

Ptbp2 Cas9-CKO Strategy

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Project Overview

Project Name

Ptbp2

Project type

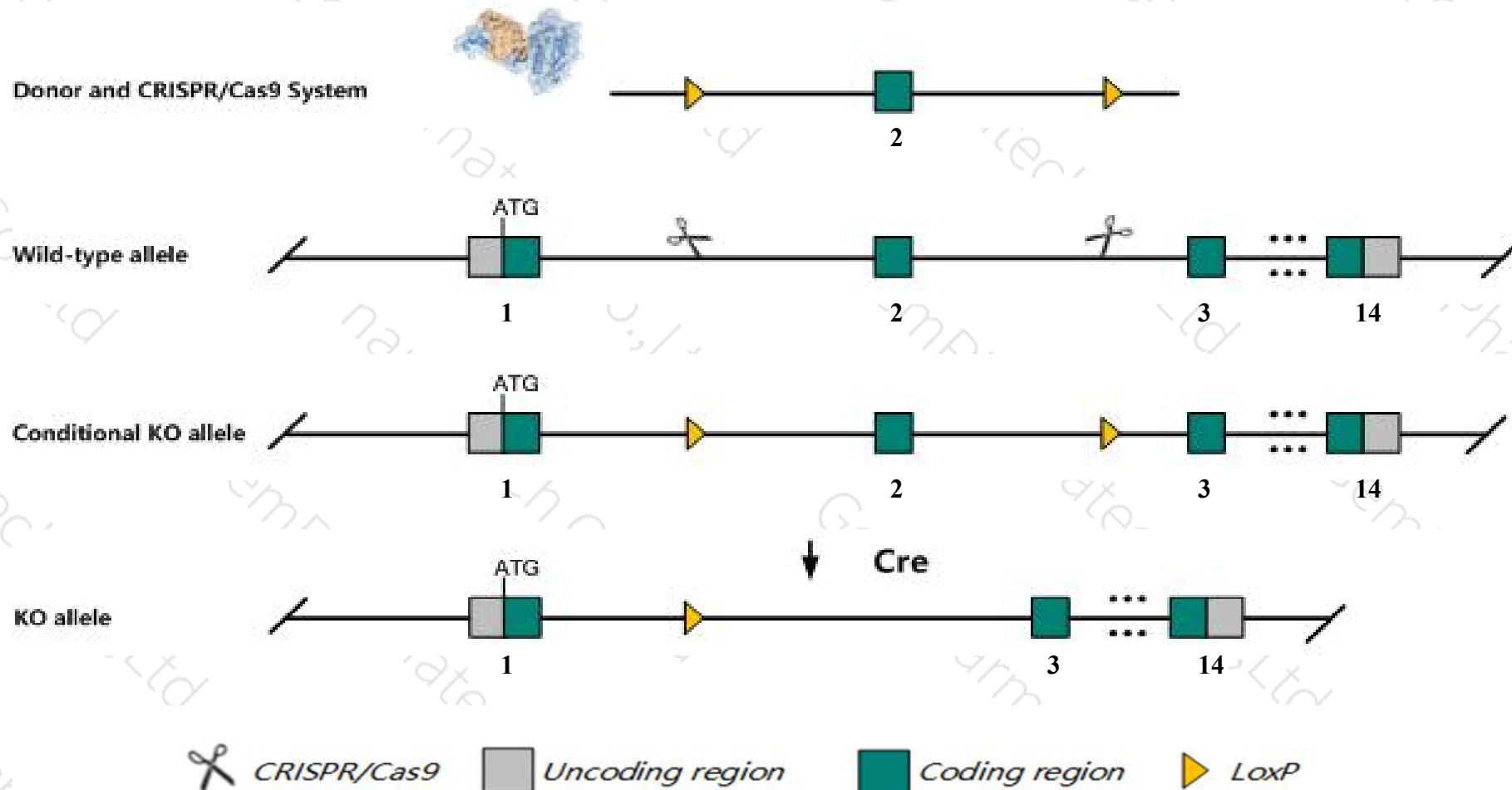
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ptbp2* gene. The schematic diagram is as follows:



Technical routes

- The *Ptbp2* gene has 13 transcripts. According to the structure of *Ptbp2* gene, exon2 of *Ptbp2-201*(ENSMUST00000029780.11) transcript is recommended as the knockout region. The region contains 31bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ptbp2* gene. The brief process is as follows: CRISPR/Cas9 system 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 will be 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.

