

Polr3k Cas9-CKO Strategy

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Project Overview

Project Name

Polr3k

Project type

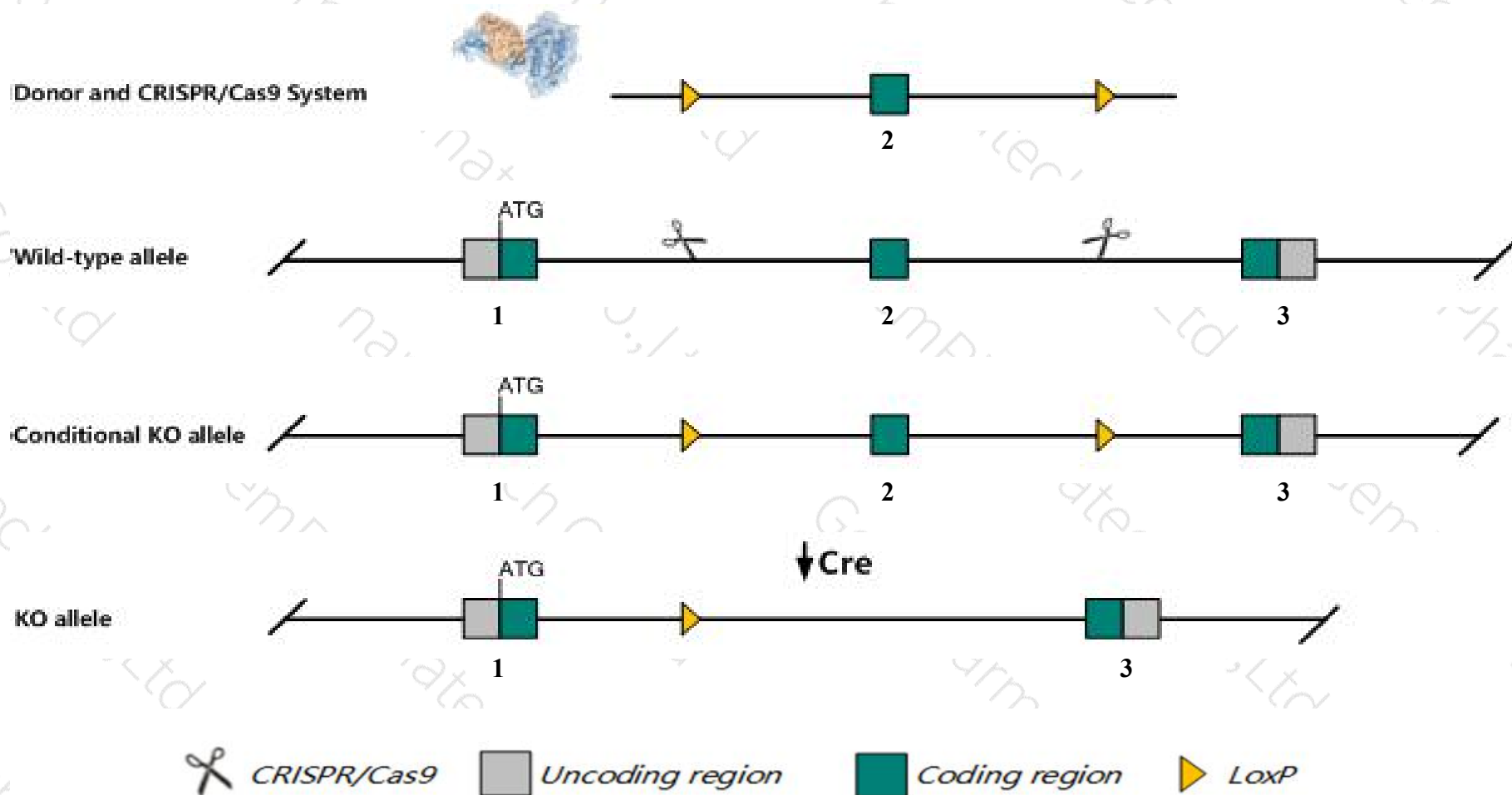
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Polr3k* gene. The schematic diagram is as follows:



