Rpa2 Cas9-KO Strategy

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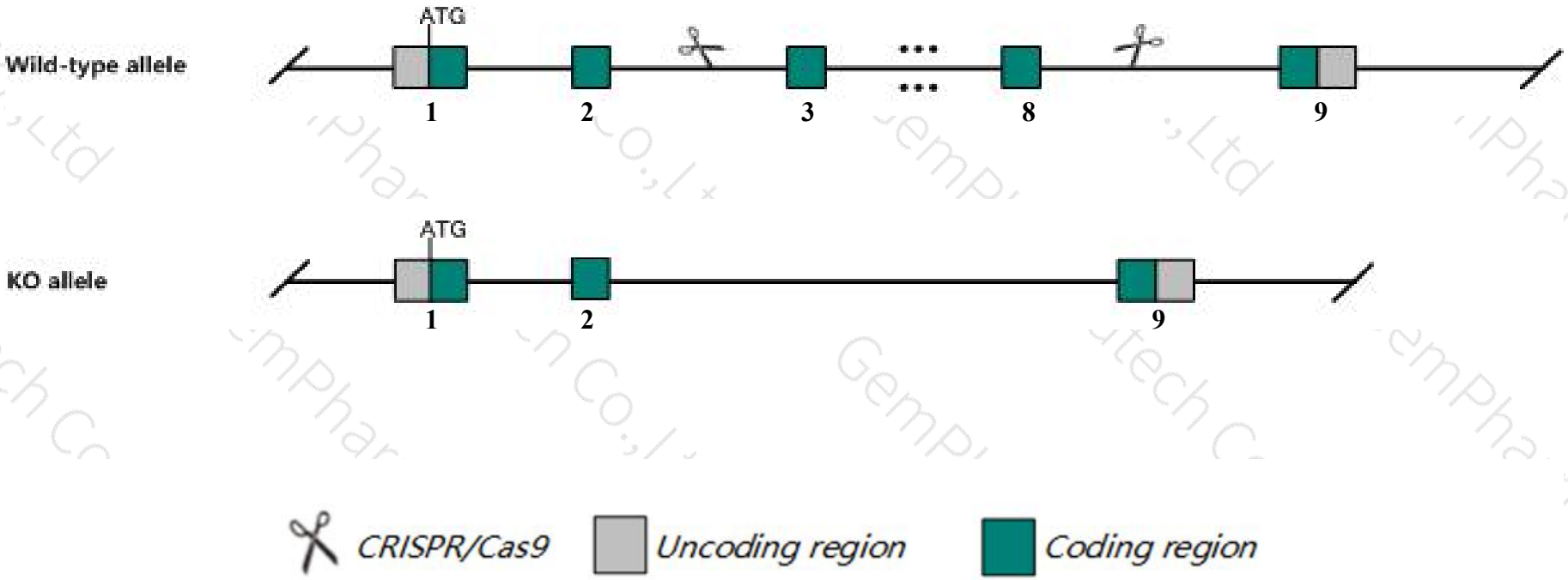
Project Overview

Project Name	***Rpa2***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rpa2* gene. The schematic diagram is as follows:



Technical routes

➢ The *Rpa2* gene has 6 transcripts. According to the structure of *Rpa2* gene, exon3-exon8 of *Rpa2-201* (ENSMUST00000102561.10) transcript is recommended as the knockout region.The region contains 611bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Rpa2* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

➢ The *Rpa2* 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 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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Rpa2 replication protein A2 [Mus musculus (house mouse)]

Gene ID: 19891, updated on 5-Feb-2019

Summary

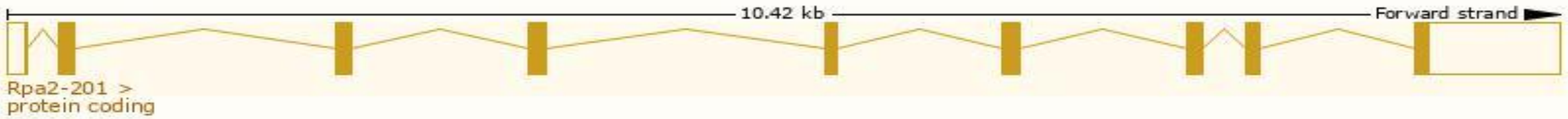
Official Symbol	Rpa2 provided by MGI
Official Full Name	replication protein A2 provided by MGI
Primary source	MGI:MGI:1339939
See related	Ensembl:ENSMUSG00000028884
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AA409079, AI325195, AU020965, RPA34, Rf-A2
Expression	Broad expression in liver E14 (RPKM 35.0), liver E14.5 (RPKM 32.2) and 27 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

