

Polr3c Cas9-CKO Strategy

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Project Overview

Project Name

Polr3c

Project type

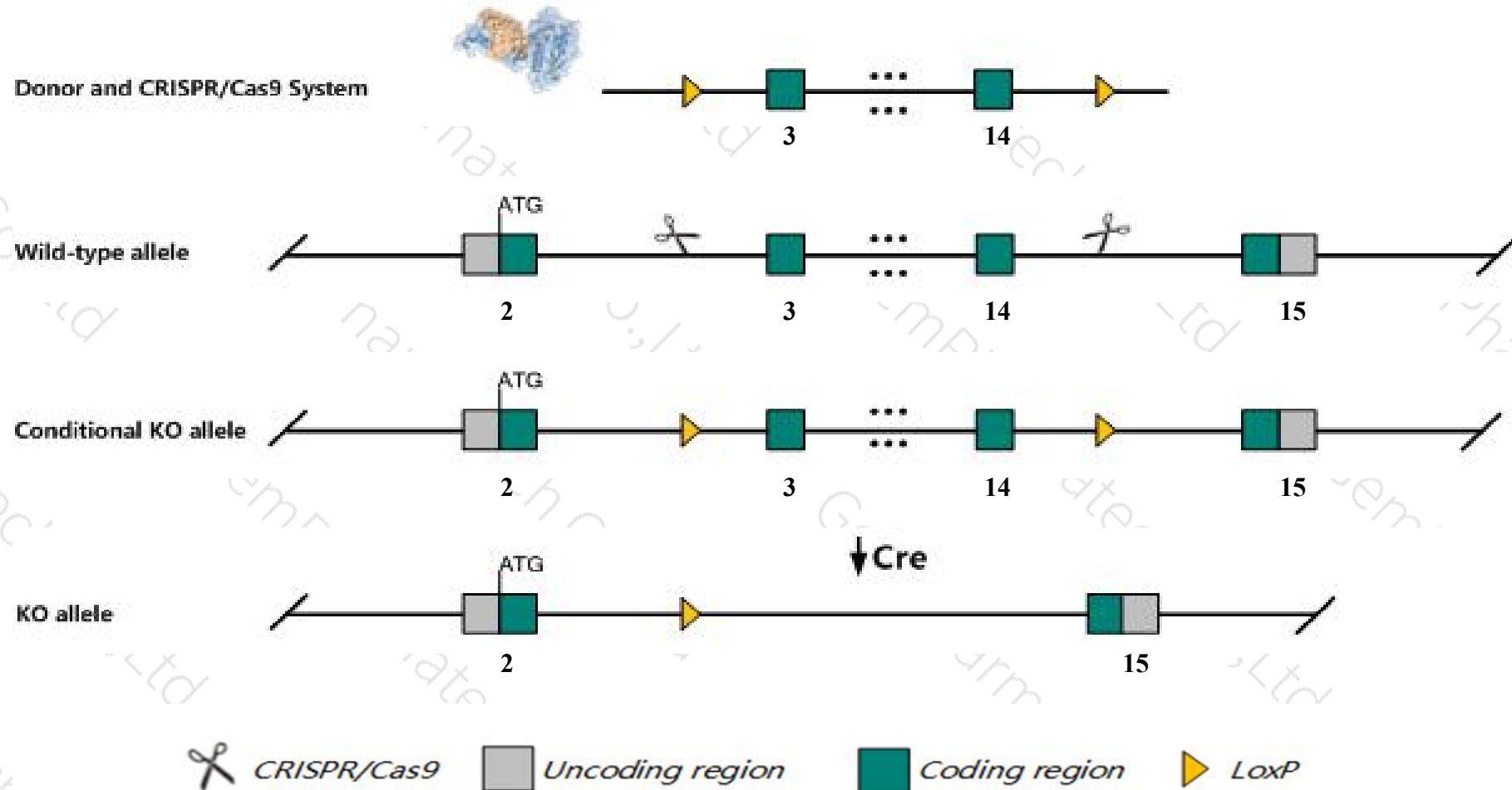
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Polr3c* gene. The schematic diagram is as follows:



- The *Polr3c* gene has 6 transcripts. According to the structure of *Polr3c* gene, exon3-exon14 of *Polr3c*-206 (ENSMUST00000154679.7) transcript is recommended as the knockout region. The region contains 1373bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Polr3c* 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

