

Arhgap29 Cas9-CKO Strategy

Designer:

Jing Jin

Reviewer:

Yang Zeng

Design Date:

2019-11-17

Project Overview

Project Name

Arhgap29

Project type

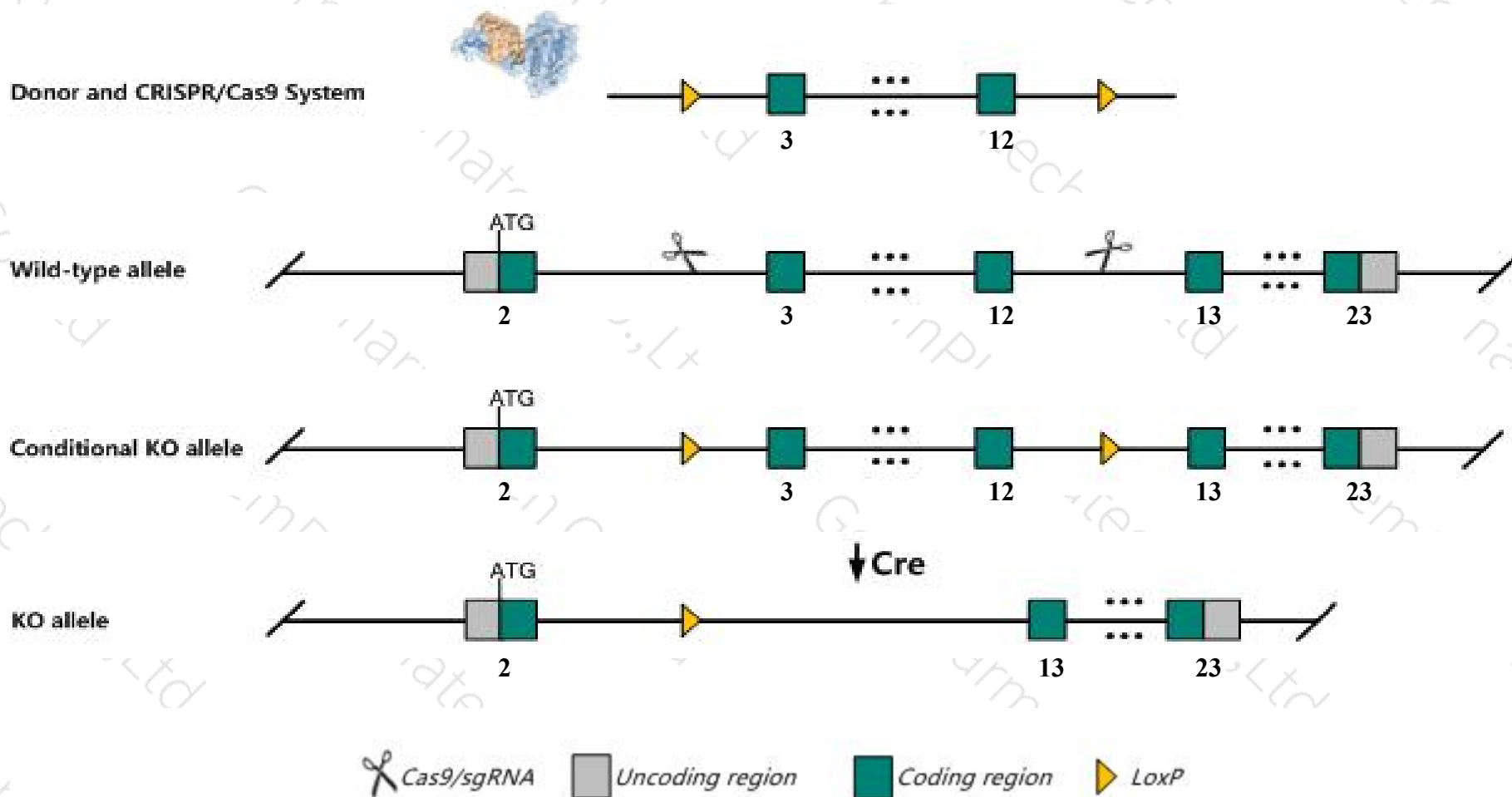
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Arhgap29* gene. The schematic diagram is as follows:



