Tjp3 Cas9-CKO Strategy

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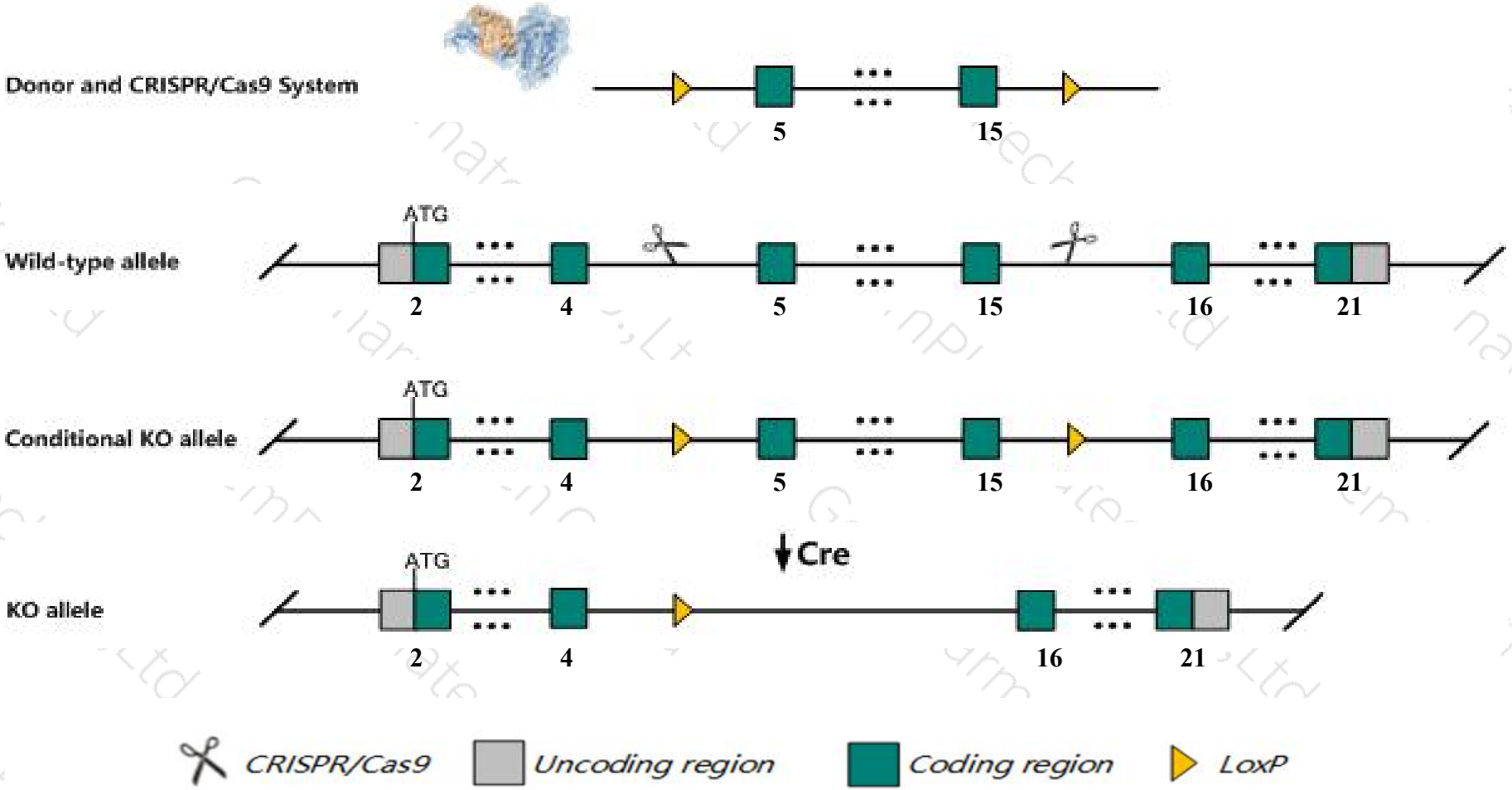
Project Overview

Project Name	***Tjp3***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tjp3* gene. The schematic diagram is as follows:



Technical routes

- The *Tjp3* gene has 6 transcripts. According to the structure of *Tjp3* gene, exon5-exon15 of *Tjp3-201* (ENSMUST00000045744.6) transcript is recommended as the knockout region.The region contains 1654bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Tjp3* 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

➢ According to the existing MGI data,Homozygous mutation of this gene results in viable and fertile mice with no abnormalities.

➢ Transcript 202 CDS 3' incomplete the influences is unknown.

➢ Some amino acids will remain at the N-terminus and some functions may be retained.

