Prdm15 Cas9-KO Strategy

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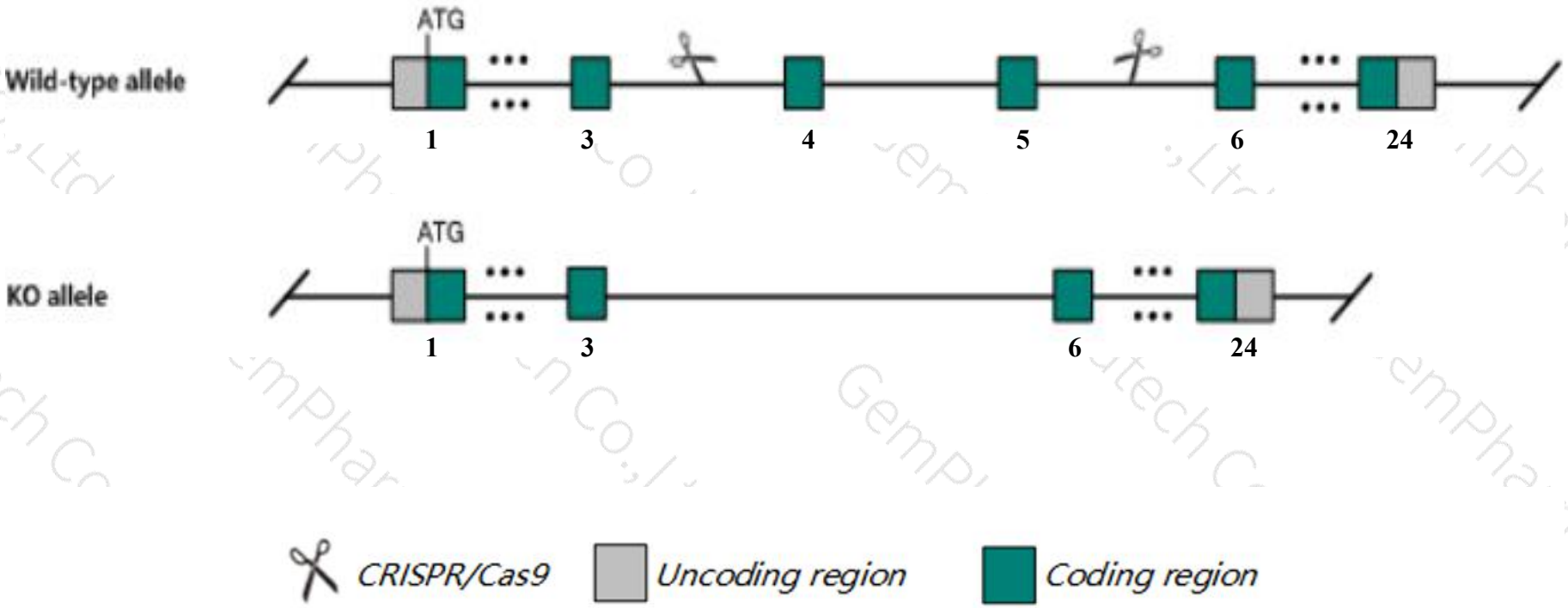
Project Overview

Project Name	***Prdm15***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Prdm15* gene. The schematic diagram is as follows:



Technical routes

➢ The *Prdm15* gene has 11 transcripts. According to the structure of *Prdm15* gene, exon4-exon5 of *Prdm15-201*(ENSMUST00000095849.9) transcript is recommended as the knockout region.The region contains 407bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Prdm15* gene. The brief process is as follows: CRISPR/Cas9 system 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.

