

Arhgap6 Cas9-KO Strategy

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Reviewer:

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Design Date:

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Project Overview

Project Name

Arhgap6

Project type

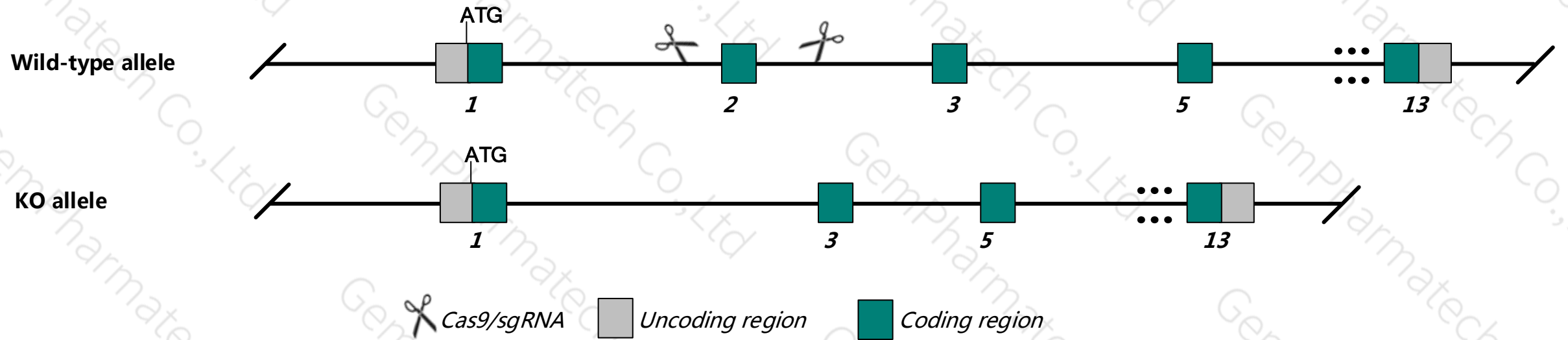
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Arhgap6* gene. The schematic diagram is as follows:



Technical routes

- The *Arhgap6* gene has 7 transcripts. According to the structure of *Arhgap6* gene, exon2 of *Arhgap6*-201 (ENSMUST00000033721.12) transcript is recommended as the knockout region. The region contains 160bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Arhgap6* 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.

- According to the existing MGI data , mice homozygous for a targeted null mutation do not exhibit any observable abnormalities.
- The *Arhgap6* gene is located on the ChrX. 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)

Arhgap6 Rho GTPase activating protein 6 [*Mus musculus* (house mouse)]

Gene ID: 11856, updated on 13-Mar-2020

Summary

Official Symbol Arhgap6 provided by [MGI](#)

Official Full Name Rho GTPase activating protein 6 provided by [MGI](#)

Primary source [MGI:MGI:1196332](#)

See related [Ensembl:ENSMUSG000000031355](#)

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 AI504284; RhoGAPX-1

Expression Ubiquitous expression in bladder adult (RPKM 2.0), lung adult (RPKM 1.8) and 26 other tissues [See more](#)

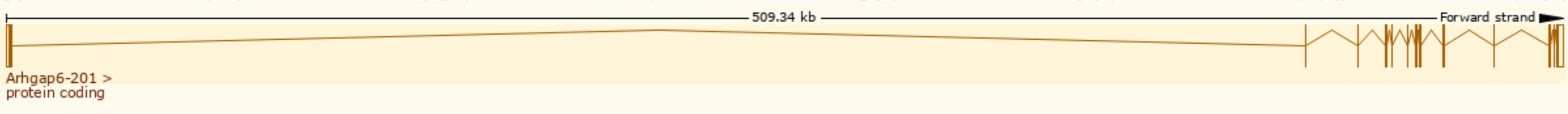
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

