

***Polr2b* Cas9-CKO Strategy**

Designer:

JiaYu

Reviewer:

Xiaojing Li

Design Date:

2020-2-25

Project Overview

Project Name

Polr2b

Project type

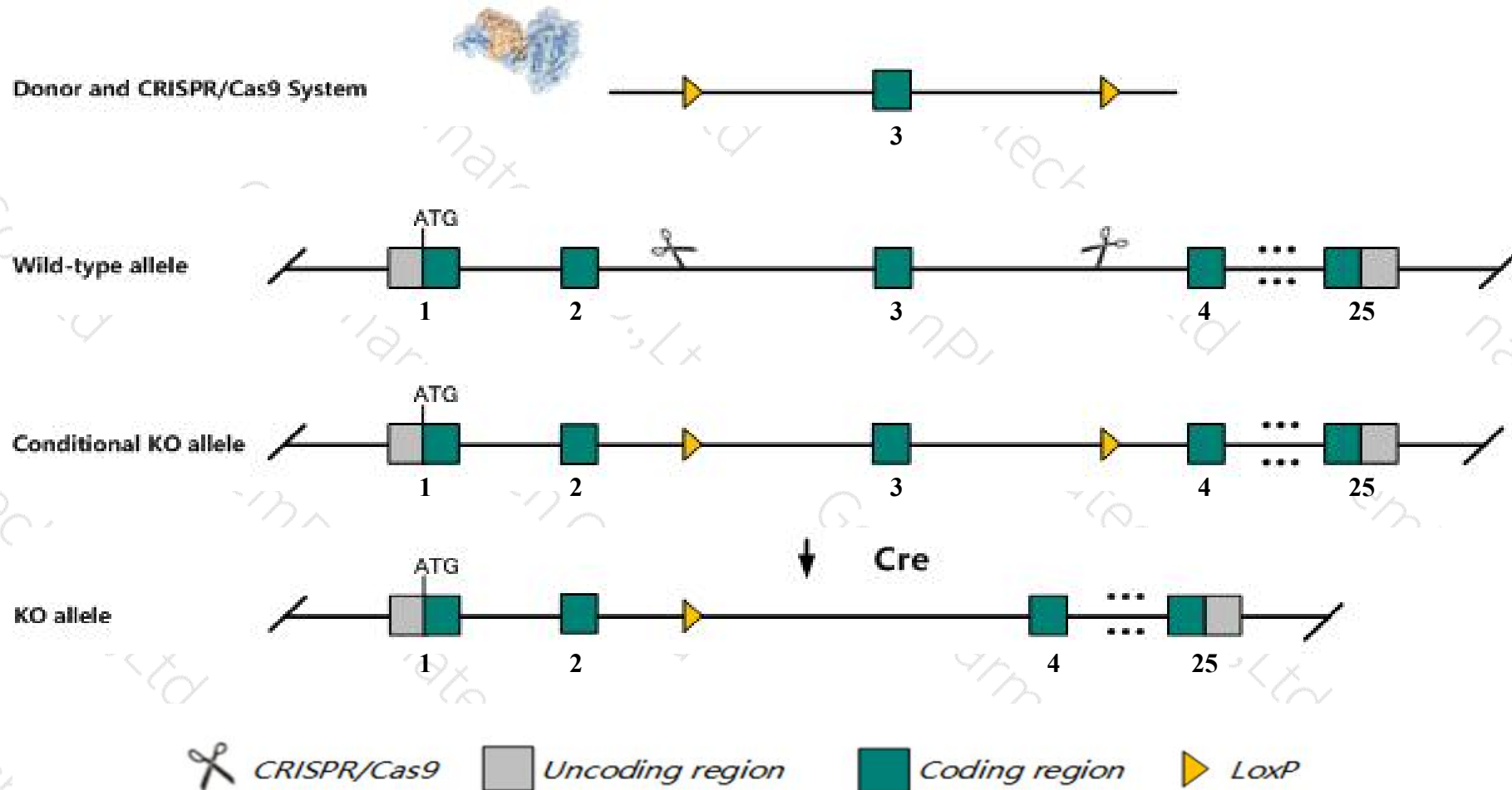
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Polr2b* gene. The schematic diagram is as follows:



Technical routes

- The *Polr2b* gene has 4 transcripts. According to the structure of *Polr2b* gene, exon3 of *Polr2b-201* (ENSMUST00000031167.5) transcript is recommended as the knockout region. The region contains 151bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Polr2b* 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 *Polr2b* gene is located on the Chr5. 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)

Polr2b polymerase (RNA) II (DNA directed) polypeptide B [Mus musculus (house mouse)]

