

Polr2e Cas9-CKO Strategy

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Project Overview

Project Name

Polr2e

Project type

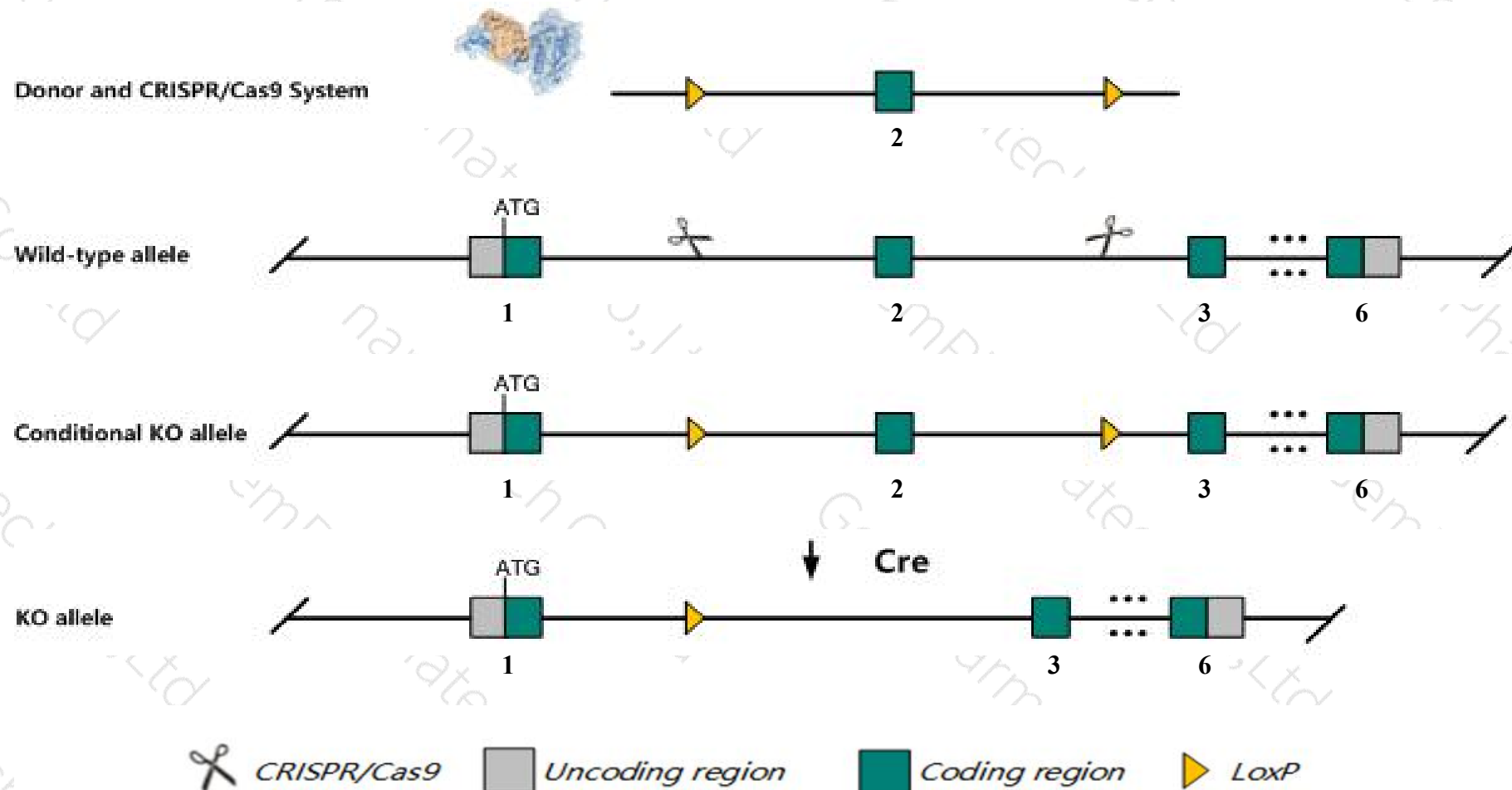
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Polr2e* gene. The schematic diagram is as follows:



- The *Polr2e* gene has 5 transcripts. According to the structure of *Polr2e* gene, exon2 of *Polr2e-201* (ENSMUST00000004786.9) transcript is recommended as the knockout region. The region contains 175bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Polr2e* 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 *Polr2e* 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)

Polr2e polymerase (RNA) II (DNA directed) polypeptide E [*Mus musculus* (house mouse)]

Gene ID: 66420, updated on 3-May-2020

Summary



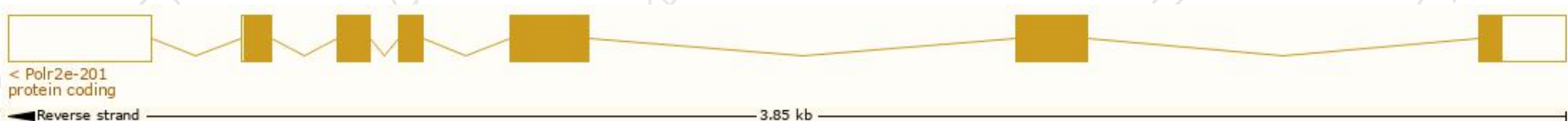
Official Symbol	Polr2e provided by MGI
Official Full Name	polymerase (RNA) II (DNA directed) polypeptide E provided by MGI
Primary source	MGI:MGI:1913670
See related	Ensembl:ENSMUSG000000004667
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	RPB5; XAP4; 25kDa; AW208866; 2410021N14Rik
Expression	Ubiquitous expression in ovary adult (RPKM 144.4), placenta adult (RPKM 108.1) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