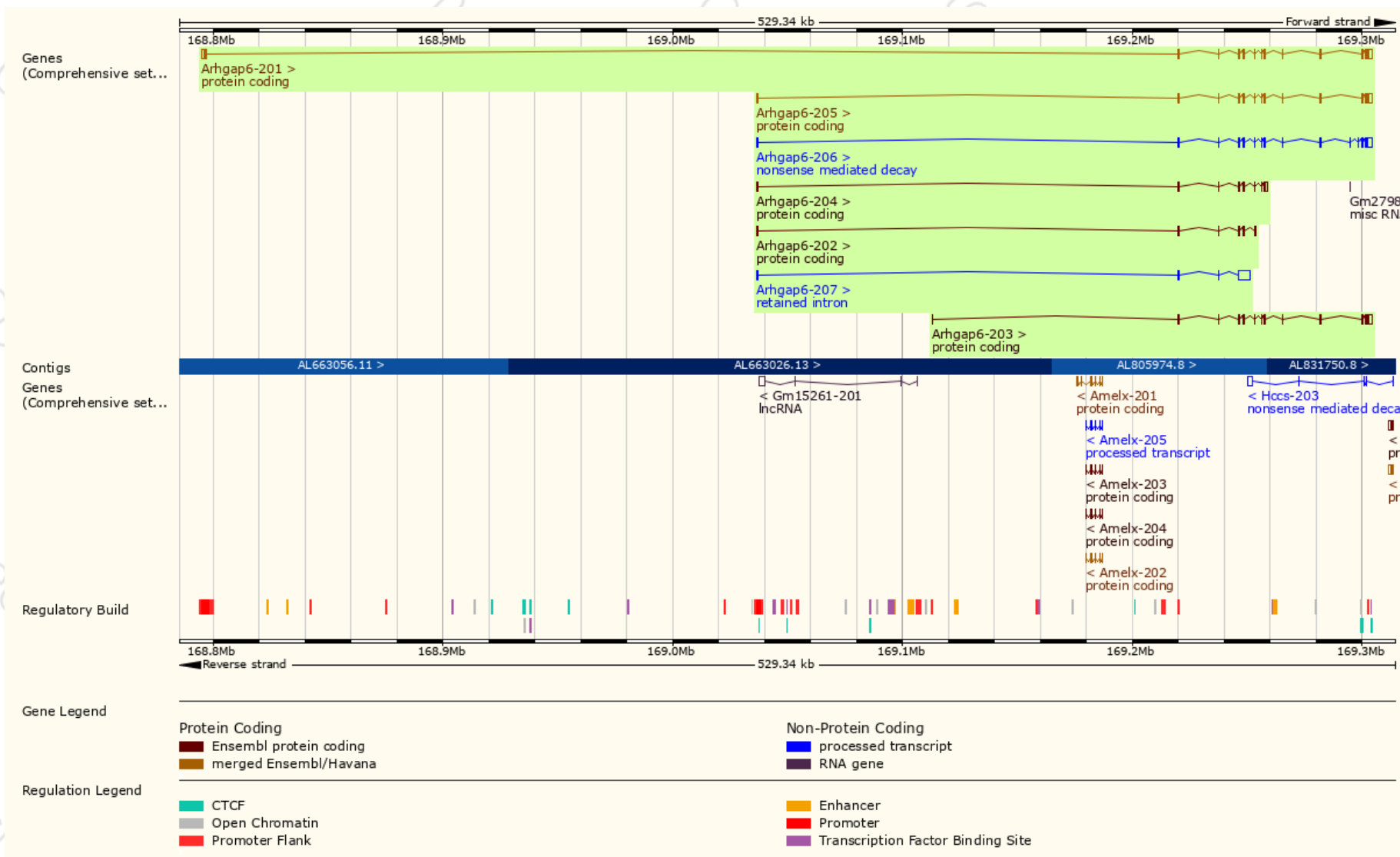
The gene has 7 transcripts, and all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Arhgap6-201	ENSMUST00000033721.12	5510	987aa	Protein coding	CCDS30534	O54834	TSL:2 APPRIS P3
Arhgap6-205	ENSMUST00000112131.8	4053	805aa	Protein coding	CCDS41212	O54834	TSL:1 GENCODE basic APPRIS ALT2
Arhgap6-203	ENSMUST00000112127.1	3973	795aa	Protein coding	CCDS72472	O54834	TSL:1 GENCODE basic APPRIS ALT2
Arhgap6-204	ENSMUST00000112129.7	2487	385aa	Protein coding	-	A2ALX7	TSL:1 GENCODE basic
Arhgap6-202	ENSMUST00000087016.10	1310	294aa	Protein coding	-	A2ALX6	TSL:1 GENCODE basic
Arhgap6-206	ENSMUST00000139146.7	4192	478aa	Nonsense mediated decay	-	G3UZI7	TSL:1
Arhgap6-207	ENSMUST00000143048.1	5494	No protein	Retained intron	-	-	TSL:1