Notice

➢ The *Prdm15* gene is located on the Chr16. 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 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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Prdm15 PR domain containing 15 [Mus musculus (house mouse)]

Gene ID: 114604, updated on 13-Mar-2020

Summary

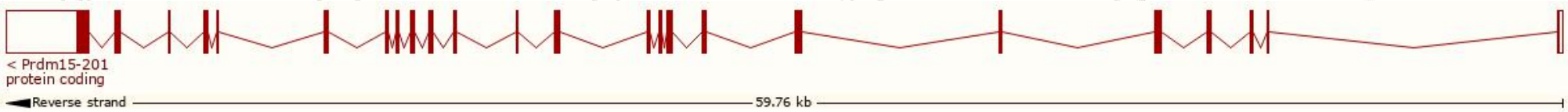
Official Symbol	Prdm15 provided by MGI
Official Full Name	PR domain containing 15 provided by MGI
Primary source	MGI:MGI:1930121
See related	Ensembl:ENSMUSG00000014039
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	C21orf83, E130018M06Rik, ORF62, Zfp298
Expression	Ubiquitous expression in thymus adult (RPKM 6.0), whole brain E14.5 (RPKM 4.9) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

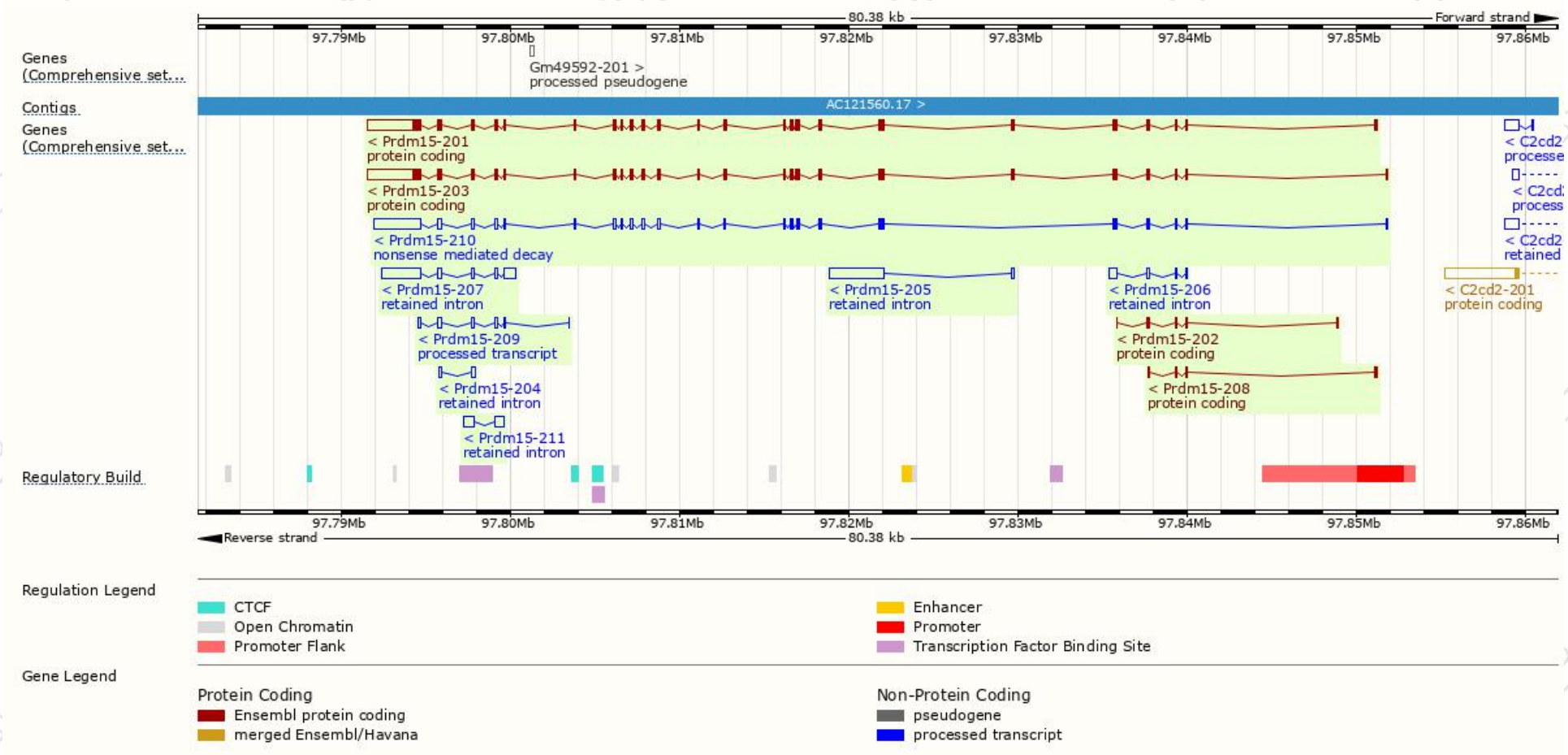
The gene has 11 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein ▲	Biotype	CCDS	UniProt	Flags
Prdm15-208	ENSMUST00000135505.2	364	85aa	Protein coding	-	D3YYH8	CDS 3' incomplete TSL:3
Prdm15-202	ENSMUST00000119200.7	421	110aa	Protein coding	-	D3Z7Q9	CDS 3' incomplete TSL:3
Prdm15-210	ENSMUST00000142295.7	5623	474aa	Nonsense mediated decay	-	D6RIL7	TSL:1
Prdm15-203	ENSMUST00000121584.7	6194	1148aa	Protein coding	-	E9Q8T2	TSL:1 GENCODE basic APPRIS ALT2
Prdm15-201	ENSMUST00000095849.9	6346	1174aa	Protein coding	CCDS49926	E9Q8T2	TSL:5 GENCODE basic APPRIS P2
Prdm15-209	ENSMUST00000136529.1	720	No protein	Processed transcript	-	-	TSL:3
Prdm15-207	ENSMUST00000131951.7	3541	No protein	Retained intron	-	-	TSL:1
Prdm15-205	ENSMUST00000128917.1	3335	No protein	Retained intron	-	-	TSL:1
Prdm15-211	ENSMUST00000231599.1	1095	No protein	Retained intron	-	-	-
Prdm15-206	ENSMUST00000129331.1	758	No protein	Retained intron	-	-	TSL:2
Prdm15-204	ENSMUST00000126916.1	360	No protein	Retained intron	-	-	TSL:2