- The *Polr3k* gene has 2 transcripts. According to the structure of *Polr3k* gene, exon2 of *Polr3k-201* (ENSMUST00000039551.8) transcript is recommended as the knockout region. The region contains 88bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Polr3k* 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 *Polr3k* gene is located on the Chr2. 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)

Polr3k polymerase (RNA) III (DNA directed) polypeptide K [*Mus musculus* (house mouse)]

Gene ID: 67005, updated on 3-May-2020

Summary



Official Symbol	Polr3k provided by MGI
Official Full Name	polymerase (RNA) III (DNA directed) polypeptide K provided by MGI
Primary source	MGI:MGI:1914255
See related	Ensembl:ENSMUSG00000038628
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	C11; RPC10; RPC11; 12.3kDa; AI196849; AU014893; 1500004O14Rik
Expression	Broad expression in CNS E18 (RPKM 15.7), whole brain E14.5 (RPKM 15.4) and 24 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

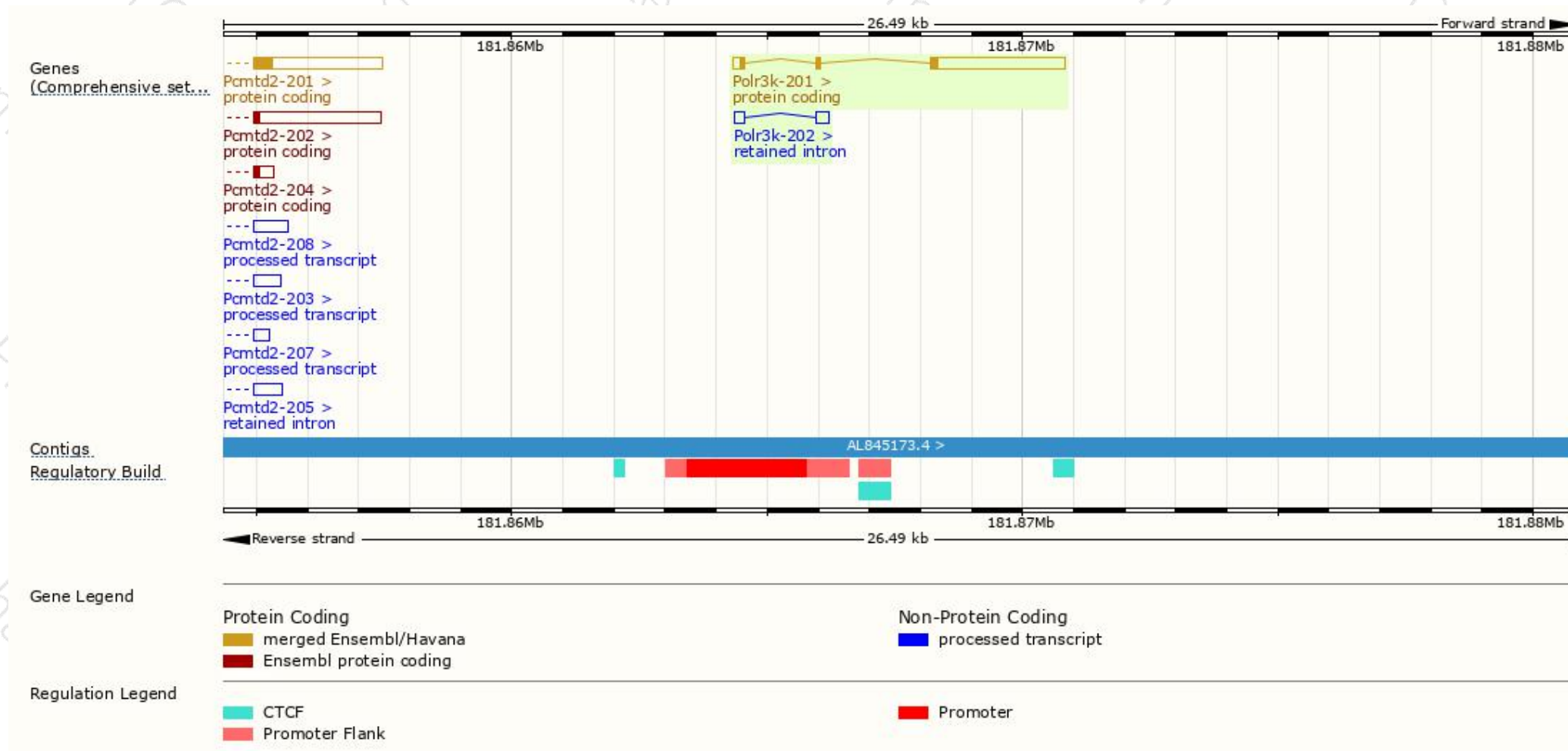
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Polr3k-201	ENSMUST00000039551.8	2948	108aa	Protein coding	CCDS17225	Q9CQZ7	TSL:1 GENCODE basic APPRIS P1
Polr3k-202	ENSMUST00000153214.1	474	No protein	Retained intron	-	-	TSL:2

