

***Arpc1b* Cas9-KO Strategy**

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Reviewer:

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Project Overview

Project Name

Arpc1b

Project type

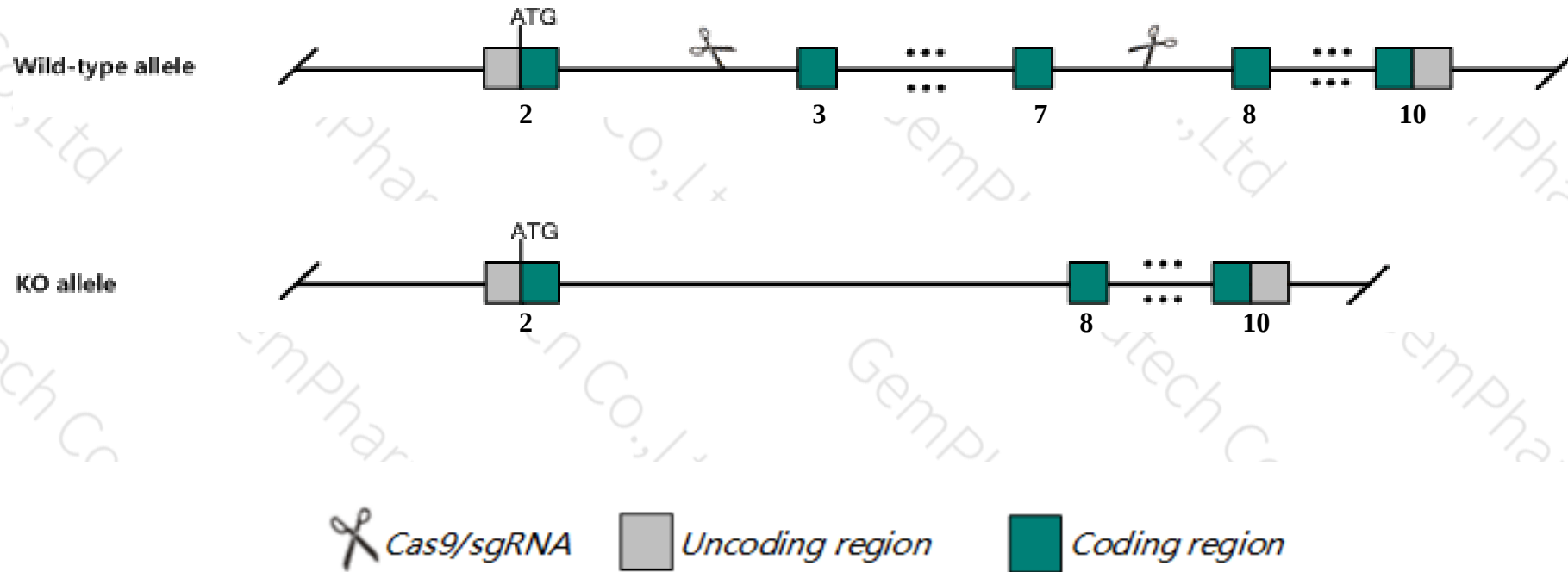
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Arpc1b* gene. The schematic diagram is as follows:



Technical routes

- The *Arpc1b* gene has 11 transcripts. According to the structure of *Arpc1b* gene, exon3-exon7 of *Arpc1b*-201 (ENSMUST00000085679.12) transcript is recommended as the knockout region. The region contains 719bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Arpc1b* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA 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.

- Transcript *Arpc1b*-208 CDS 5' is incomplete, whether the ko region will affect the transcript is still unknown.
- The *Arpc1b* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

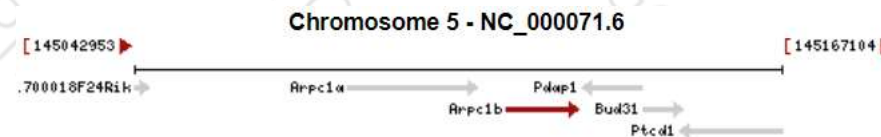
Gene information (NCBI)

Arpc1b actin related protein 2/3 complex, subunit 1B [*Mus musculus* (house mouse)]

