Polr3h Cas9-KO Strategy

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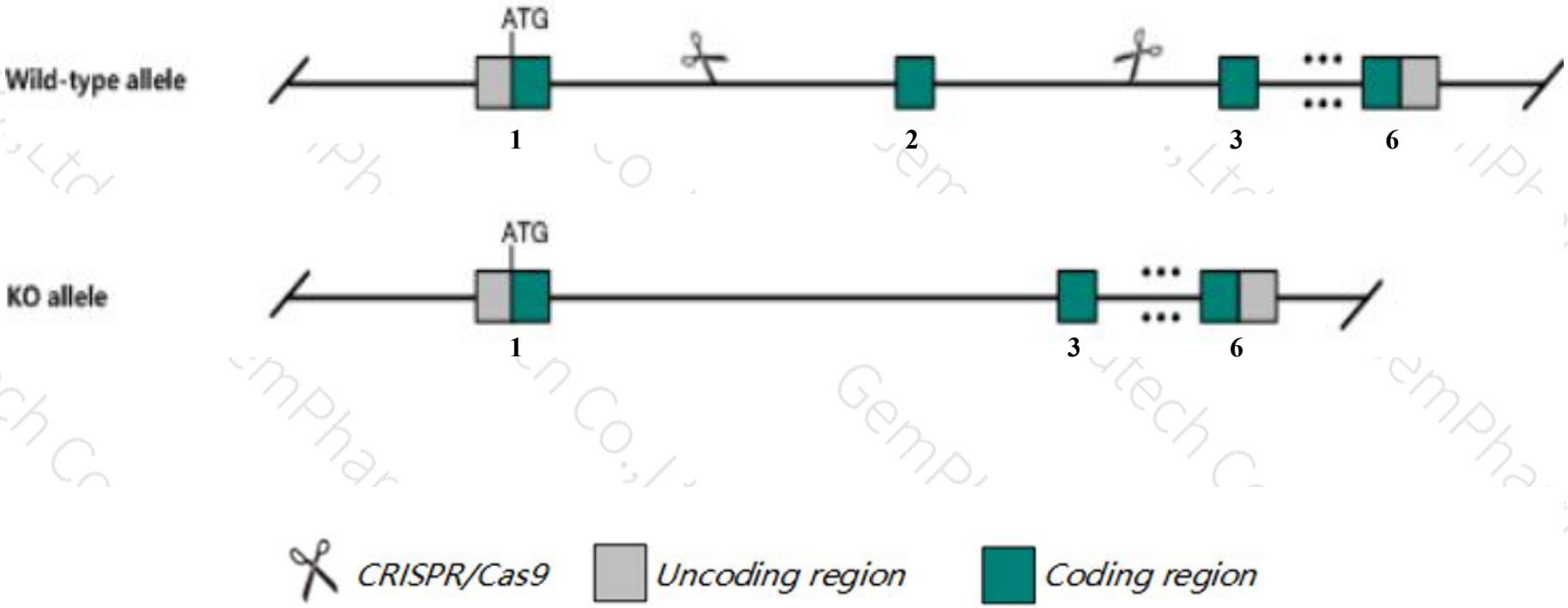
Design Date: 2020-6-17

Project Overview

Project Name	***Polr3h***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Polr3h* gene. The schematic diagram is as follows:



Technical routes

➢ The *Polr3h* gene has 7 transcripts. According to the structure of *Polr3h* gene, exon2 of *Polr3h-201* (ENSMUST00000023113.6) transcript is recommended as the knockout region.The region contains 97bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Polr3h* gene. The brief process is as follows: CRISPR/Cas9 systen

Notice

➢ The *Polr3h* gene is located on the Chr15. 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.

➢ Transcript *Polr3h*-204 may not be affected.

➢ This strategy is designed based on genetic information in existing databases.Due to the complexity of biological processes, all risk of the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information（NCBI）

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Polr3h polymerase (RNA) III (DNA directed) polypeptide H [Mus musculus (house mouse)]

Gene ID: 78929, updated on 13-Mar-2020

Summary

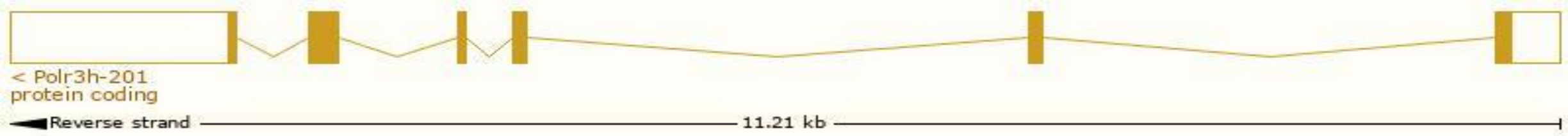
Official Symbol	Polr3h provided by MGI
Official Full Name	polymerase (RNA) III (DNA directed) polypeptide H provided byMGI
Primary source	MGI:MGI:1926179
See related	Ensembl:ENSMUSG00000022476
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	5031409G22Rik, RPC8
Expression	Ubiquitous expression in spleen adult (RPKM 15.6), cortex adult (RPKM 10.0) and 28 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