➢ The *Tjp3* gene is located on the Chr10. 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）

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Tjp3 tight junction protein 3 [Mus musculus (house mouse)]

Gene ID: 27375, updated on 31-Jan-2019

Summary

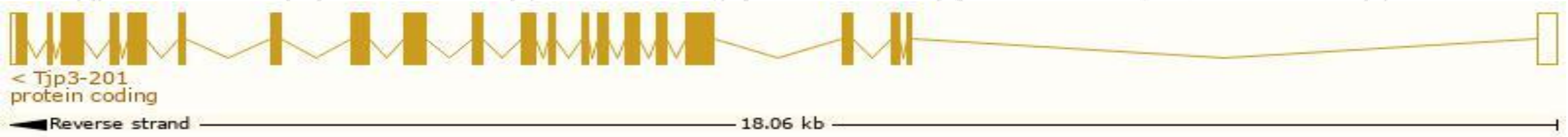
Official Symbol	Tjp3 provided by MGI
Official Full Name	tight junction protein 3 provided by MGI
Primary source	MGI:MGI:1351650
See related	Ensembl:ENSMUSG00000034917
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Expression	Biased expression in colon adult (RPKM 107.2), duodenum adult (RPKM 76.5) and 11 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

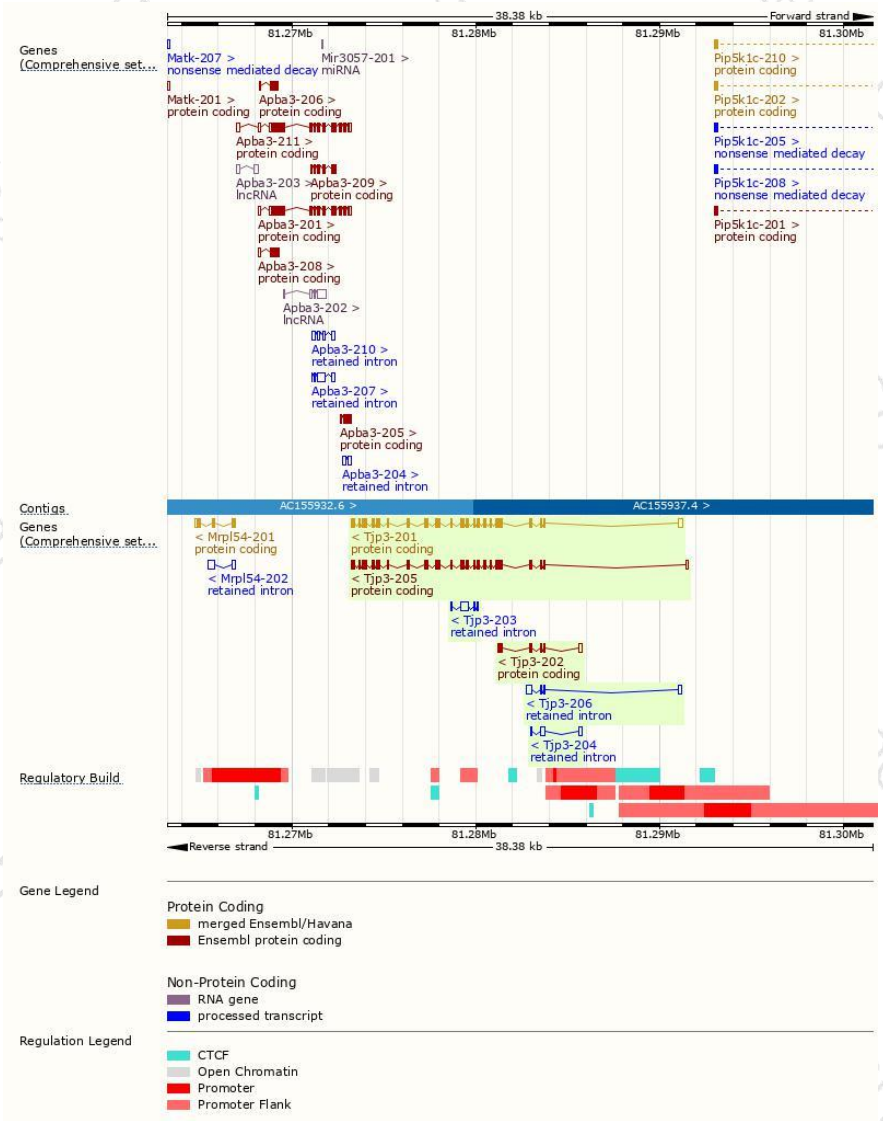
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tjp3-201	ENSMUST00000045744.6	3024	904aa	Protein coding	CCDS24051	Q921G9	TSL:1 GENCODE basic APPRIS P1
Tjp3-205	ENSMUST00000219479.1	2901	904aa	Protein coding	CCDS24051	Q921G9	TSL:1 GENCODE basic APPRIS P1
Tjp3-202	ENSMUST00000218484.1	685	169aa	Protein coding	-	A0A1W2P7W7	CDS 3' incomplete TSL:2
Tjp3-206	ENSMUST00000219958.1	599	No protein	Retained intron	-	-	TSL:3
Tjp3-203	ENSMUST00000218520.1	583	No protein	Retained intron	-	-	TSL:3
Tjp3-204	ENSMUST00000218966.1	467	No protein	Retained intron	-	-	TSL:3