- *Gm22581*-201 and *Gm42783*-201 gene may be destroyed.
- The flox region is about 3.5 kb away from the 5th end of the *Rnf115* gene, and its effect is unknown.
- The *Polr3c* 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)

Polr3c polymerase (RNA) III (DNA directed) polypeptide C [*Mus musculus* (house mouse)]

Gene ID: 74414, updated on 27-Feb-2020

Summary

Official Symbol	Polr3c provided by MGI
Official Full Name	polymerase (RNA) III (DNA directed) polypeptide C provided by MGI
Primary source	MGI:MGI:1921664
See related	Ensembl:ENSMUSG00000028099
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	RPC3; RPC62; 4933407E01Rik
Expression	Ubiquitous expression in large intestine adult (RPKM 19.8), testis adult (RPKM 14.2) and 28 other tissues See more
Orthologs	human all

Genomic context

Location: 3; 3 F2.1

Exon count: 15

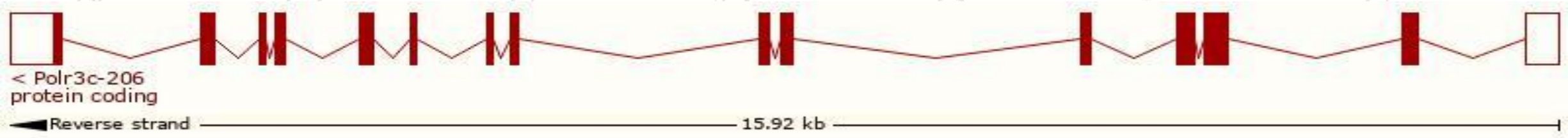
See Polr3c in [Genome Data Viewer](#)

Transcript information (Ensembl)

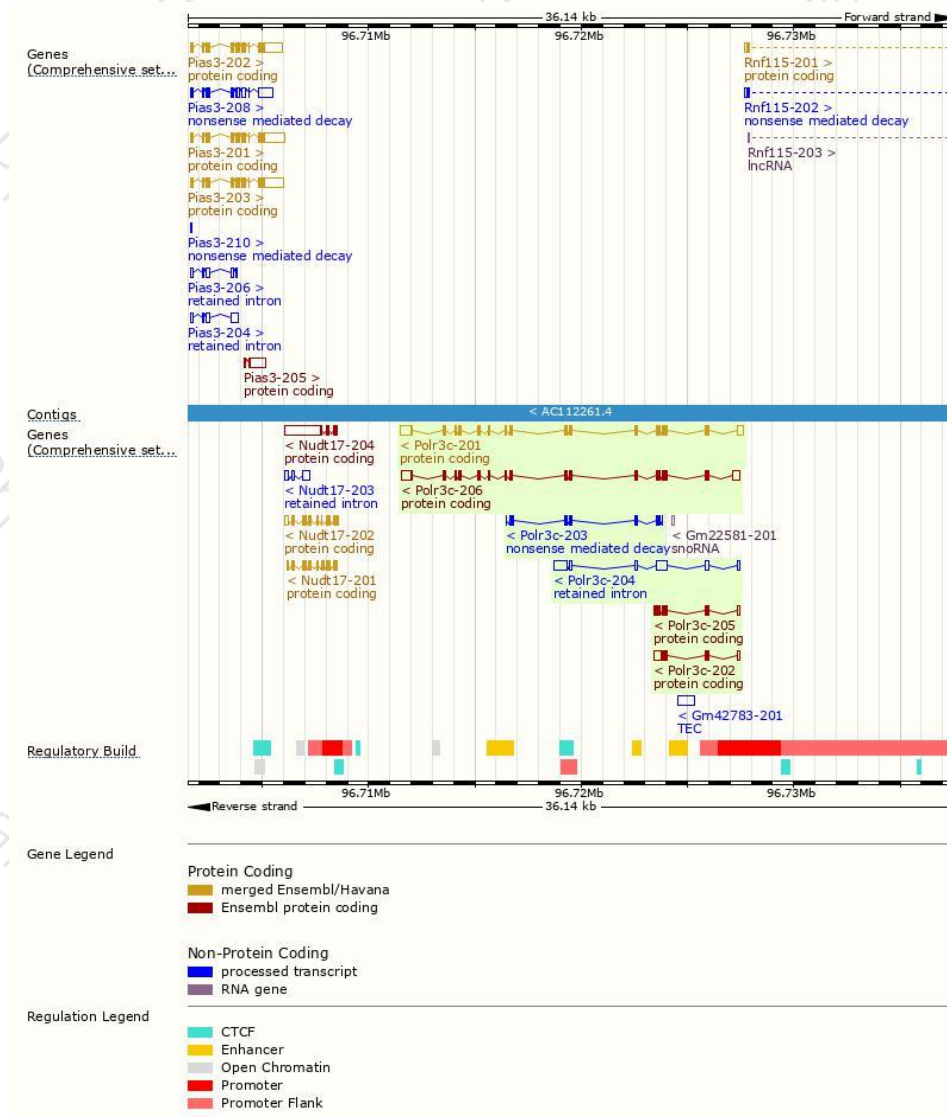
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Polr3c-206	ENSMUST00000154679.7	2406	533aa	Protein coding	CCDS51010	B2RX77 Q9D483	TSL:5 GENCODE basic APPRIS P1
Polr3c-201	ENSMUST00000029741.8	2390	533aa	Protein coding	CCDS51010	B2RX77 Q9D483	TSL:1 GENCODE basic APPRIS P1
Polr3c-202	ENSMUST00000125183.1	923	139aa	Protein coding	-	D3YYS2	TSL:1 GENCODE basic
Polr3c-205	ENSMUST00000141377.7	808	202aa	Protein coding	-	Q9D483	TSL:1 GENCODE basic
Polr3c-203	ENSMUST00000128918.1	662	193aa	Nonsense mediated decay	-	F6QK97	CDS 5' incomplete TSL:3
Polr3c-204	ENSMUST00000137009.1	1628	No protein	Retained intron	-	-	TSL:1