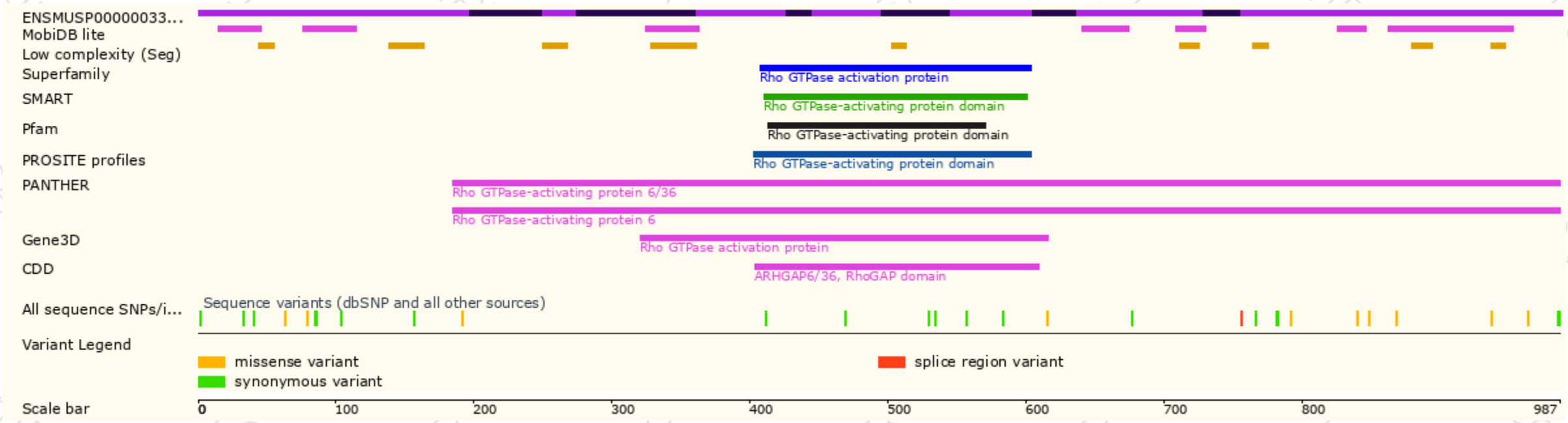
The strategy is based on the design of *Arhgap6-201* transcript,the transcription is shown below:



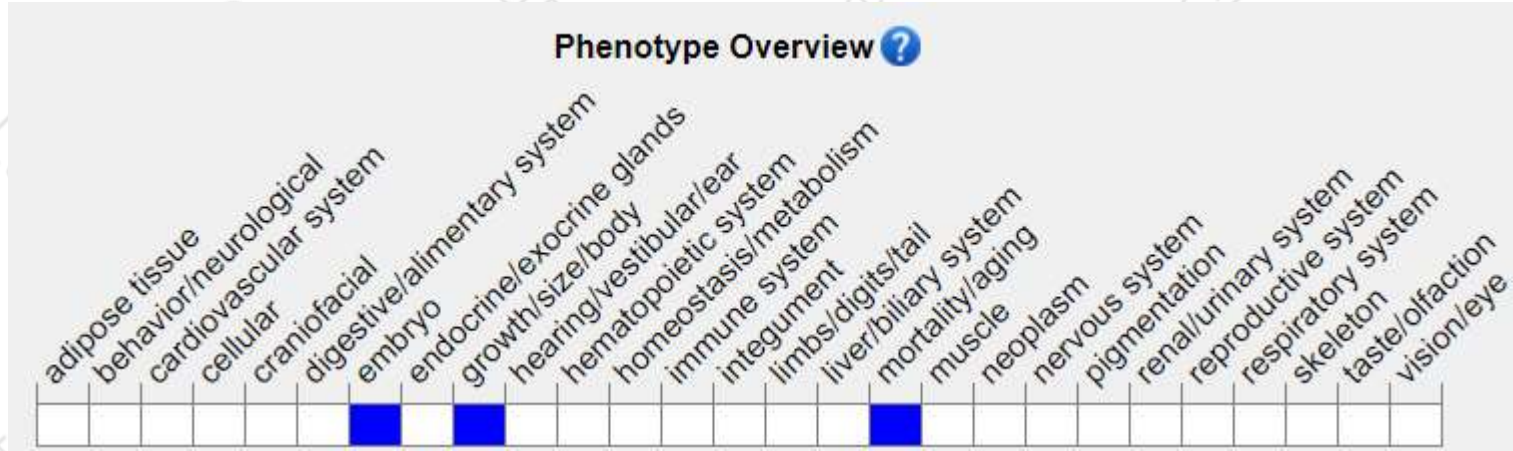
Genomic location (Ensembl)



Protein domain (Ensembl)



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>) .

According to the existing MGI data, mice homozygous for a targeted null mutation do not exhibit any observable abnormalities.

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