

Arap2 Cas9-KO Strategy

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Project Overview

Project Name

Arap2

Project type

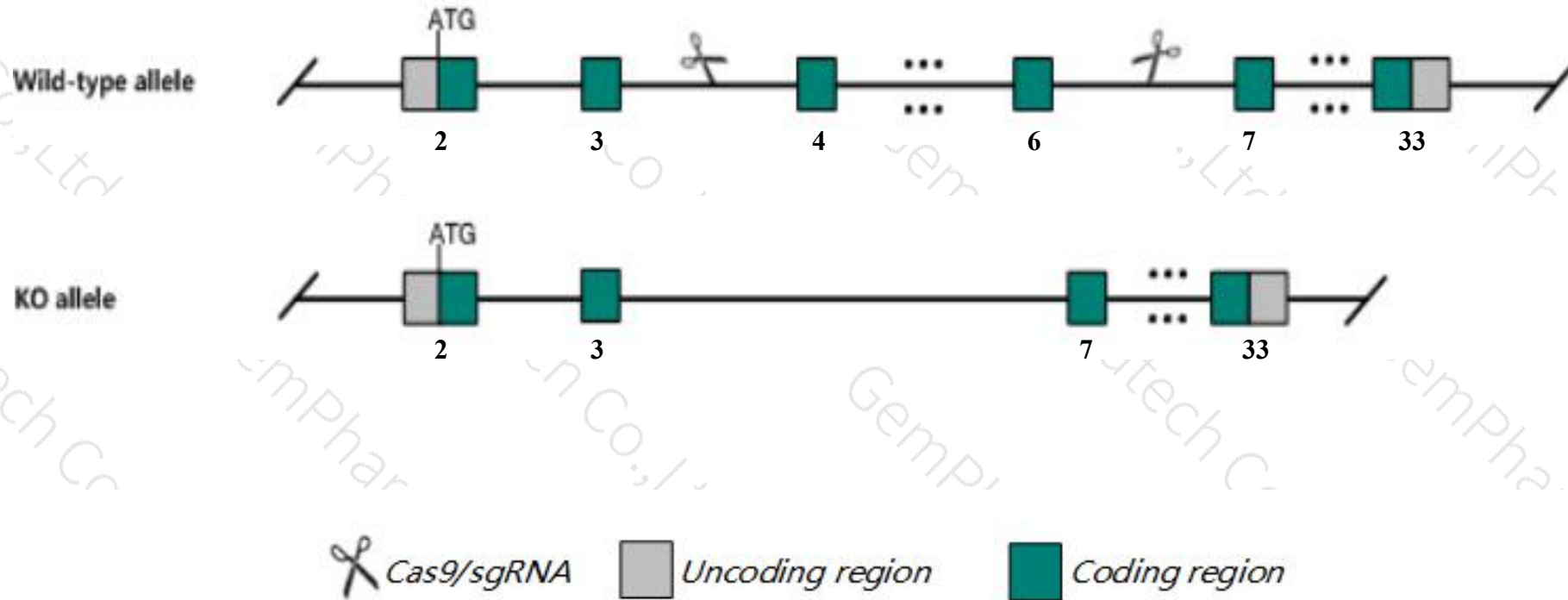
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Arap2* gene. The schematic diagram is as follows:



- The *Arap2* gene has 7 transcripts. According to the structure of *Arap2* gene, exon4-exon6 of *Arap2*-201(ENSMUST00000076623.7) transcript is recommended as the knockout region. The region contains 523bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Arap2* 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.

- The *Arap2* 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)

Arap2 ArfGAP with RhoGAP domain, ankyrin repeat and PH domain 2 [Mus musculus (house mouse)]

Gene ID: 212285, updated on 13-Mar-2020

Summary



Official Symbol	Arap2 provided by MGI
Official Full Name	ArfGAP with RhoGAP domain, ankyrin repeat and PH domain 2 provided by MGI
Primary source	MGI:MGI:2684416
See related	Ensembl:ENSMUSG00000037999
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	Centd1, Gm148, mKIAA0580
Expression	Broad expression in cortex adult (RPKM 7.0), frontal lobe adult (RPKM 6.3) and 24 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