Gene ID: 231329, updated on 31-Jan-2019

Summary



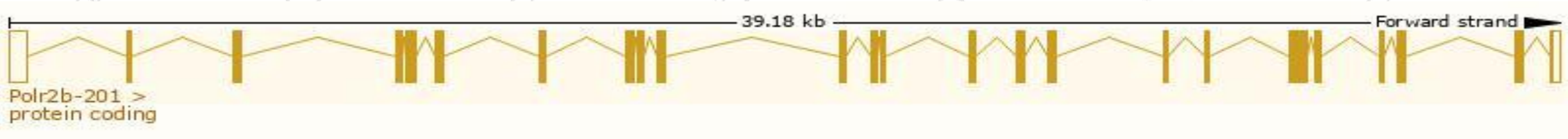
Official Symbol	Polr2b provided by MGI
Official Full Name	polymerase (RNA) II (DNA directed) polypeptide B provided by MGI
Primary source	MGI:MGI:2388280
See related	Ensembl:ENSMUSG00000029250
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Pol2rb, Rpb140, Rpb2
Expression	Ubiquitous expression in CNS E11.5 (RPKM 29.1), CNS E14 (RPKM 19.8) and 25 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

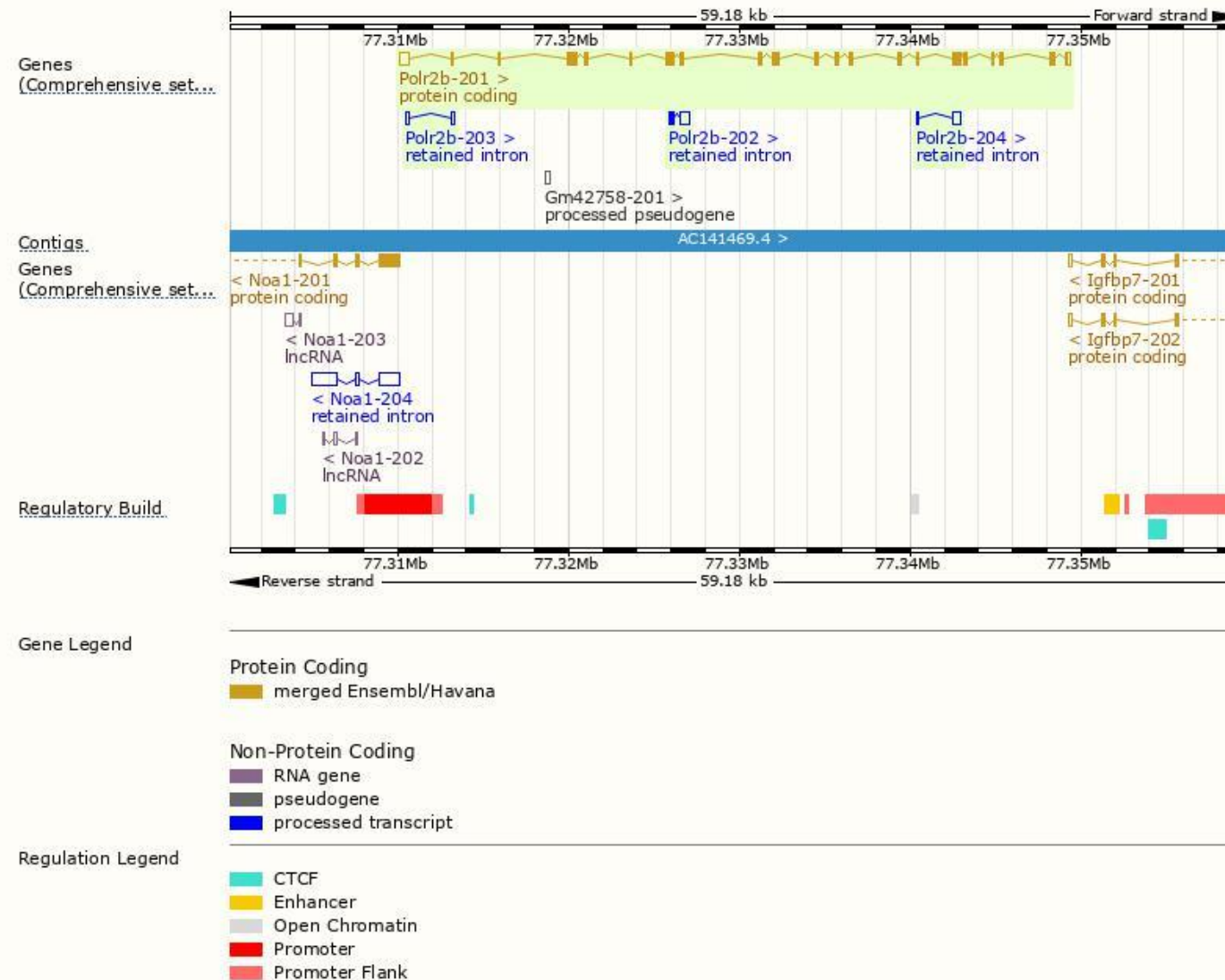
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Polr2b-201	ENSMUST00000031167.5	4145	1174aa	Protein coding	CCDS51528	Q8CFI7	TSL:1 GENCODE basic APPRIS P1
Polr2b-202	ENSMUST00000132134.1	740	No protein	Retained intron	-	-	TSL:2
Polr2b-204	ENSMUST00000150191.1	509	No protein	Retained intron	-	-	TSL:2
Polr2b-203	ENSMUST00000138121.1	261	No protein	Retained intron	-	-	TSL:2