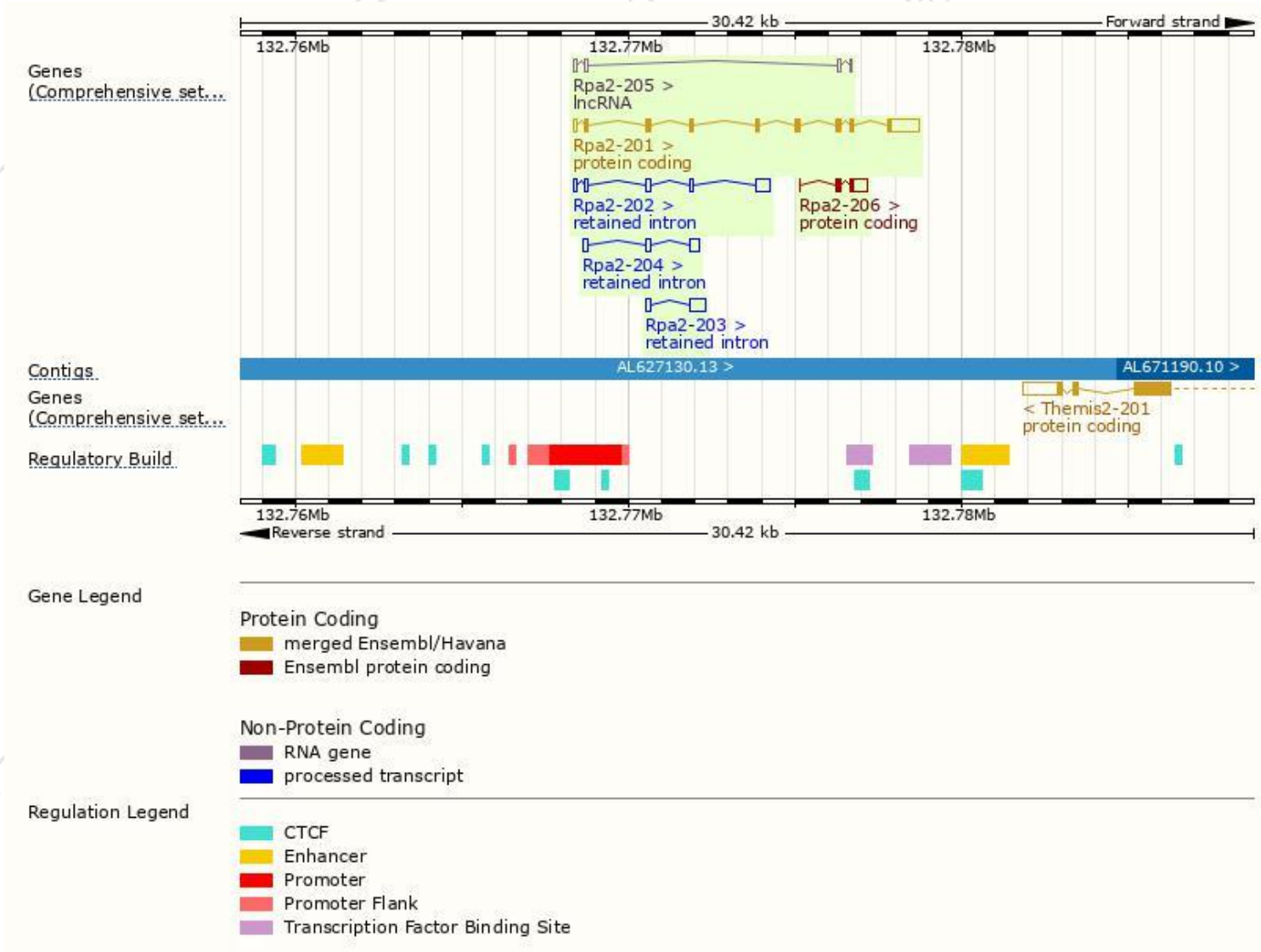
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rpa2-201	ENSMUST00000102561.10	1813	270aa	Protein coding	CCDS18734	Q3TE40	TSL:1 GENCODE basic APPRIS P1
Rpa2-206	ENSMUST00000156968.1	624	70aa	Protein coding	-	F6V8R7	CDS 5' incomplete TSL:5
Rpa2-202	ENSMUST00000130090.7	823	No protein	Retained intron	-	-	TSL:1
Rpa2-203	ENSMUST00000130444.1	599	No protein	Retained intron	-	-	TSL:3
Rpa2-204	ENSMUST00000133415.1	533	No protein	Retained intron	-	-	TSL:3
Rpa2-205	ENSMUST00000153046.7	367	No protein	lncRNA	-	-	TSL:5