Gene ID: 11867, updated on 12-Aug-2019

Summary

Official Symbol Arpc1b provided by MGI
Official Full Name actin related protein 2/3 complex, subunit 1B provided by MGI
Primary source MGI:MGI:1343142
See related Ensembl:ENSMUSG00000029622
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 L72; 41kDa; SOP2Hs; p41-ARC; AA408064; AA408534; AA571392; AF007010; AW208418
Expression Broad expression in colon adult (RPKM 219.0), ovary adult (RPKM 201.5) and 23 other tissues [See more](#)
Orthologs [human](#) [all](#)

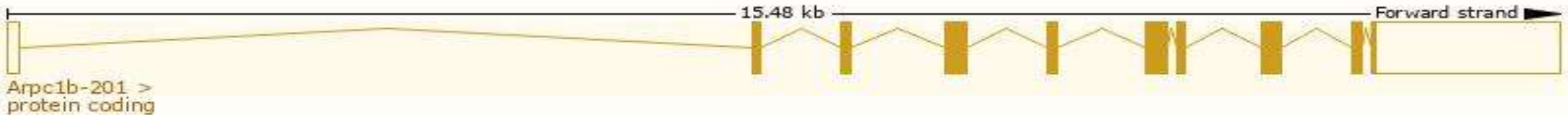


Transcript information (Ensembl)

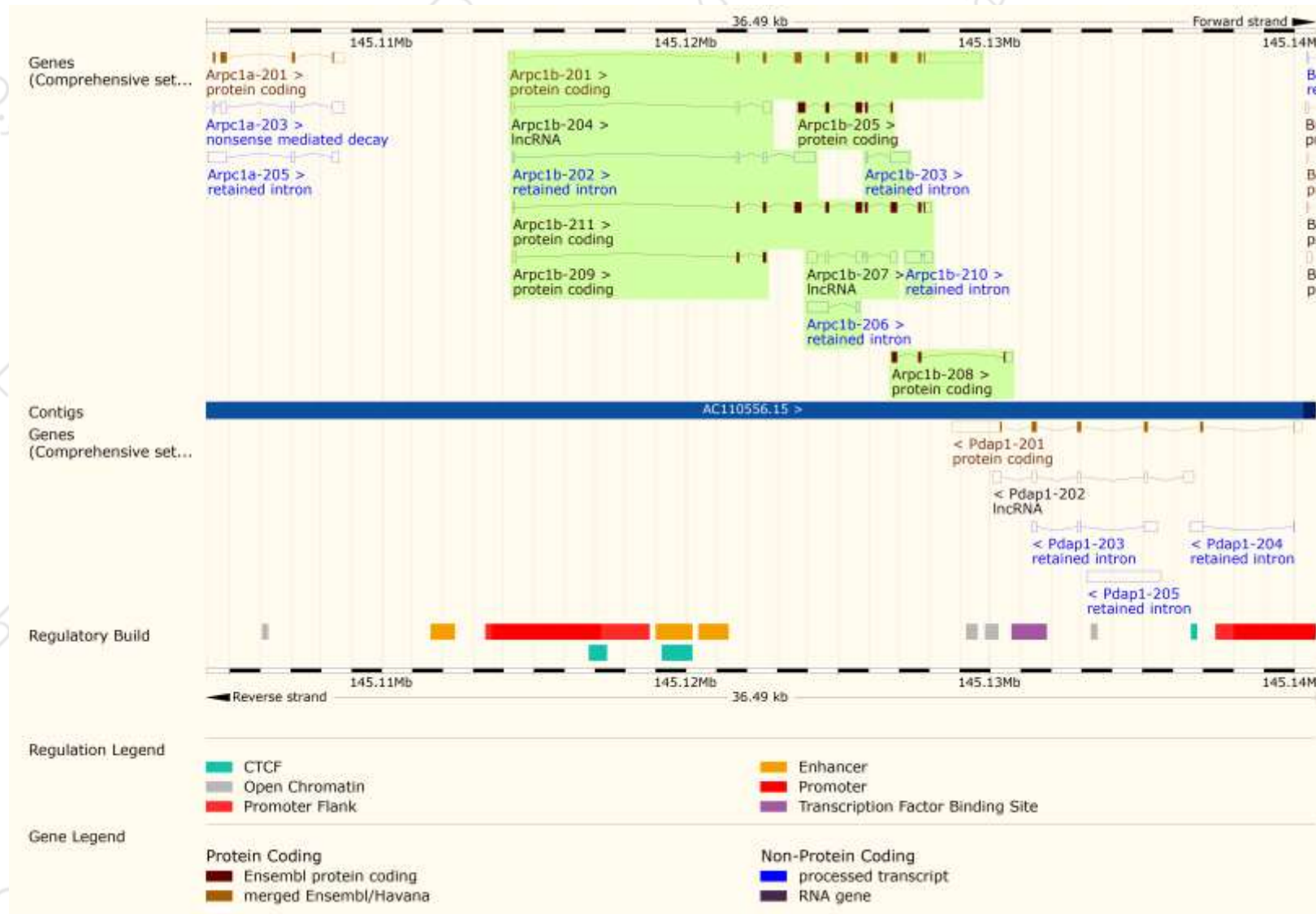
The gene has 11 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Arpc1b-201	ENSMUST00000085679.12	3105	372aa	ENSMUSP00000082822.6	Protein coding	CCDS19856	Q9WV32	TSL:1 GENCODE basic APPRIS P2
Arpc1b-211	ENSMUST00000196111.4	1394	376aa	ENSMUSP00000143438.1	Protein coding	-	Q91Z25	TSL:1 GENCODE basic APPRIS ALT1
Arpc1b-205	ENSMUST00000136074.1	696	232aa	ENSMUSP00000115022.1	Protein coding	-	F6VVE6	CDS 5' and 3' incomplete TSL:3
Arpc1b-208	ENSMUST00000138922.1	525	105aa	ENSMUSP00000115515.1	Protein coding	-	F6THG2	CDS 5' incomplete TSL:5
Arpc1b-209	ENSMUST00000141602.1	295	56aa	ENSMUSP00000122340.1	Protein coding	-	D3Z6S0	CDS 3' incomplete TSL:5
Arpc1b-202	ENSMUST00000126343.1	916	No protein	-	Retained intron	-	-	TSL:1
Arpc1b-206	ENSMUST00000138235.1	850	No protein	-	Retained intron	-	-	TSL:3
Arpc1b-210	ENSMUST00000144375.1	772	No protein	-	Retained intron	-	-	TSL:1
Arpc1b-203	ENSMUST00000128229.1	680	No protein	-	Retained intron	-	-	TSL:2
Arpc1b-207	ENSMUST00000138900.7	914	No protein	-	lncRNA	-	-	TSL:3
Arpc1b-204	ENSMUST00000129033.7	431	No protein	-	lncRNA	-	-	TSL:2

