

Arfgap2 Cas9-KO Strategy

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Reviewer:

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Project Overview

Project Name

Arfgap2

Project type

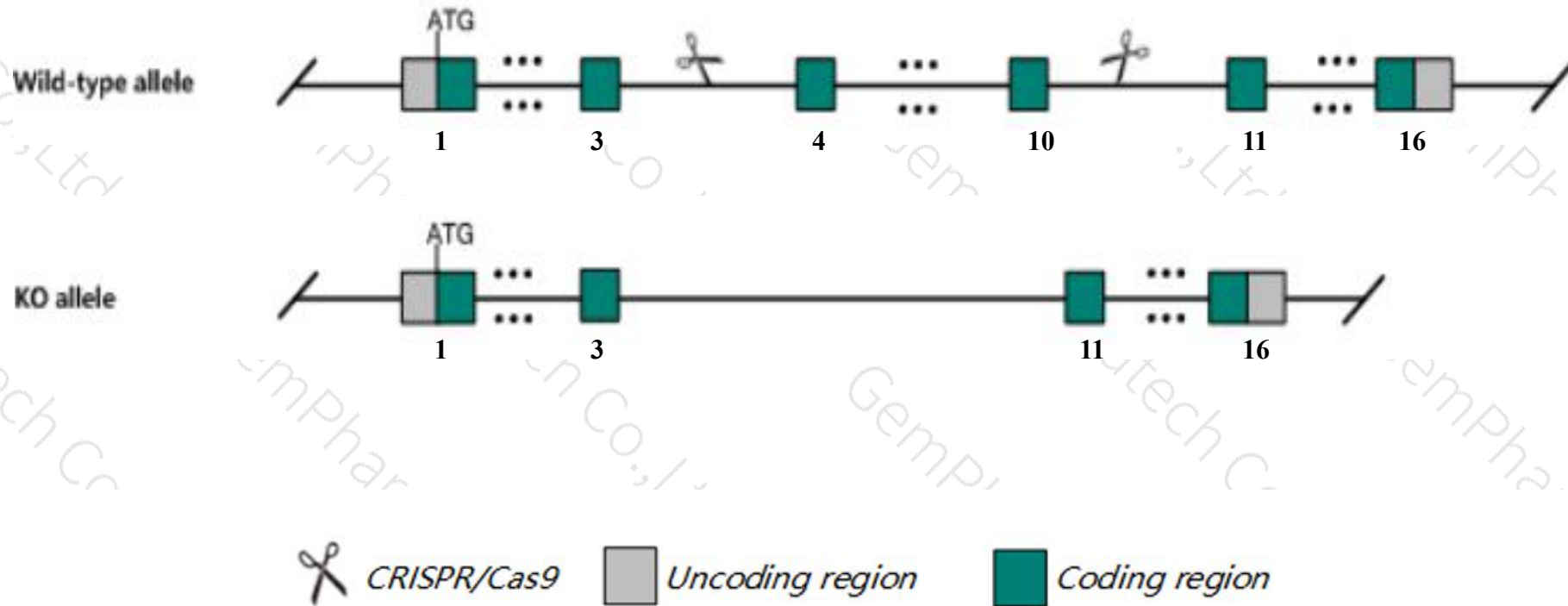
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Arfgap2* gene. The schematic diagram is as follows:



- The *Arfgap2* gene has 7 transcripts. According to the structure of *Arfgap2* gene, exon4-exon10 of *Arfgap2-202* (ENSMUST00000080008.12) transcript is recommended as the knockout region. The region contains 674bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Arfgap2* gene. The brief process is as follows: CRISPR/Cas9 system

- The *Arfgap2* gene is located on the Chr2. 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)

Arfgap2 ADP-ribosylation factor GTPase activating protein 2 [Mus musculus (house mouse)]