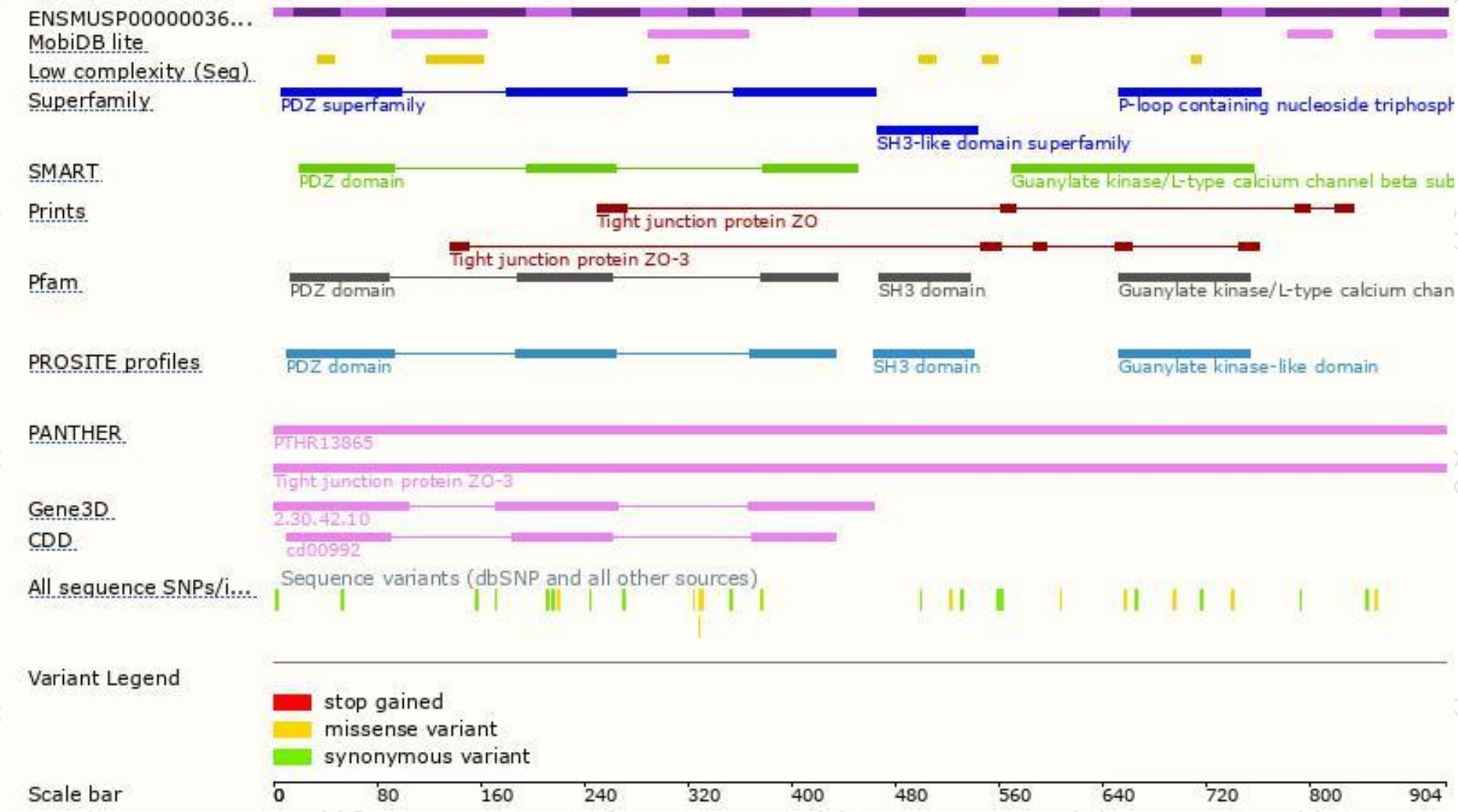
The strategy is based on the design of *Tjp3-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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