

Patj Cas9-CKO Strategy

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Project Overview

Project Name

Patj

Project type

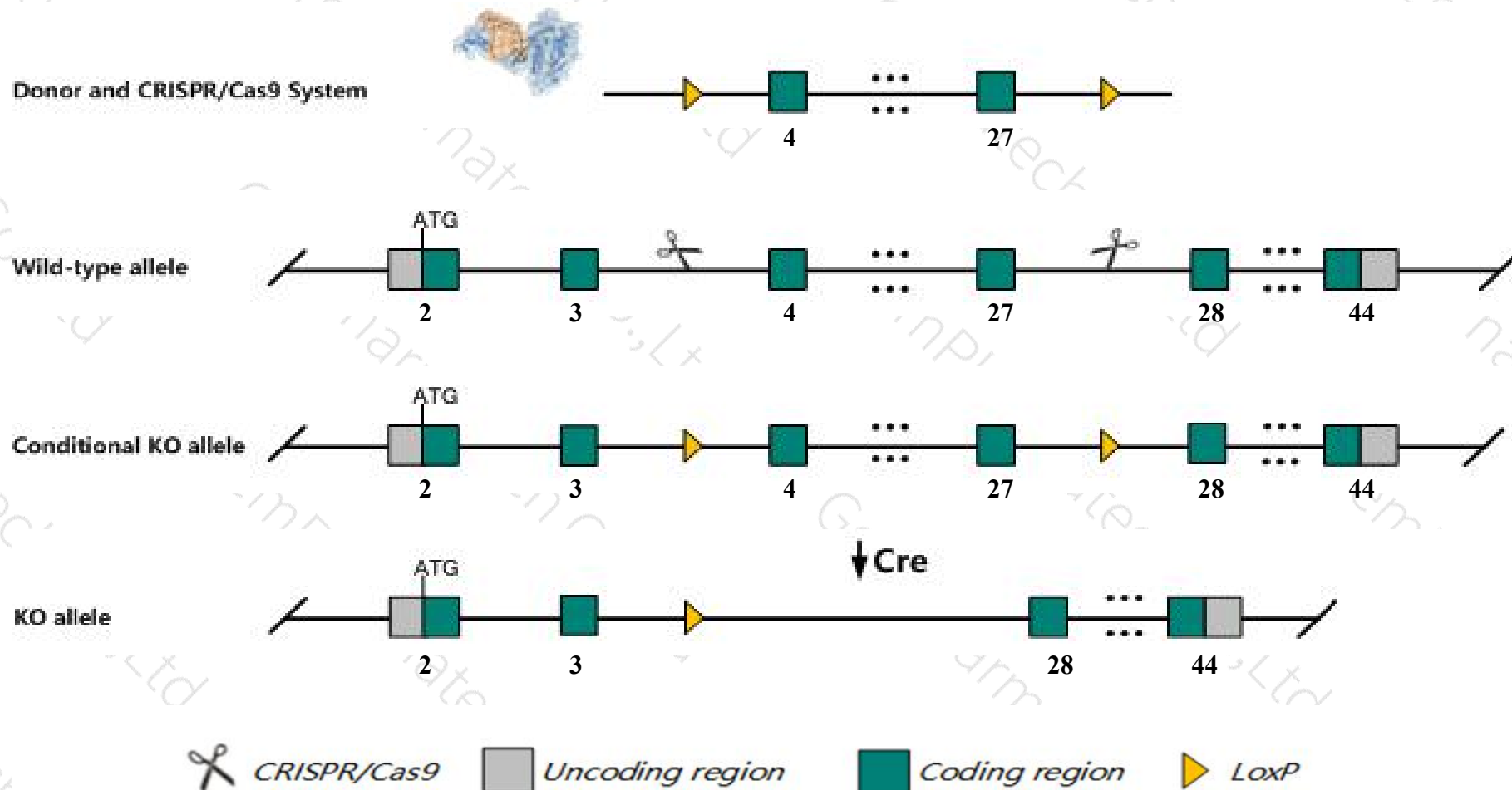
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



- The *Patj* gene has 14 transcripts. According to the structure of *Patj* gene, exon4-exon27 of *Patj*-202 (ENSMUST00000041284.9) transcript is recommended as the knockout region. The region contains 3499bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Patj* 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.

Notice

- The *Patj* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

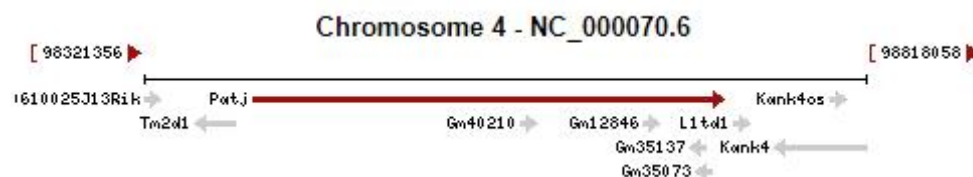
Gene information (NCBI)

Patj PATJ, crumbs cell polarity complex component [*Mus musculus* (house mouse)]