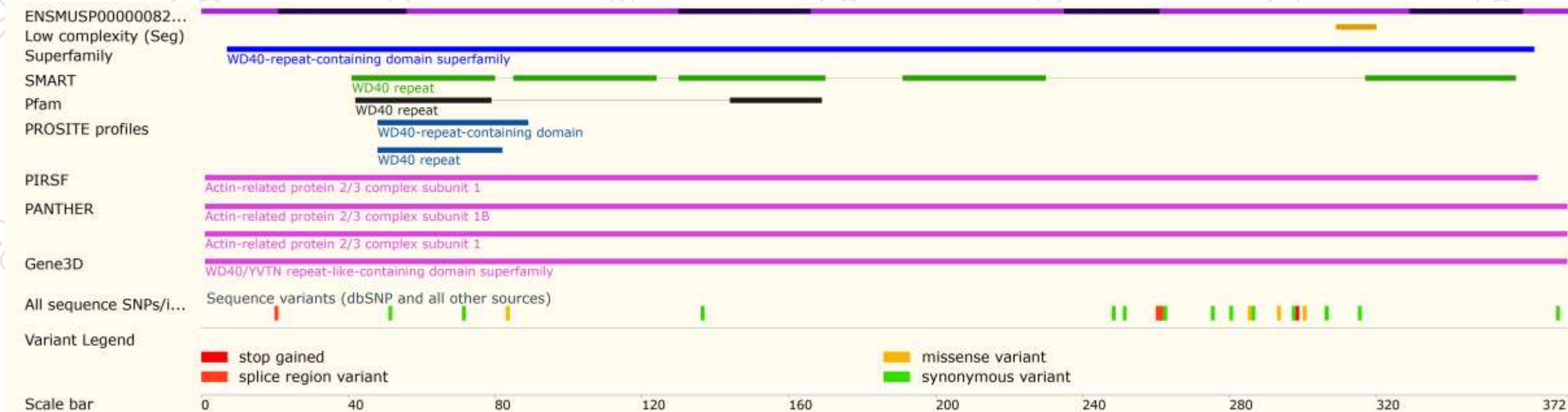
The strategy is based on the design of *Arpc1b-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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