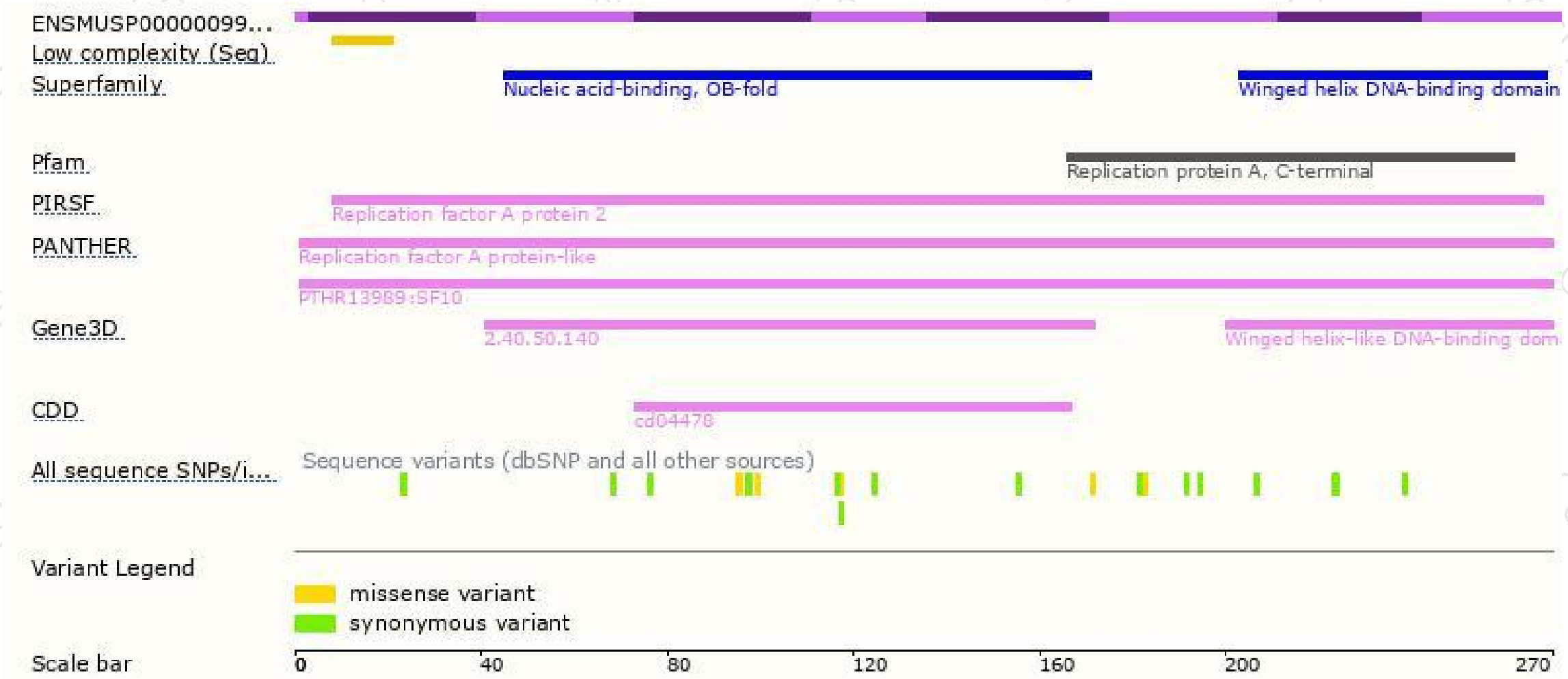
The strategy is based on the design of *Rpa2-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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