbp3* 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.
- Transcript *Ptbp3-204* may not be affect.
- 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)

Ptbp3 polypyrimidine tract binding protein 3 [*Mus musculus* (house mouse)]

Gene ID: 230257, updated on 26-Jun-2020

Summary

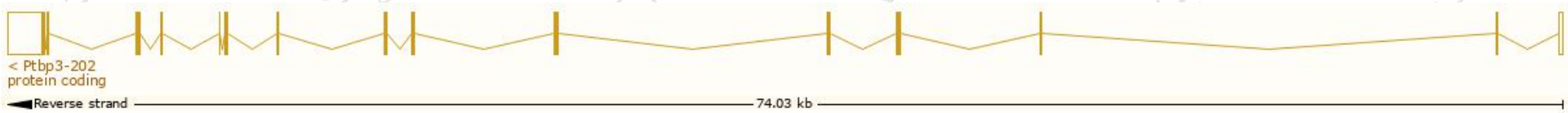
Official Symbol	Ptbp3 provided by MGI
Official Full Name	polypyrimidine tract binding protein 3 provided by MGI
Primary source	MGI:MGI:1923334
See related	Ensembl:ENSMUSG00000028382
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Rod1; C86549; AA407443; AI462022; AW107884; 5830471K22Rik
Expression	Ubiquitous expression in placenta adult (RPKM 36.2), liver E14 (RPKM 17.5) and 27 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

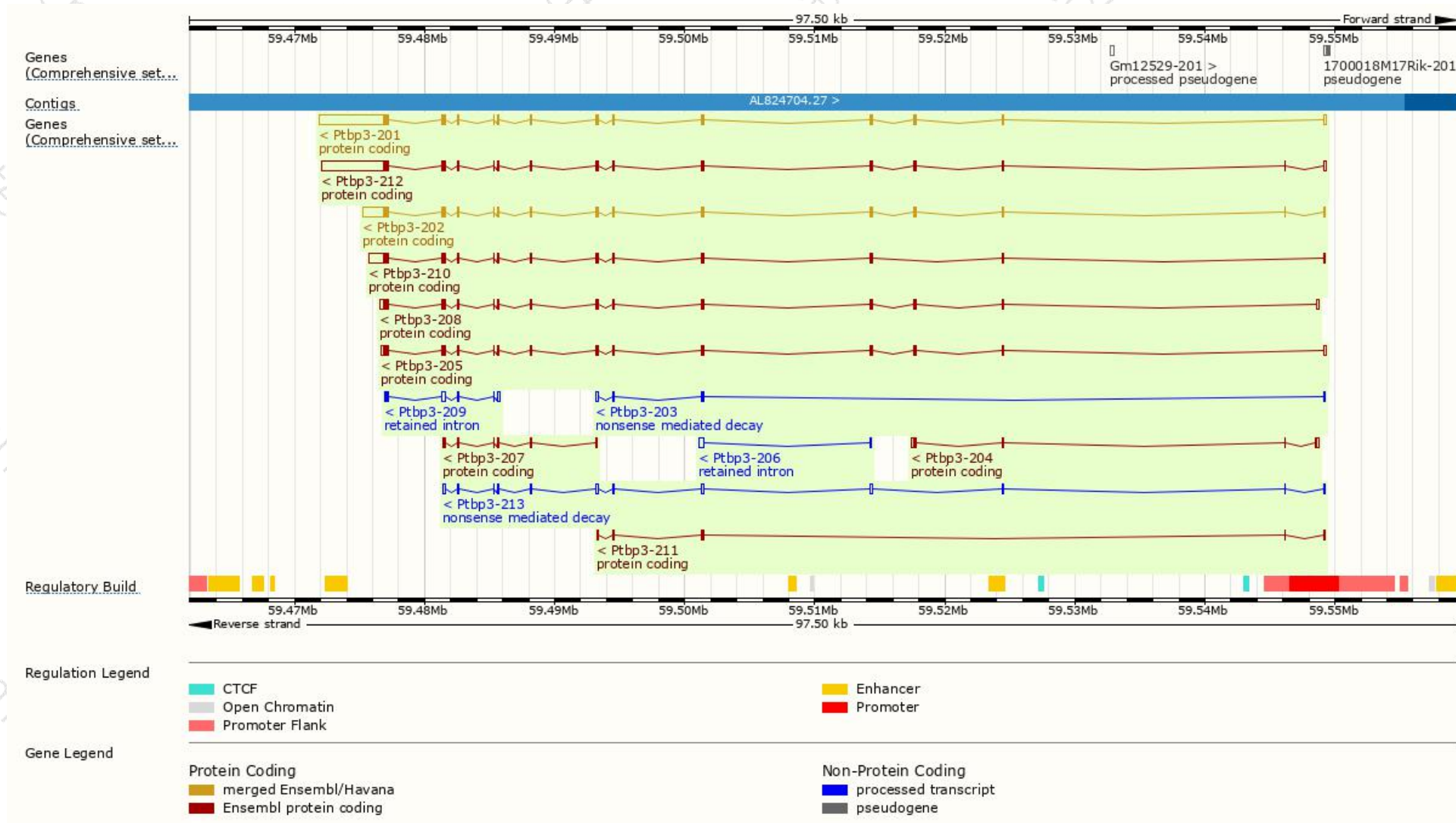
The gene has 13 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ptbp3-203	ENSMUST00000134879.2	558	41aa	Nonsense mediated decay	-	G3UZG7	TSL:3
Ptbp3-213	ENSMUST00000174748.7	1286	45aa	Nonsense mediated decay	-	G3UXZ6	TSL:5
Ptbp3-204	ENSMUST00000140925.2	606	104aa	Protein coding	-	F7C521	TSL:3 GENCODE basic
Ptbp3-211	ENSMUST00000173884.7	550	146aa	Protein coding	-	G3UY95	CDS 3' incomplete TSL:3
Ptbp3-207	ENSMUST00000172471.1	566	188aa	Protein coding	-	G3UXZ8	CDS 5' and 3' incomplete TSL:5
Ptbp3-210	ENSMUST00000173699.7	2721	457aa	Protein coding	-	G3UZ01	TSL:5 GENCODE basic
Ptbp3-208	ENSMUST00000172768.7	2147	520aa	Protein coding	-	Q8BHD7	TSL:5 GENCODE basic
Ptbp3-205	ENSMUST00000148331.8	2016	520aa	Protein coding	-	Q8BHD7	TSL:5 GENCODE basic
Ptbp3-201	ENSMUST00000030076.11	6855	523aa	Protein coding	CCDS18221	Q8BHD7	TSL:1 GENCODE basic APPRIS ALT1
Ptbp3-202	ENSMUST00000102883.10	3409	551aa	Protein coding	CCDS18220	G8JL74	TSL:1 GENCODE basic APPRIS P4
Ptbp3-212	ENSMUST00000174586.7	6640	554aa	Protein coding	-	G3UXA6	TSL:5 GENCODE basic APPRIS ALT1
Ptbp3-209	ENSMUST00000173268.7	669	No protein	Retained intron	-	-	TSL:3
Ptbp3-206	ENSMUST00000151313.2	447	No protein	Retained intron	-	-	TSL:3