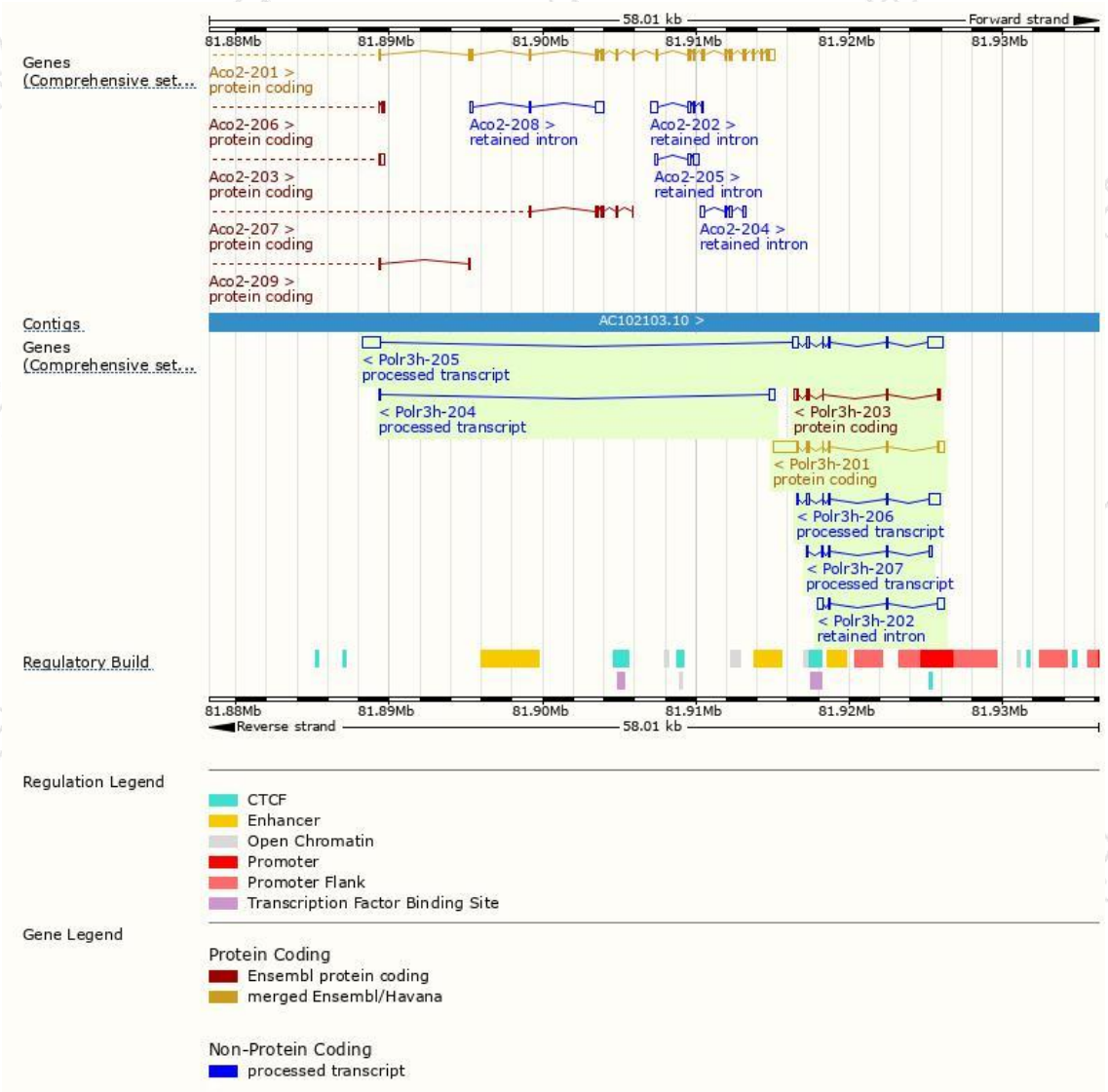
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Polr3h-201	ENSMUST00000023113.6	2542	204aa	Protein coding	CCDS27676	Q9D2C6	TSL:1 GENCODE basic APPRIS P1
Polr3h-203	ENSMUST00000230050.1	765	175aa	Protein coding	-	A0A2R8VK29	GENCODE basic
Polr3h-205	ENSMUST00000230669.1	3030	No protein	Processed transcript	-	-	
Polr3h-206	ENSMUST00000230765.1	1290	No protein	Processed transcript	-	-	
Polr3h-207	ENSMUST00000230842.1	498	No protein	Processed transcript	-	-	
Polr3h-204	ENSMUST00000230066.1	438	No protein	Processed transcript	-	-	
Polr3h-202	ENSMUST00000229402.1	985	No protein	Retained intron	-	-	

The strategy is based on the design of *Polr3h-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain

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

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