Gene ID: 77038, updated on 31-Jan-2019

Summary



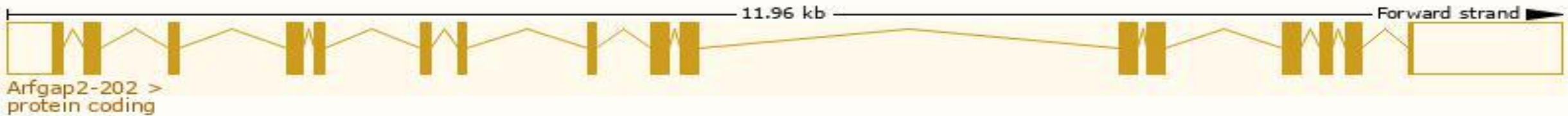
Official Symbol	Arfgap2 provided by MGI
Official Full Name	ADP-ribosylation factor GTPase activating protein 2 provided by MGI
Primary source	MGI:MGI:1924288
See related	Ensembl:ENSMUSG00000027255
Gene type	protein coding
RefSeq status	REVIEWED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2310032E02Rik, Zfp289
Summary	This gene encodes a zinc-finger-containing GTPase-activating protein for ADP ribosylation factor 1 (ARF1), a small GTPase that plays a role in coatamer-mediated vesicular trafficking. This gene product stimulates the hydrolysis of ARF1-bound GTP, which may lead to dissociation of coatamer from Golgi-derived membranes to allow fusion with target membranes. It may regulate the retrograde transport from the Golgi complex to the endoplasmic reticulum. Expression of this gene has been shown to be controlled by inhibitor of DNA binding 1 (Id1). Alternatively spliced transcript variants encoding different isoforms have been found for this gene. A pseudogene of this gene was identified on chromosome 6. [provided by RefSeq, Oct 2009]
Expression	Ubiquitous expression in thymus adult (RPKM 21.9), liver adult (RPKM 21.6) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

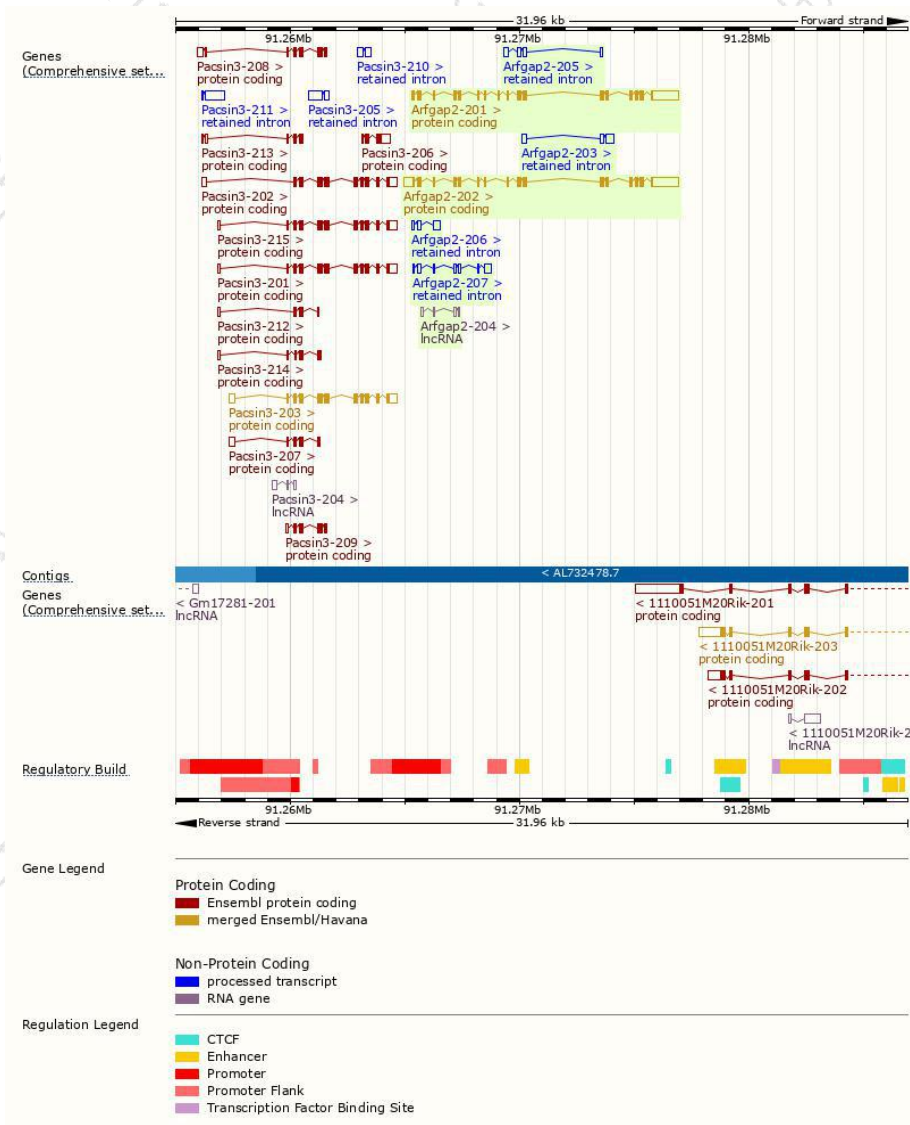
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Arfgap2-202	ENSMUST00000080008.12	3068	520aa	Protein coding	CCDS16430	Q99K28	TSL:1 GENCODE basic APPRIS P3
Arfgap2-201	ENSMUST00000028691.6	2791	534aa	Protein coding	CCDS50639	Q99K28	TSL:1 GENCODE basic APPRIS ALT1
Arfgap2-207	ENSMUST00000150753.7	859	No protein	Retained intron	-	-	TSL:2
Arfgap2-203	ENSMUST00000127895.2	700	No protein	Retained intron	-	-	TSL:3
Arfgap2-206	ENSMUST00000150701.7	520	No protein	Retained intron	-	-	TSL:2
Arfgap2-205	ENSMUST00000146228.1	499	No protein	Retained intron	-	-	TSL:3
Arfgap2-204	ENSMUST00000128296.1	373	No protein	lncRNA	-	-	TSL:3