- According to the existing MGI data, mice homozygous for a null mutation display neonatal lethality with premature neurogenesis and abnormal neural stem cell polarity.
- The effect on transcript *Ptbp2*-202 is unknown.
- Transcript *Ptbp2*-204&205&206&211 may not be affected.
- The *Ptbp2* gene is located on the Chr3. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Ptbp2 polypyrimidine tract binding protein 2 [Mus musculus (house mouse)]

Gene ID: 56195, updated on 13-Mar-2020

Summary



Official Symbol Ptbp2 provided by [MGI](#)

Official Full Name polypyrimidine tract binding protein 2 provided by [MGI](#)

Primary source [MGI:MGI:1860489](#)

See related [Ensembl:ENSMUSG00000028134](#)

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 Ptbp2, brPTB, nPTB

Expression Biased expression in CNS E14 (RPKM 48.5), whole brain E14.5 (RPKM 48.4) and 12 other tissues [See more](#)

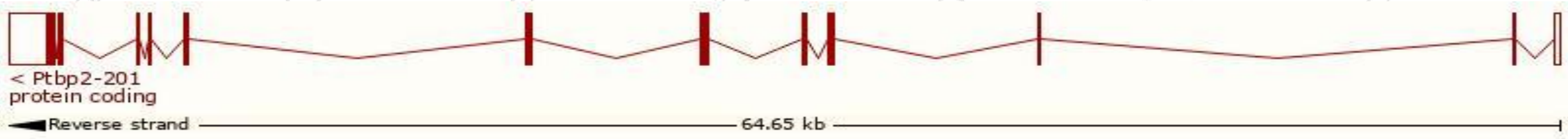
Orthologs [human all](#)

Transcript information (Ensembl)

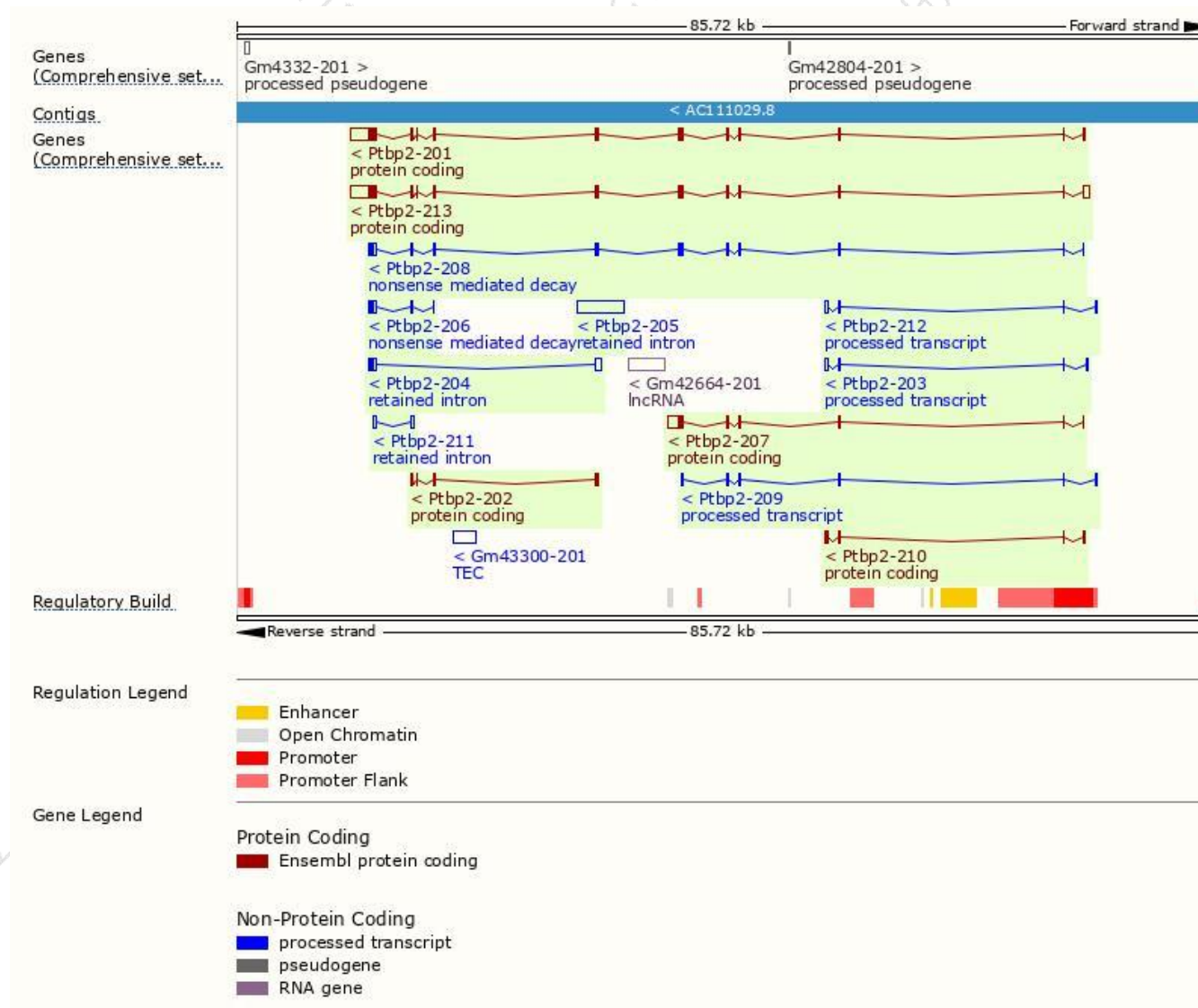
The gene has 13 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ptbp2-213	ENSMUST00000200097.4	3777	531aa	Protein coding	CCDS80010	Q91Z31	TSL:1 GENCODE basic APPRIS ALT1
Ptbp2-201	ENSMUST0000029780.11	3364	532aa	Protein coding	CCDS38616	Q91Z31	TSL:1 GENCODE basic APPRIS P3
Ptbp2-207	ENSMUST00000197464.4	1742	241aa	Protein coding	-	Q3V328	TSL:1 GENCODE basic
Ptbp2-202	ENSMUST00000195902.1	465	155aa	Protein coding	-	A0A0G2JFV8	CDS 5' and 3' incomplete TSL:5
Ptbp2-210	ENSMUST00000198403.1	389	49aa	Protein coding	-	A0A0G2JE77	TSL:1 GENCODE basic
Ptbp2-208	ENSMUST00000197833.4	1598	356aa	Nonsense mediated decay	-	A0A0G2JGW0	TSL:5
Ptbp2-206	ENSMUST00000197387.4	576	33aa	Nonsense mediated decay	-	A0A0G2JEB9	CDS 5' incomplete TSL:3
Ptbp2-209	ENSMUST00000198399.4	654	No protein	Processed transcript	-	-	TSL:3
Ptbp2-212	ENSMUST00000199026.4	478	No protein	Processed transcript	-	-	TSL:3
Ptbp2-203	ENSMUST00000196066.1	454	No protein	Processed transcript	-	-	TSL:3
Ptbp2-205	ENSMUST00000196343.1	4047	No protein	Retained intron	-	-	TSL:NA
Ptbp2-204	ENSMUST00000196203.1	937	No protein	Retained intron	-	-	TSL:5
Ptbp2-211	ENSMUST00000198733.1	491	No protein	Retained intron	-	-	TSL:2