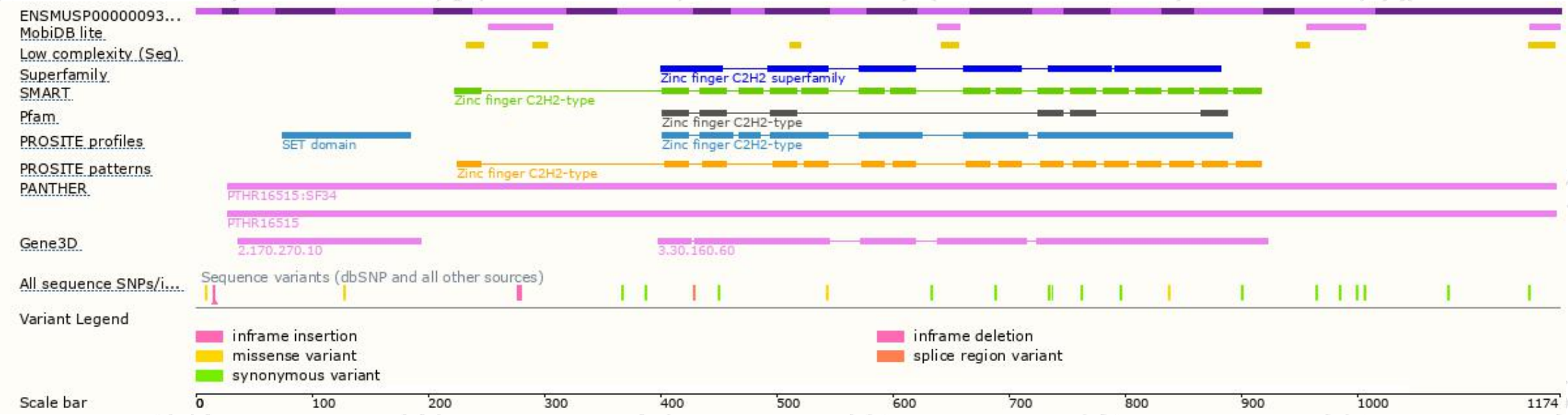
The strategy is based on the design of *Prdm15-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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