Gene ID: 12695, updated on 10-Oct-2019

Summary

Official Symbol	Patj provided by MGI
Official Full Name	PATJ, crumbs cell polarity complex component provided by MGI
Primary source	MGI:MGI:1277960
See related	Ensembl:ENSMUSG000000061859
Gene type	protein coding
RefSeq status	REVIEWED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Cipp; Inadl
Summary	This gene encodes a multivalent PDZ domain protein, which is expressed exclusively in brain and kidney. This protein selectively interacts with inward rectifier K ⁺ (Kir) family members, N-methyl-D-aspartate receptor subunits, neuroligins and neuroligins, as well as cell surface molecules enriched in synaptic membranes. Thus, this protein may serve as a scaffold that brings structurally diverse but functionally connected proteins into close proximity at the synapse. Multiple alternatively spliced transcript variants encoding different isoforms have been found for this gene. [provided by RefSeq, Jul 2008]
Expression	Broad expression in cerebellum adult (RPKM 10.7), large intestine adult (RPKM 4.4) and 23 other tissues See more
Orthologs	human all

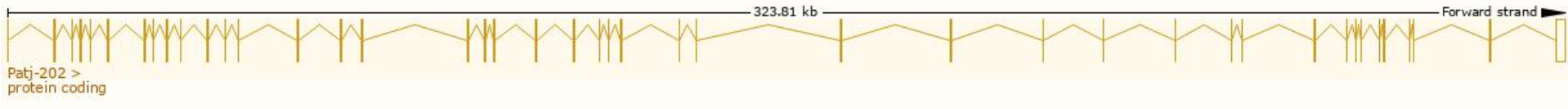


Transcript information (Ensembl)

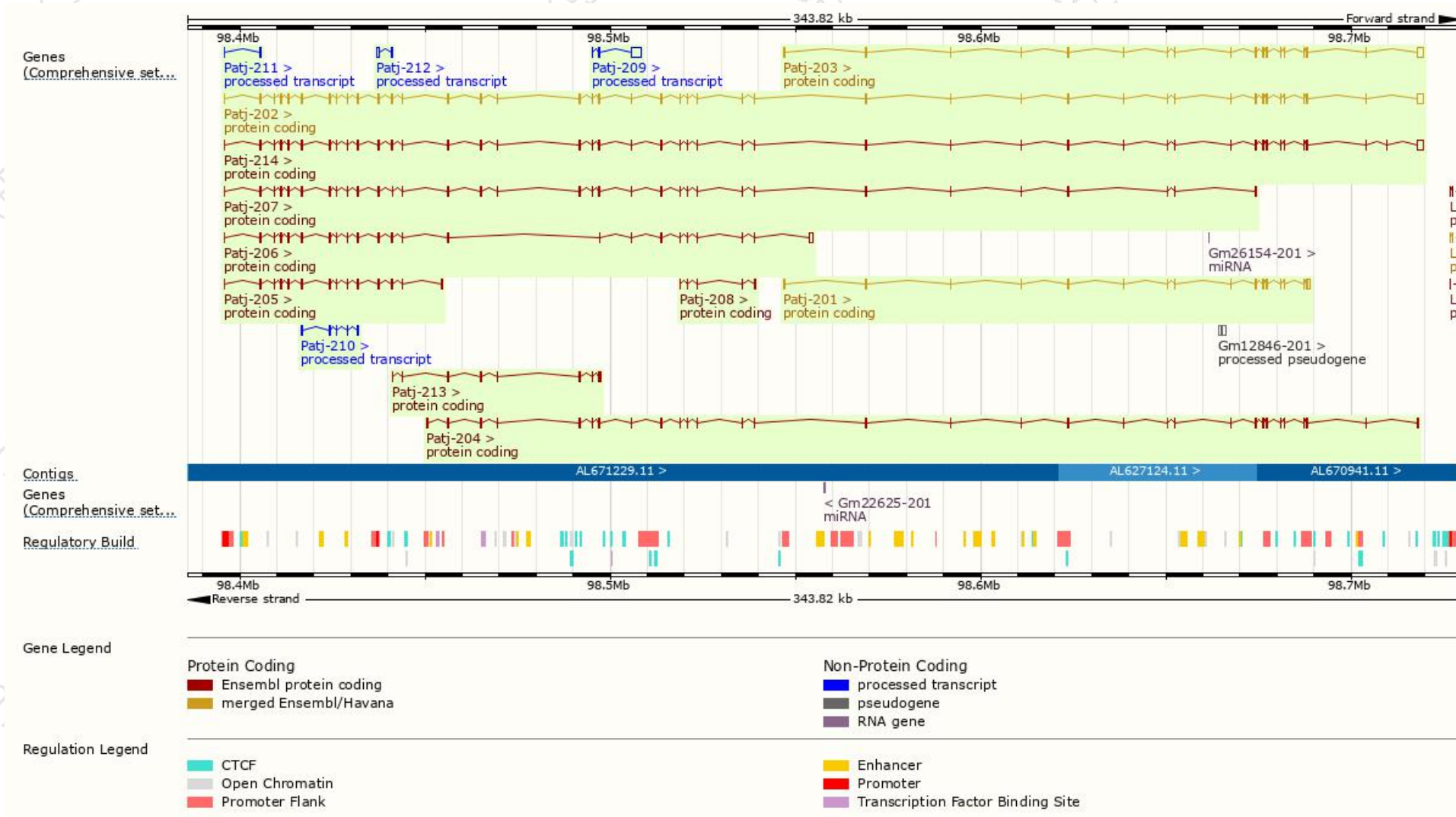
The gene has 14 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Patj-202	ENSMUST00000041284.9	7340	1834aa	Protein coding	CCDS18375	A2ADL9 Q63ZW7	TSL:1 GENCODE basic APPRIS P2
Patj-203	ENSMUST00000102792.9	3755	612aa	Protein coding	CCDS18376	Q63ZW7	TSL:1 GENCODE basic
Patj-201	ENSMUST00000030290.7	2495	582aa	Protein coding	CCDS18377	Q63ZW7	TSL:1 GENCODE basic
Patj-214	ENSMUST00000238306.1	7416	1858aa	Protein coding	-	-	GENCODE basic APPRIS ALT2
Patj-207	ENSMUST00000107034.7	4799	1531aa	Protein coding	-	A2ADS6	TSL:5 GENCODE basic
Patj-204	ENSMUST00000107029.7	4342	1261aa	Protein coding	-	Q63ZW7	TSL:1 GENCODE basic
Patj-206	ENSMUST00000107033.7	3624	902aa	Protein coding	-	A2ADS8	TSL:1 GENCODE basic
Patj-205	ENSMUST00000107030.8	2104	598aa	Protein coding	-	Q63ZW7	TSL:1 GENCODE basic
Patj-213	ENSMUST00000142103.7	1637	454aa	Protein coding	-	F6RSZ8	CDS 5' incomplete TSL:1
Patj-208	ENSMUST00000134901.1	644	173aa	Protein coding	-	A2ADT1	CDS 5' incomplete TSL:5
Patj-209	ENSMUST00000135606.1	3004	No protein	Processed transcript	-	-	TSL:1
Patj-210	ENSMUST00000136675.1	689	No protein	Processed transcript	-	-	TSL:2
Patj-212	ENSMUST00000141965.1	612	No protein	Processed transcript	-	-	TSL:3
Patj-211	ENSMUST00000141796.1	252	No protein	Processed transcript	-	-	TSL:5

