

***Arhgap29* Cas9-KO Strategy**

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Reviewer:

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Design Date:

2019-11-16

Project Overview

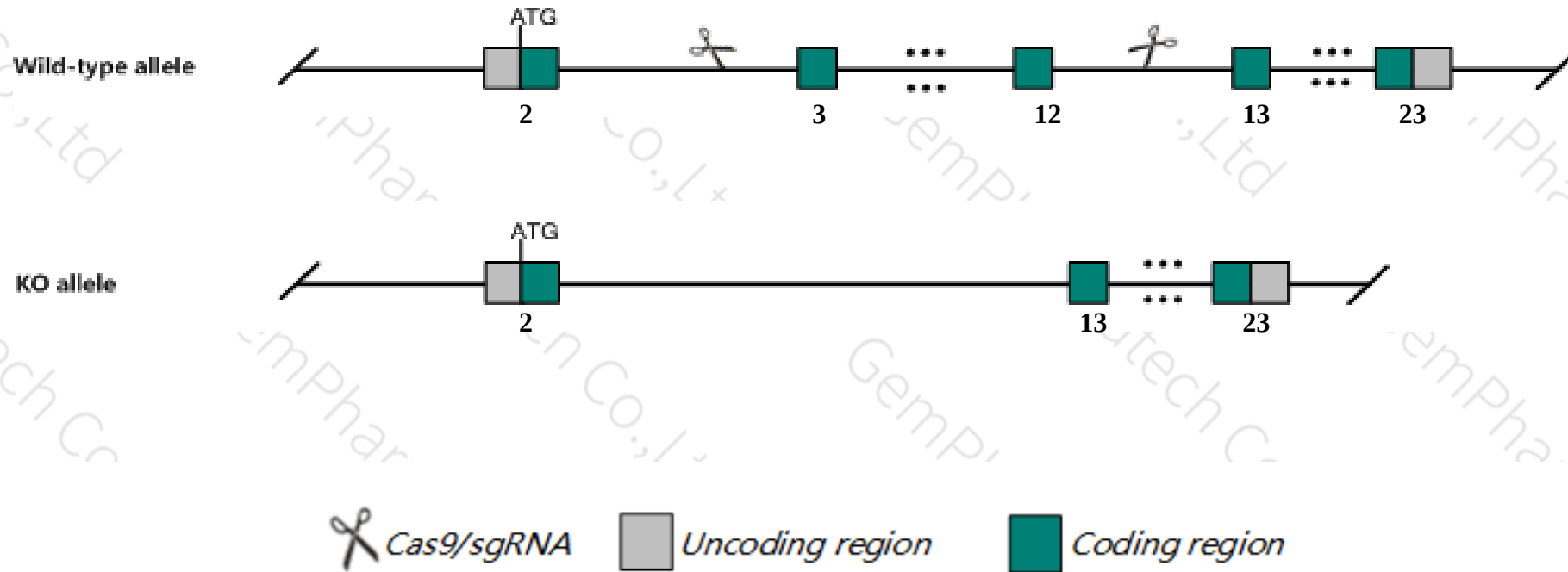
Project Name	<i>Arhgap29</i>
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Project type	Cas9-KO
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Strain background	C57BL/6JGpt
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Knockout strategy

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. 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 *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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

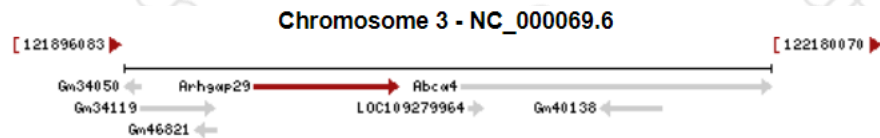
Gene information (NCBI)

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 [Mus musculus](#)
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](#)

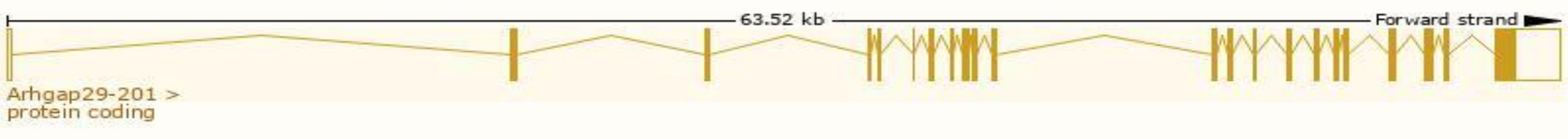


Transcript information (Ensembl)