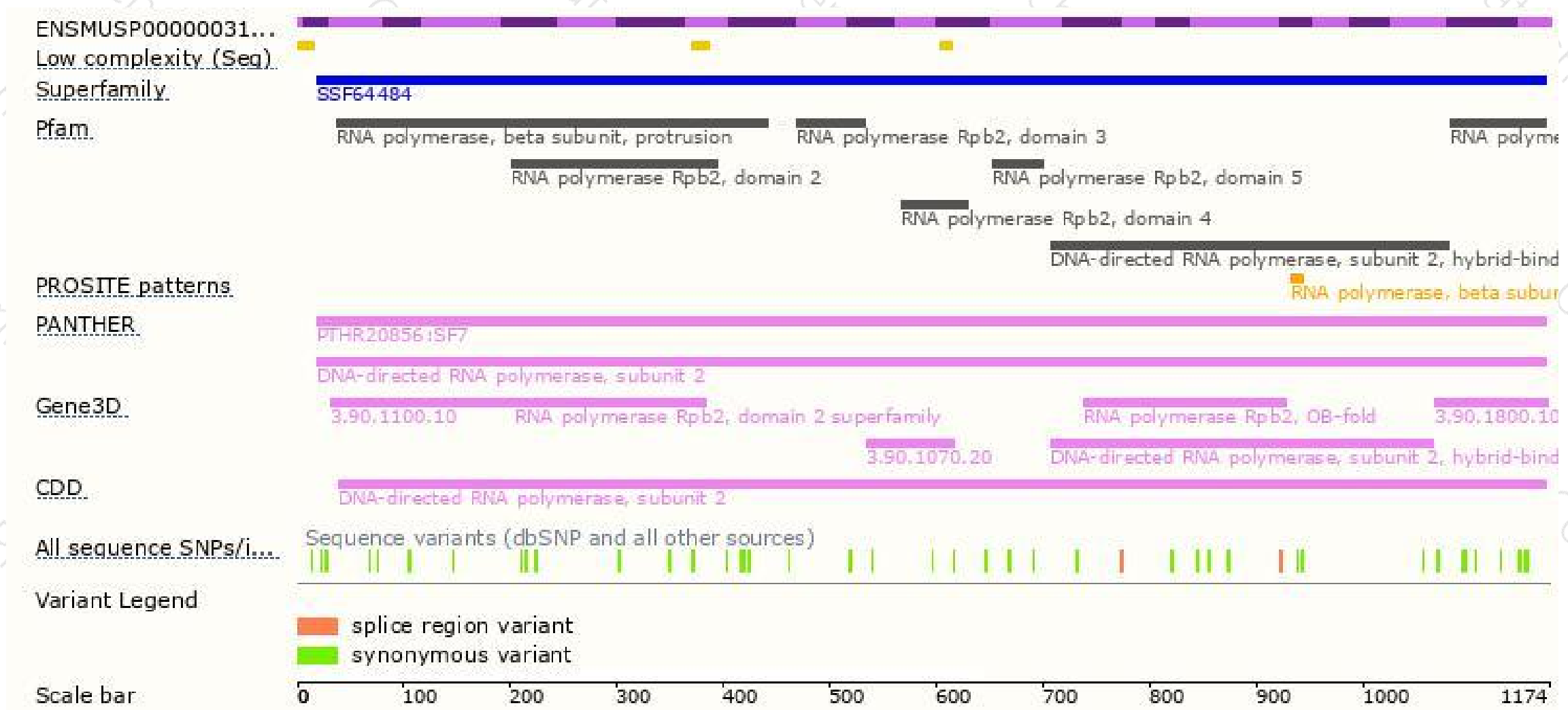
The strategy is based on the design of *Polr2b-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

Tel: 400-9660890