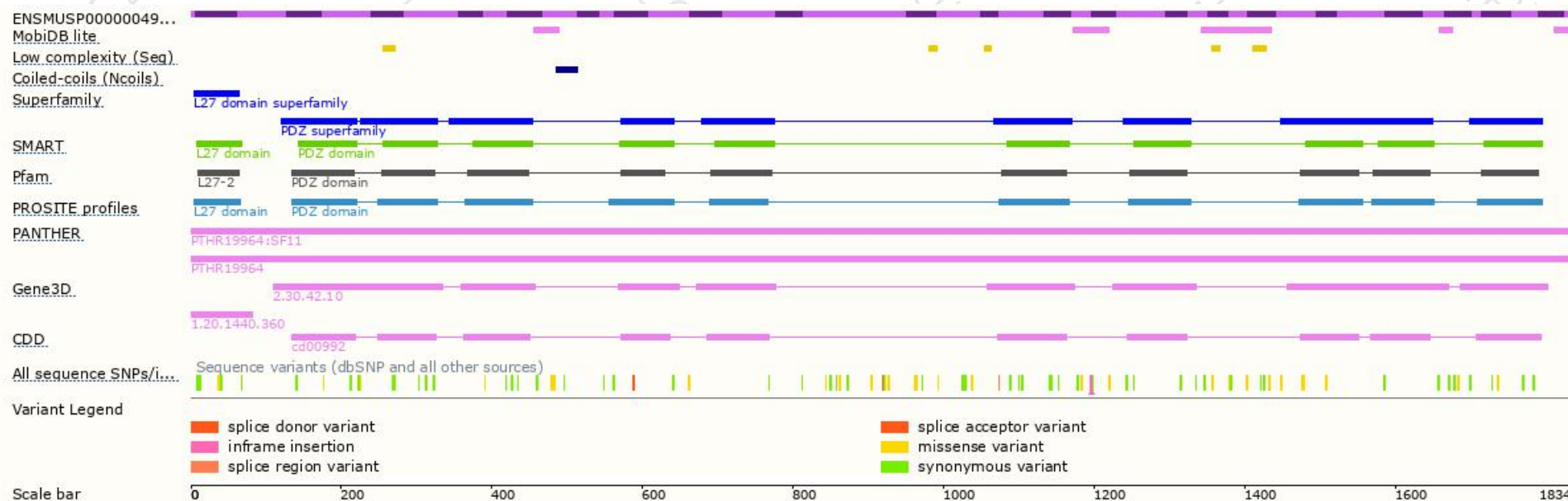
The strategy is based on the design of *Patj-202* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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