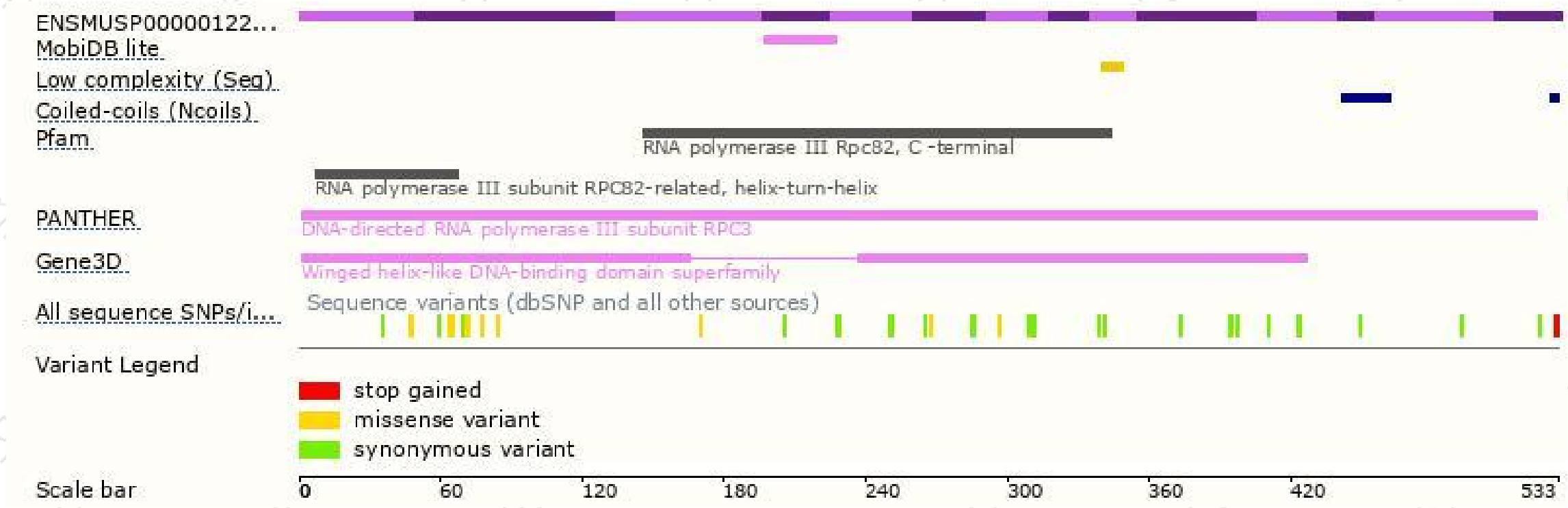
The strategy is based on the design of *Polr3c-206* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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