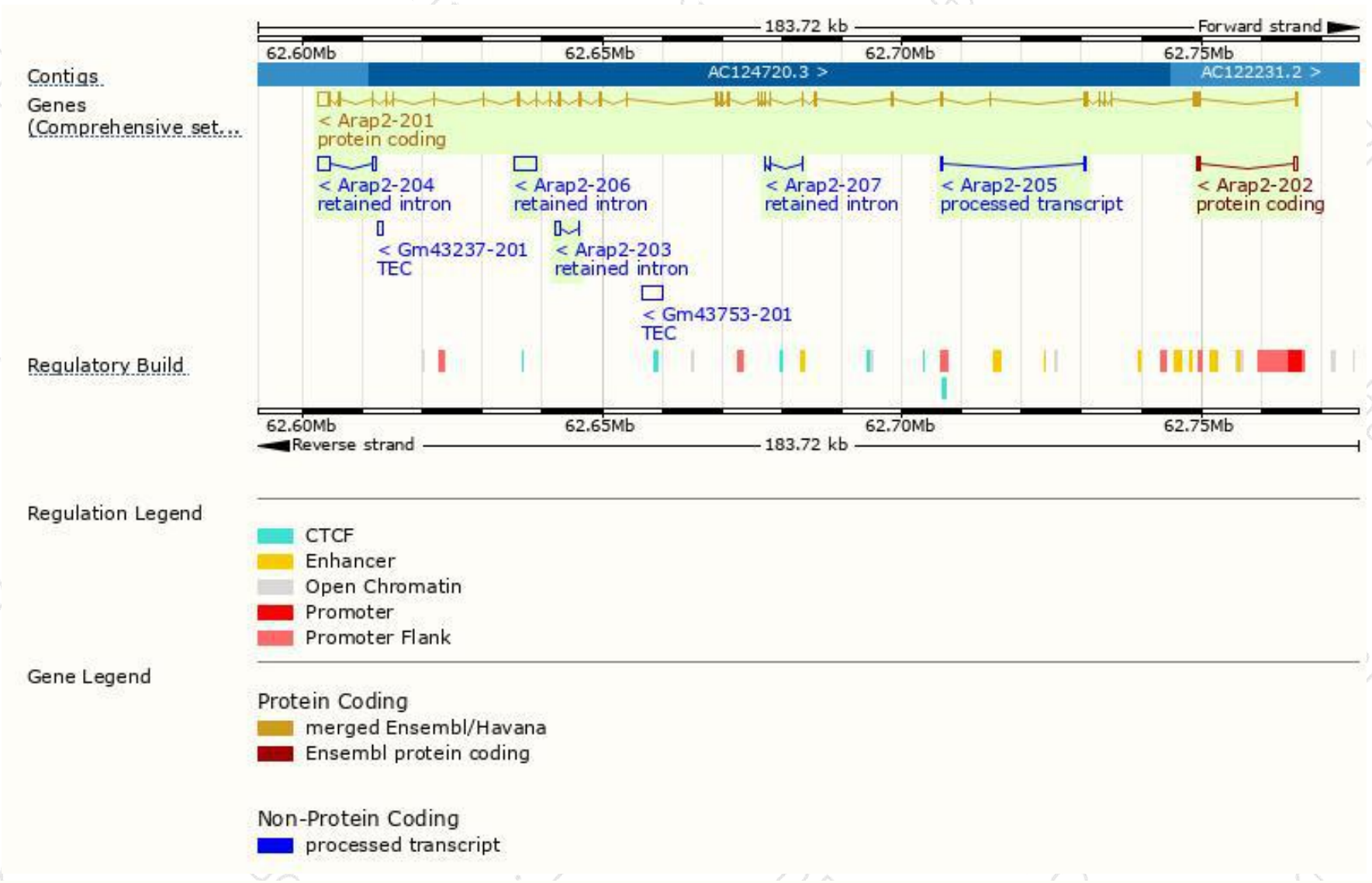
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Arap2-201	ENSMUST00000076623.7	7306	1703aa	Protein coding	CCDS551506	E9QP44	TSL:5 GENCODE basic APPRIS P1
Arap2-202	ENSMUST00000159470.2	1161	126aa	Protein coding	-	E0CXD0	CDS 3' incomplete TSL:3
Arap2-205	ENSMUST00000161911.1	413	No protein	Processed transcript	-	-	TSL:3
Arap2-206	ENSMUST00000200549.2	3648	No protein	Retained intron	-	-	TSL:NA
Arap2-204	ENSMUST00000160620.2	2883	No protein	Retained intron	-	-	TSL:1
Arap2-203	ENSMUST00000160419.1	795	No protein	Retained intron	-	-	TSL:3
Arap2-207	ENSMUST00000201373.1	320	No protein	Retained intron	-	-	TSL:2