- The *Arhgap29* gene has 9 transcripts. According to the structure of *Arhgap29* gene, exon3-exon12 of *Arhgap29-201* (ENSMUST00000037958.13) transcript is recommended as the knockout region. The region contains 1076bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Arhgap29* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA and Donor 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 flox mice was knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

Notice

- The *Arhgap29* gene is located on the Chr3. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

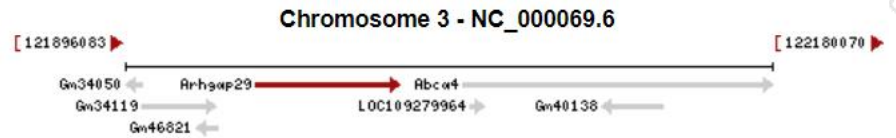
Gene information (NCBI)

Arhgap29 Rho GTPase activating protein 29 [*Mus musculus* (house mouse)]

Gene ID: 214137, updated on 24-Oct-2019

Summary

Official Symbol	Arhgap29 provided by MGI
Official Full Name	Rho GTPase activating protein 29 provided by MGI
Primary source	MGI:MGI:2443818
See related	Ensembl:ENSMUSG00000039831
Gene type	protein coding
RefSeq status	VALIDATED
Organism	<i>Mus musculus</i>
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Parg1; C76601; AU040217; A830014I19; 6720461J18Rik; B130017I01Rik
Expression	Broad expression in testis adult (RPKM 25.9), subcutaneous fat pad adult (RPKM 19.4) and 25 other tissues See more
Orthologs	human all

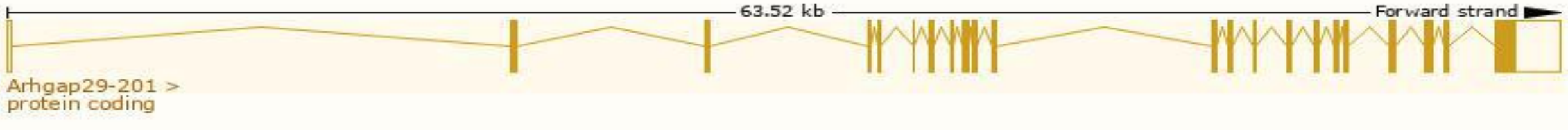


Transcript information (Ensembl)