The strategy is based on the design of *Ptbp2-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain

ENSMUSP00000029...

Low complexity (Seq)

TIGRFAM

Superfamily

SMART

Pfam

PROSITE profiles

PANTHER

Gene3D

CDD

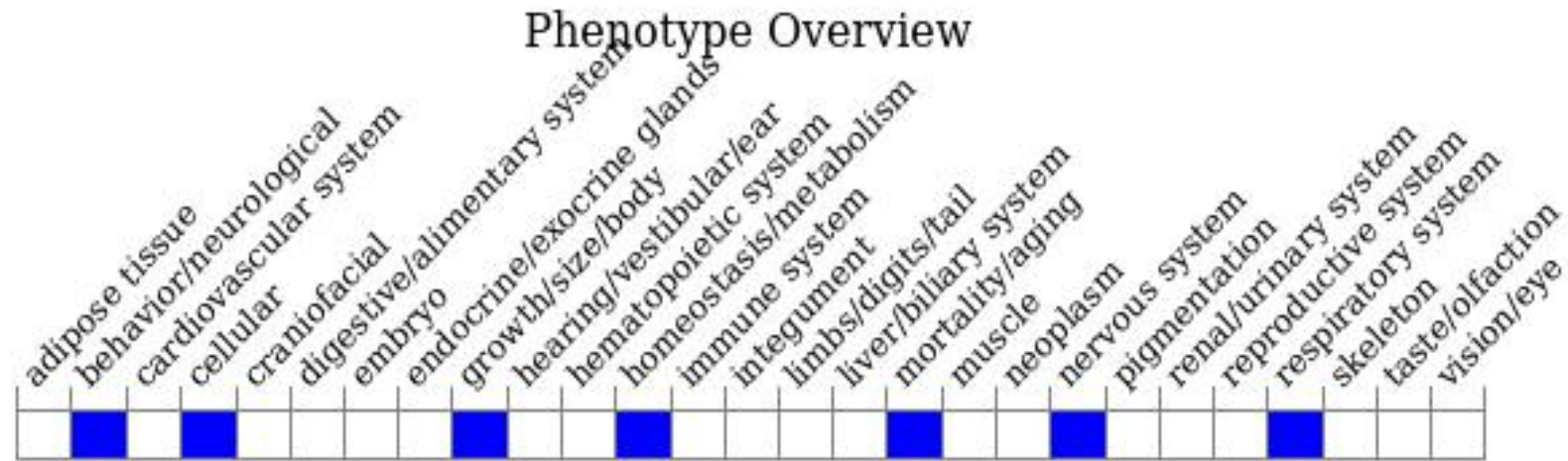
All sequence SNPs/i....

Variant Legend

Scale bar



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, mice homozygous for a null mutation display neonatal lethality with premature neurogenesis and abnormal neural stem cell polarity.

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

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