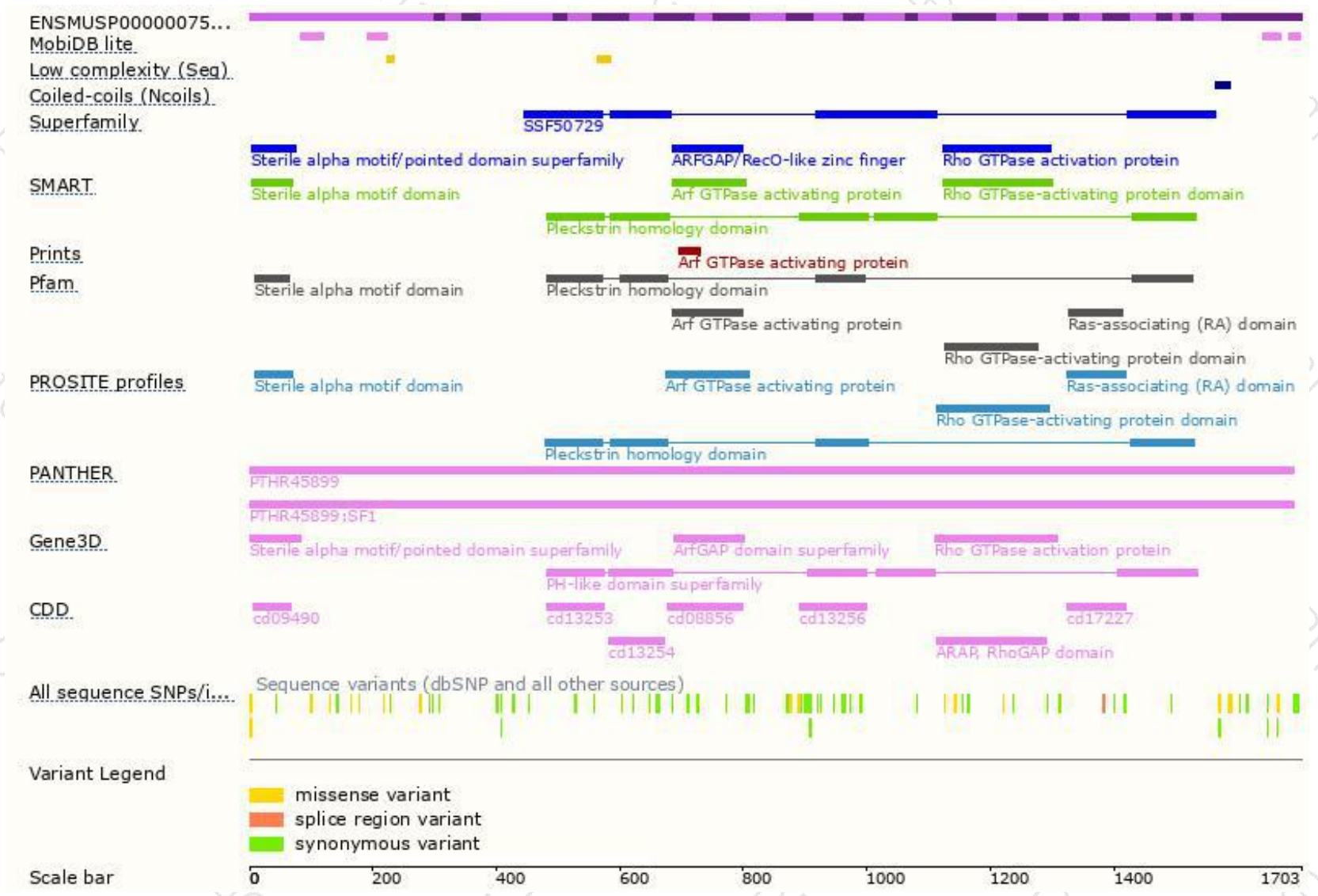
The strategy is based on the design of *Arap2-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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