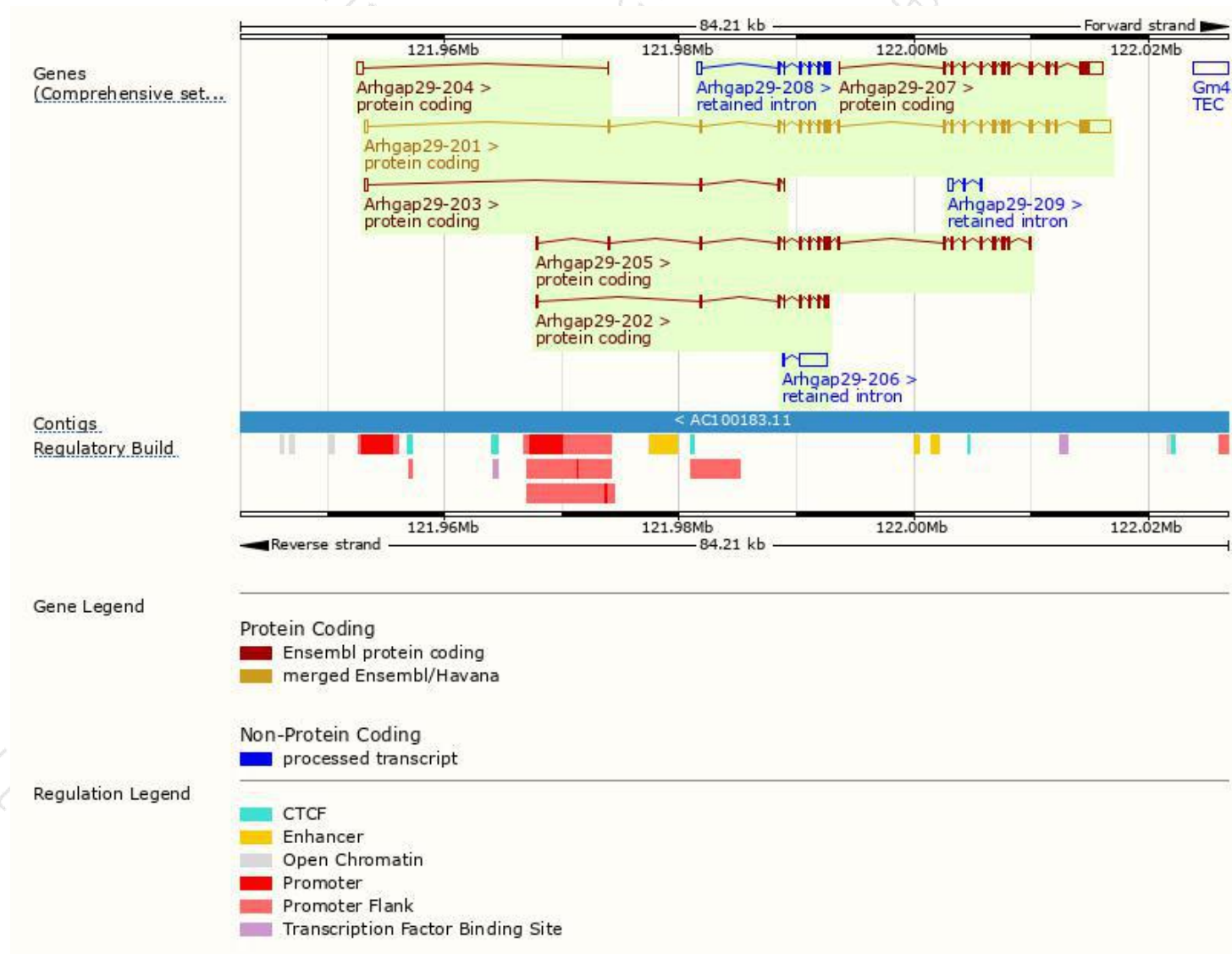
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Arhgap29-201	ENSMUST00000037958.13	5787	1266aa	Protein coding	CCDS17807	Q8CGF1	TSL:1 GENCODE basic APPRIS P1
Arhgap29-207	ENSMUST00000198914.1	3758	859aa	Protein coding	-	A0A0G2JGF7	CDS 5' incomplete TSL:1
Arhgap29-205	ENSMUST00000197155.4	2503	780aa	Protein coding	-	A0A0G2JEY0	CDS 3' incomplete TSL:1
Arhgap29-202	ENSMUST00000196479.4	934	272aa	Protein coding	-	A0A0G2JEL5	CDS 3' incomplete TSL:3
Arhgap29-204	ENSMUST00000196984.1	516	6aa	Protein coding	-	-	CDS 3' incomplete TSL:3
Arhgap29-203	ENSMUST00000196904.4	412	83aa	Protein coding	-	A0A0G2JGF8	CDS 3' incomplete TSL:3
Arhgap29-206	ENSMUST00000198594.1	2374	No protein	Retained intron	-	-	TSL:1
Arhgap29-208	ENSMUST00000199081.1	1165	No protein	Retained intron	-	-	TSL:1
Arhgap29-209	ENSMUST00000199550.1	609	No protein	Retained intron	-	-	TSL:3

