

Polr1e Cas9-CKO Strategy

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Project Overview

Project Name

Polr1e

Project type

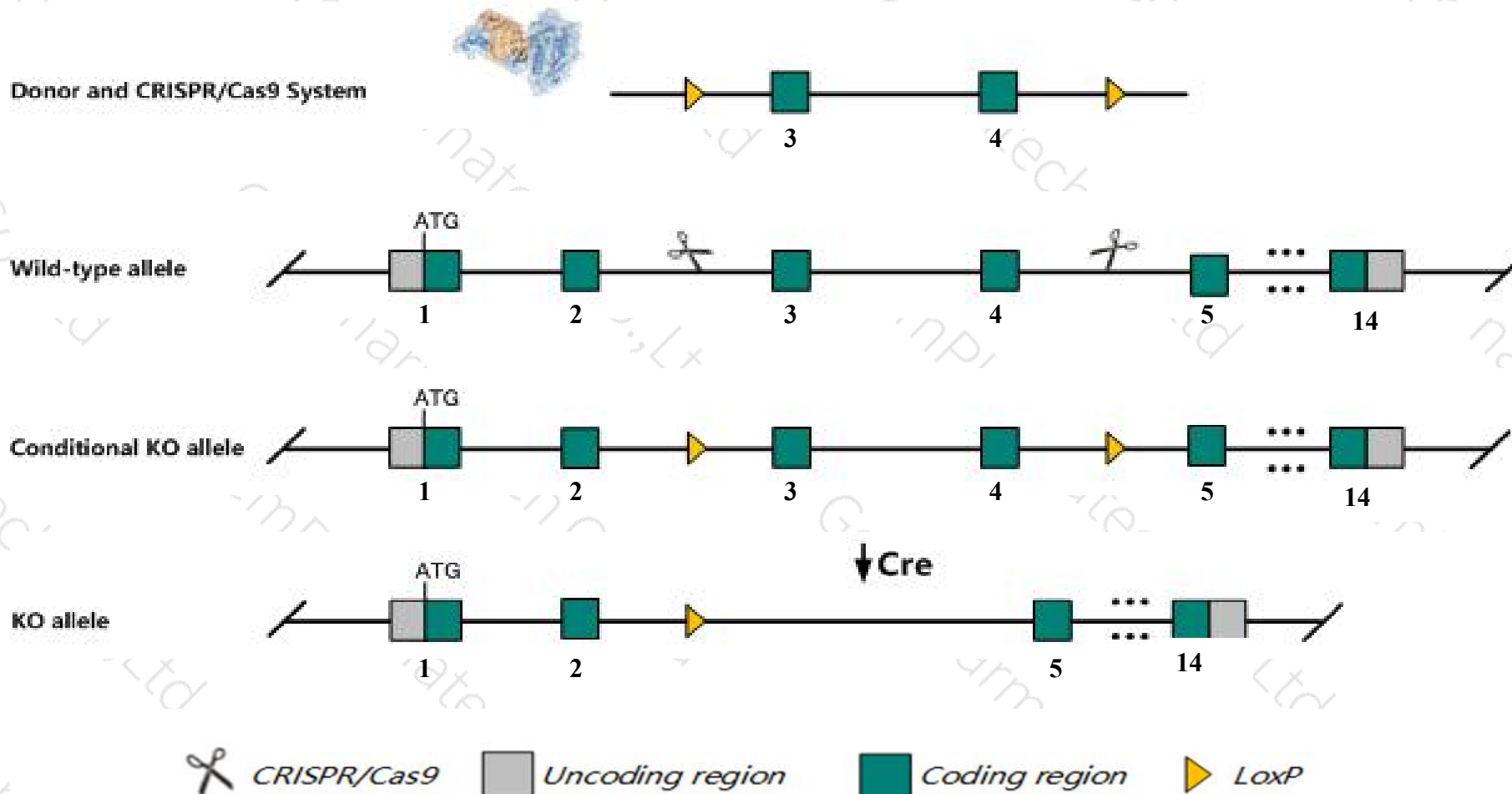
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Polr1e* gene. The schematic diagram is as follows:



- The *Polr1e* gene has 7 transcripts. According to the structure of *Polr1e* gene, exon3-exon4 of *Polr1e*-201 (ENSMUST00000029999.14) transcript is recommended as the knockout region. The region contains 163bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Polr1e* gene. The brief process is as follows: gRNA was transcribed in vitro, donor was constructed. Cas9, gRNA 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 *Polr1e* 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)

Polr1e polymerase (RNA) I polypeptide E [Mus musculus (house mouse)]