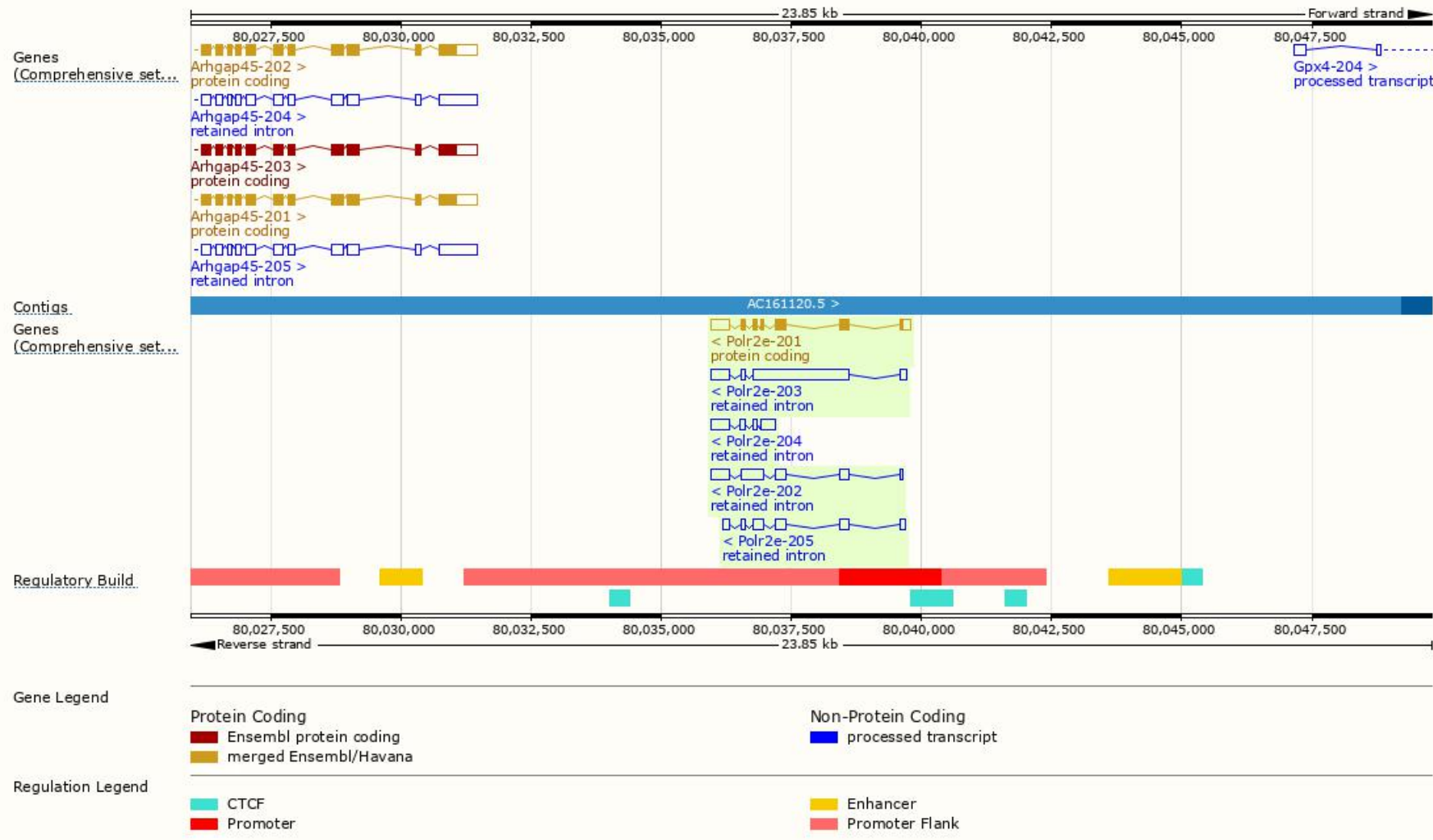
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Polr2e-201	ENSMUST000000004786.9	1148	210aa	Protein coding	CCDS35972	Q3V214 Q80UW8	TSL:1 GENCODE basic APPRIS P1
Polr2e-203	ENSMUST000000143438.7	2403	No protein	Retained intron	-	-	TSL:1
Polr2e-202	ENSMUST000000131743.7	1238	No protein	Retained intron	-	-	TSL:1
Polr2e-205	ENSMUST000000152843.1	900	No protein	Retained intron	-	-	TSL:5
Polr2e-204	ENSMUST000000147507.7	792	No protein	Retained intron	-	-	TSL:5

The strategy is based on the design of *Polr2e-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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