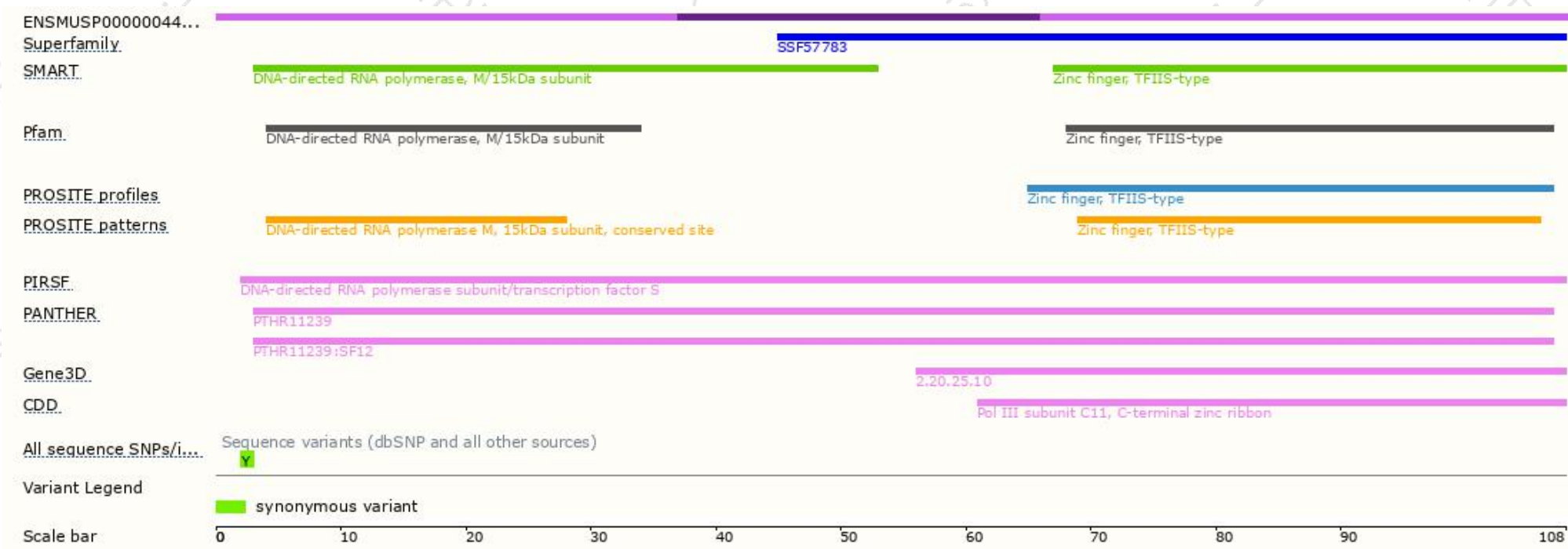
The strategy is based on the design of *Polr3k-201* transcript, the transcription is shown below



Genomic location distribution



Protein domain



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

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