Gene ID: 64424, updated on 31-Jan-2019

Summary



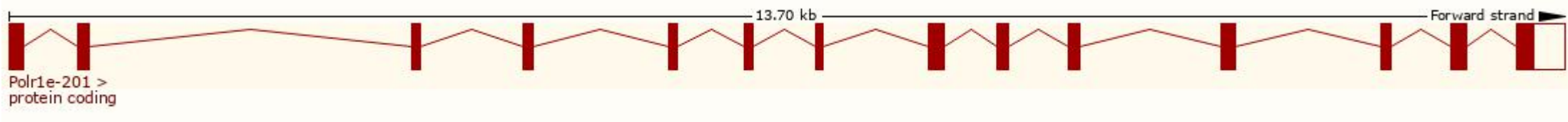
Official Symbol	Polr1e provided by MGI
Official Full Name	polymerase (RNA) I polypeptide E provided by MGI
Primary source	MGI:MGI:1929022
See related	Ensembl:ENSMUSG00000028318
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	53kDa, AU042259, D030019D19Rik, Paf53, Praf1
Expression	Ubiquitous expression in CNS E11.5 (RPKM 4.3), CNS E14 (RPKM 3.1) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

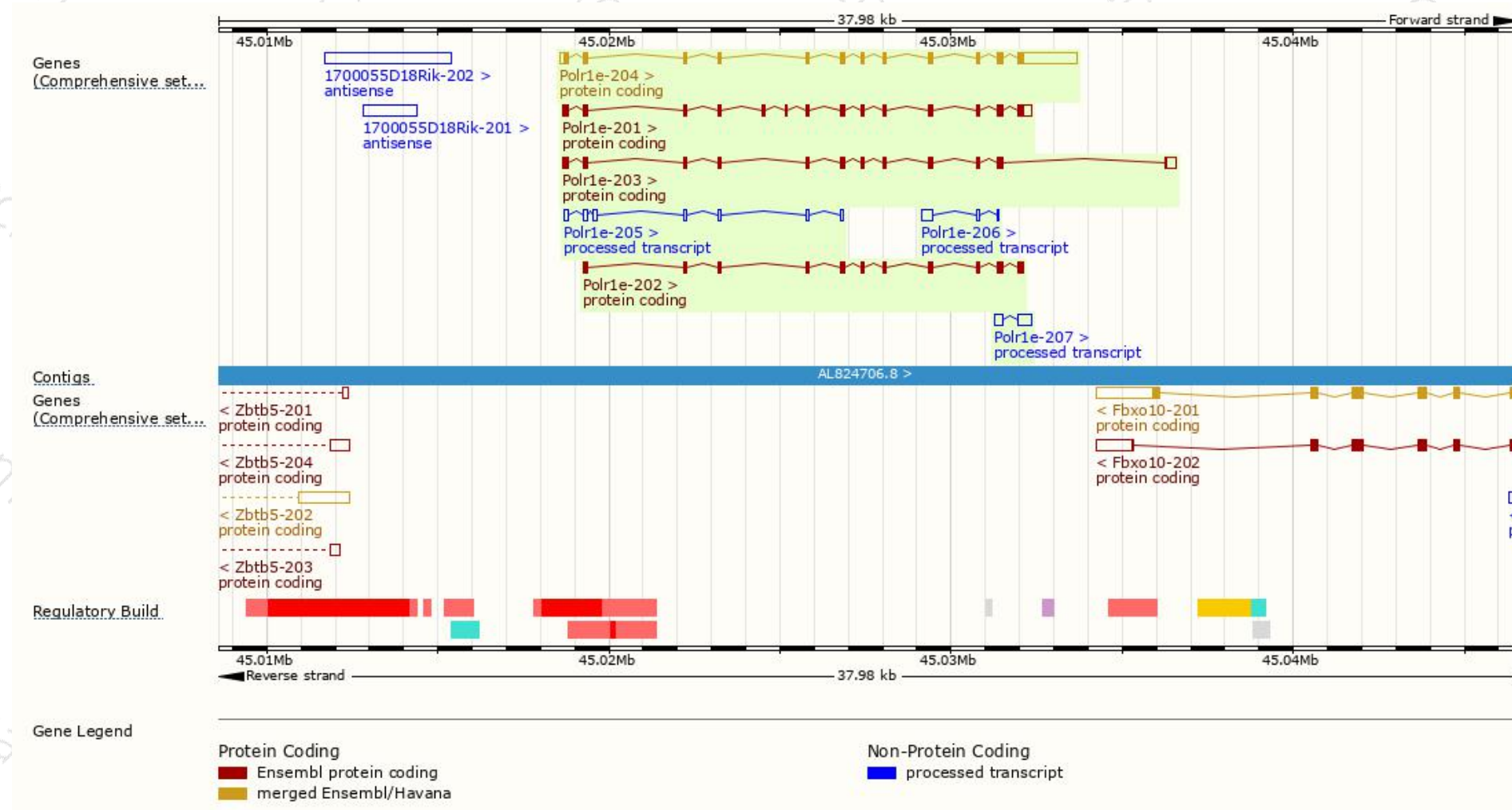
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Polr1e-204	ENSMUST00000133157.7	2986	434aa	Protein coding	CCDS18131	Q3V1B9 Q8K202	TSL:1 GENCODE basic APPRIS P3
Polr1e-201	ENSMUST00000029999.14	1724	482aa	Protein coding	CCDS71378	Q8K202	TSL:1 GENCODE basic APPRIS ALT2
Polr1e-203	ENSMUST00000107814.9	1470	393aa	Protein coding	-	Q8K202	TSL:1 GENCODE basic APPRIS ALT2
Polr1e-202	ENSMUST00000054723.8	1235	407aa	Protein coding	-	G8JL51	CDS 5' incomplete TSL:5
Polr1e-207	ENSMUST00000153252.1	657	No protein	Processed transcript	-	-	TSL:2
Polr1e-205	ENSMUST00000149284.1	642	No protein	Processed transcript	-	-	TSL:5
Polr1e-206	ENSMUST00000150663.1	429	No protein	Processed transcript	-	-	TSL:5