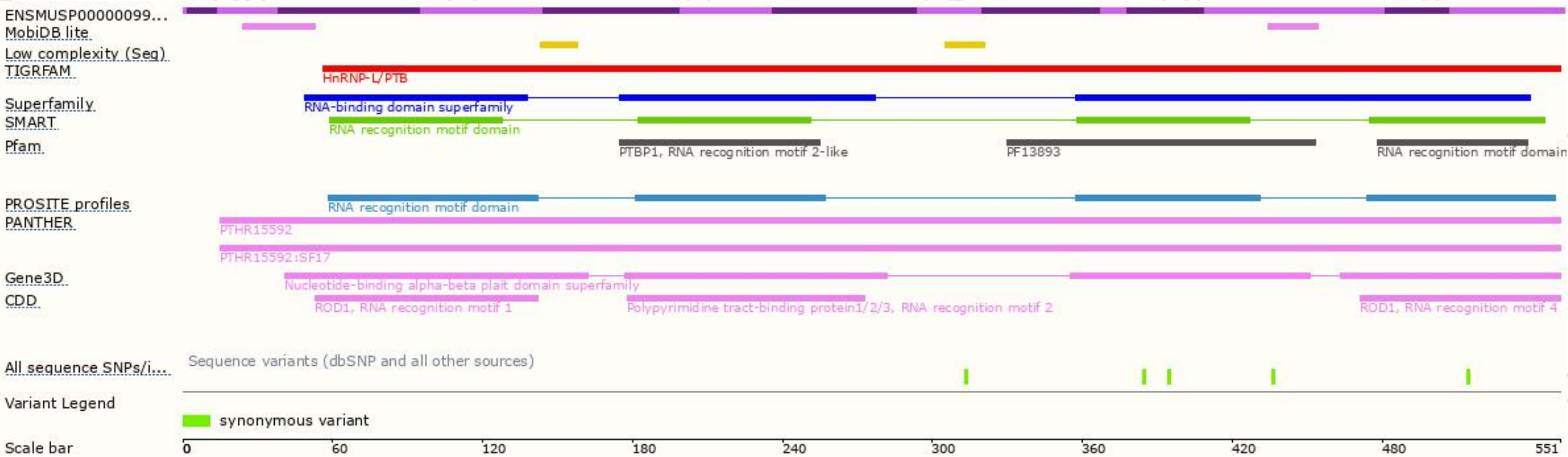
The strategy is based on the design of *Ptbp3-202* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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