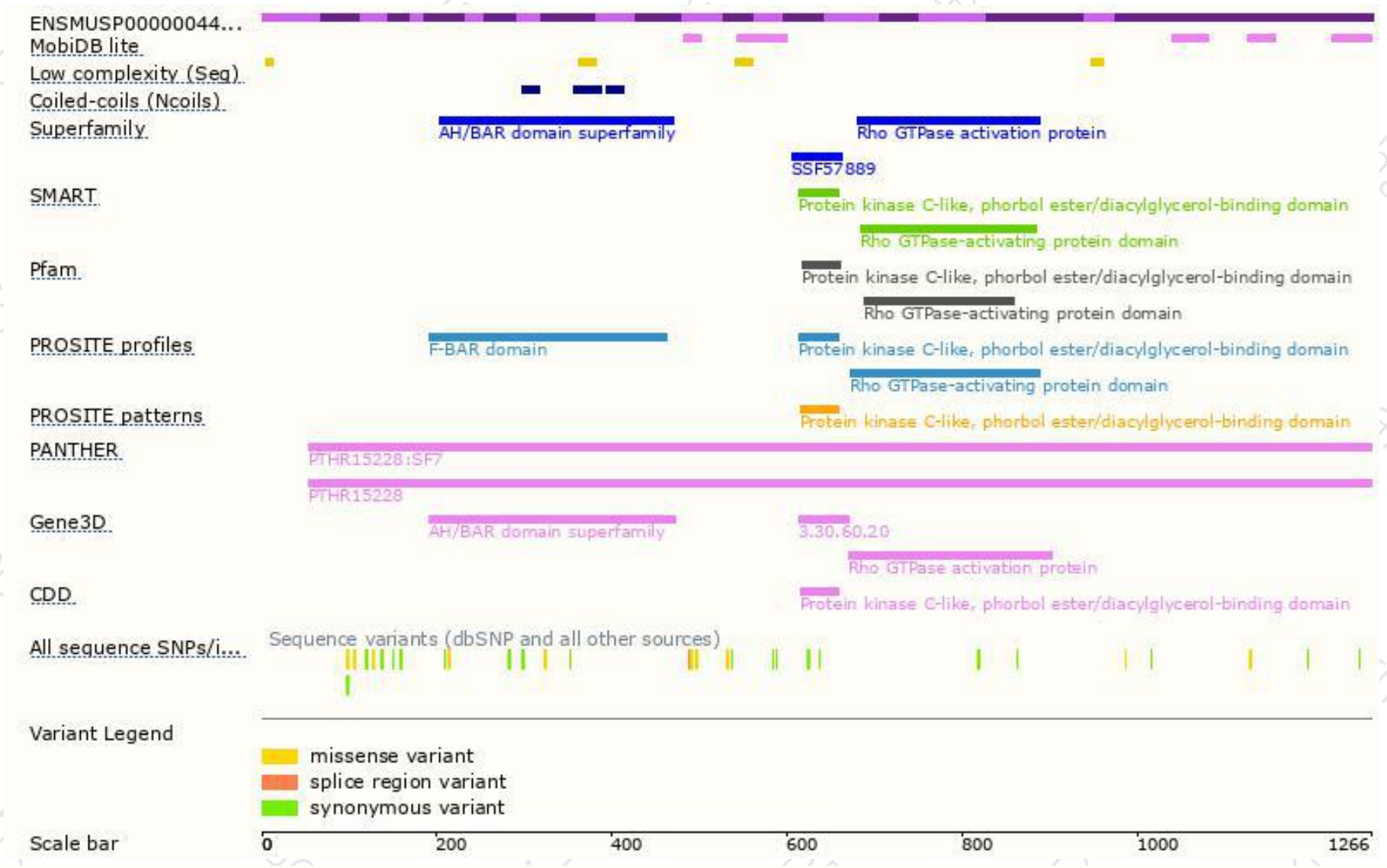
The strategy is based on the design of *Arhgap29-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

Tel: 025-5864 1534