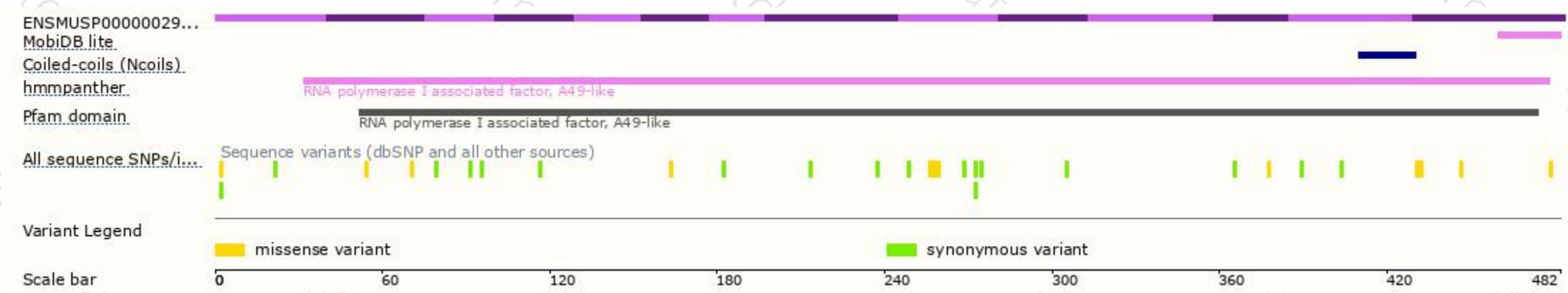
The strategy is based on the design of *Polr1e-201* transcript,The transcription is shown below



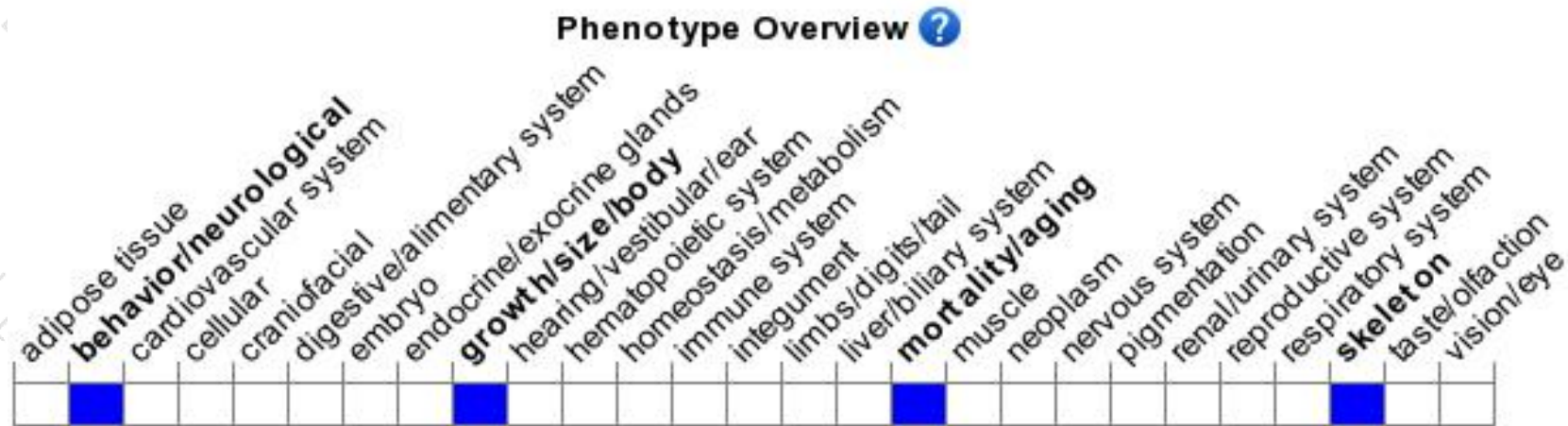
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

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

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