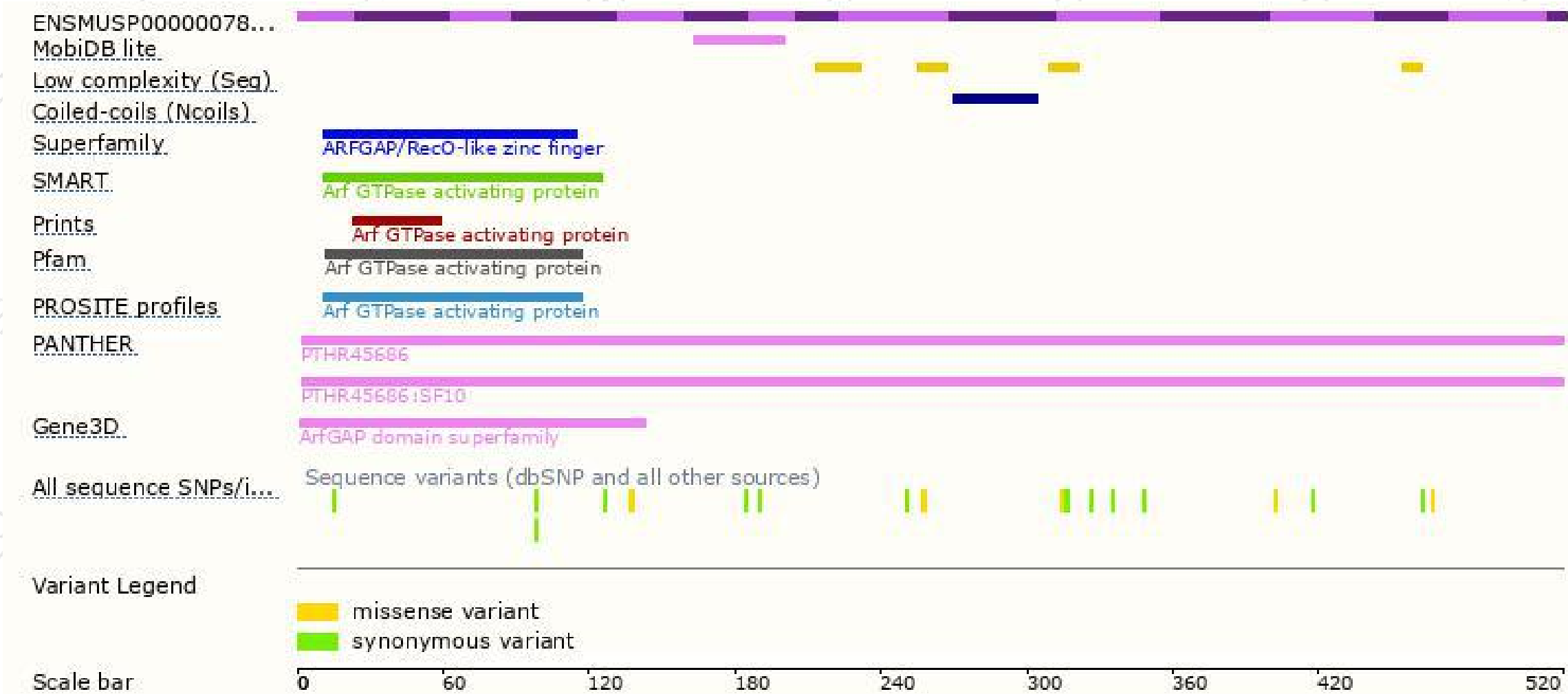
The strategy is based on the design of *Arfgap2-202* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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