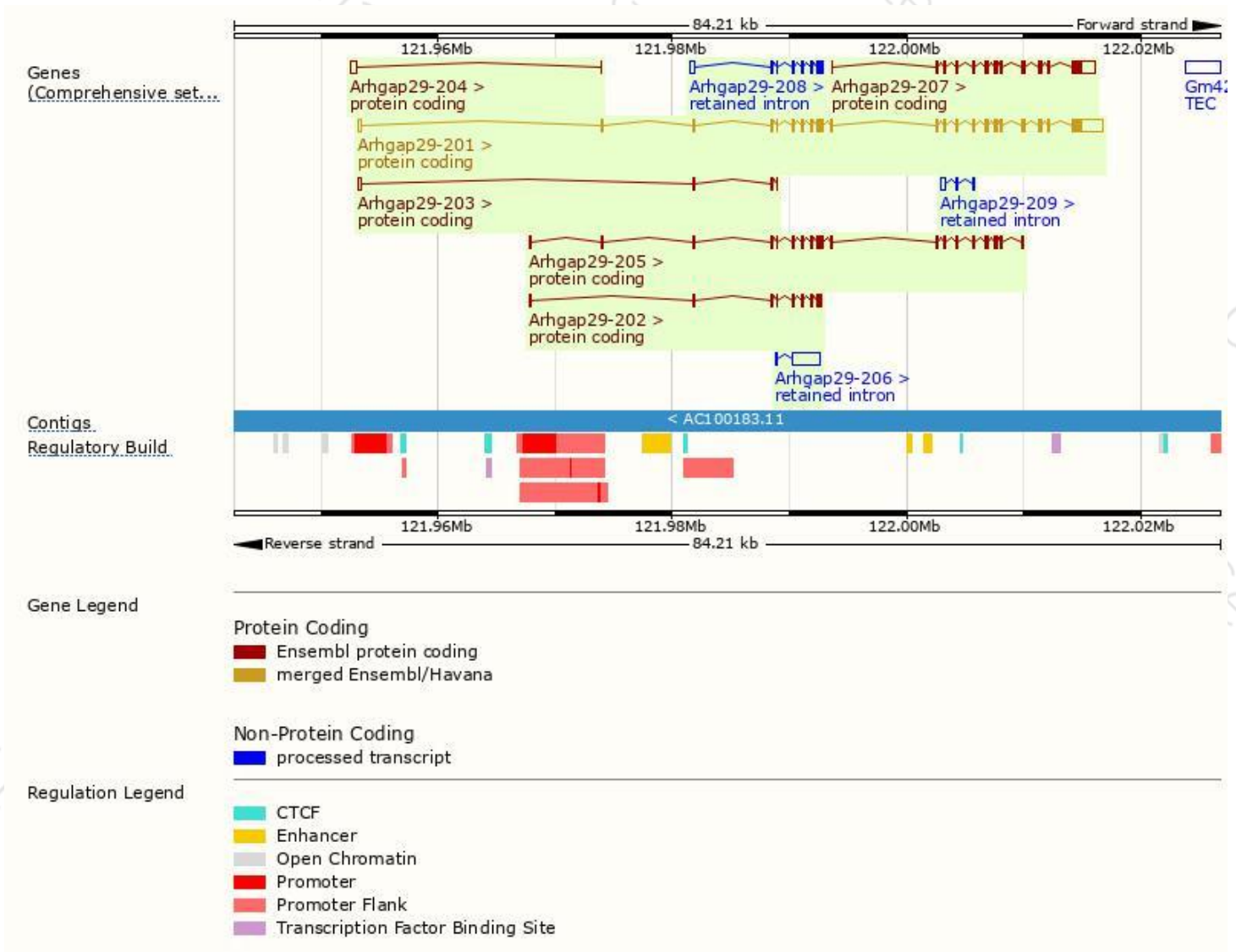
The gene has 9 transcripts,all transcripts are shown below:

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



集萃药康
GemPharmatech



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

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