

Arhgap40 Cas9-KO Strategy

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Project Overview

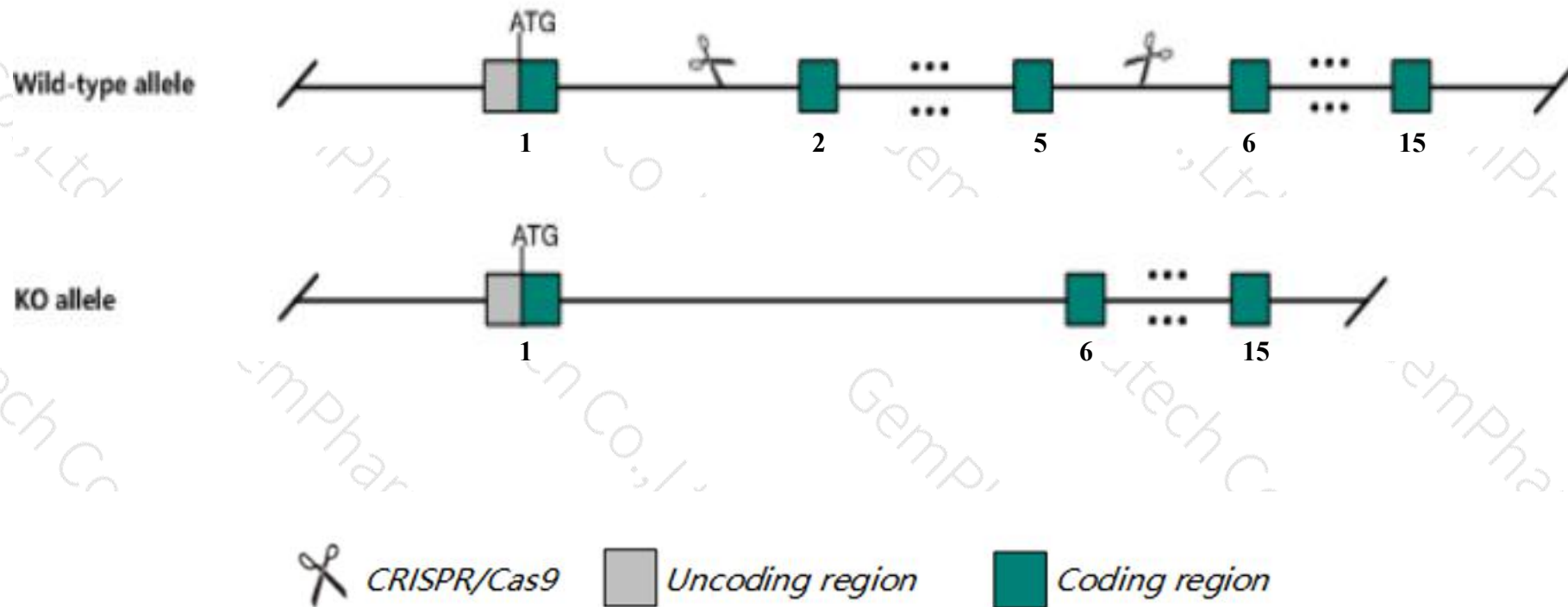
Project Name	<i>Arhgap40</i>
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Project type	Cas9-KO
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Strain background	C57BL/6JGpt
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Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Arhgap40* gene. The schematic diagram is as follows:



- The *Arhgap40* gene has 3 transcripts. According to the structure of *Arhgap40* gene, exon2-exon5 of *Arhgap40*-203(ENSMUST00000165398.1) transcript is recommended as the knockout region. The region contains 643bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Arhgap40* gene. The brief process is as follows: CRISPR/Cas9 system 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 *Arhgap40* 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)

Arhgap40 Rho GTPase activating protein 40 [Mus musculus (house mouse)]

Gene ID: 545481, updated on 13-Mar-2020

Summary



Official Symbol [Arhgap40](#) provided by [MGI](#)

Official Full Name [Rho GTPase activating protein 40](#) provided by [MGI](#)

Primary source [MGI:MGI:3649852](#)

See related [Ensembl:ENSMUSG00000074625](#)

Gene type protein coding

RefSeq status PROVISIONAL

Organism [Mus musculus](#)

Lineage Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus

Also known as C20orf95, Gm14203

Expression Biased expression in bladder adult (RPKM 8.5), mammary gland adult (RPKM 4.5) and 7 other tissues[See more](#)

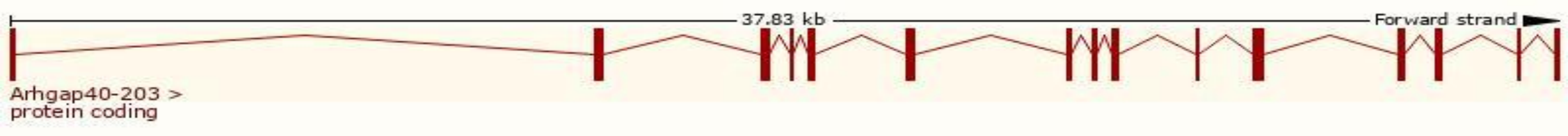
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

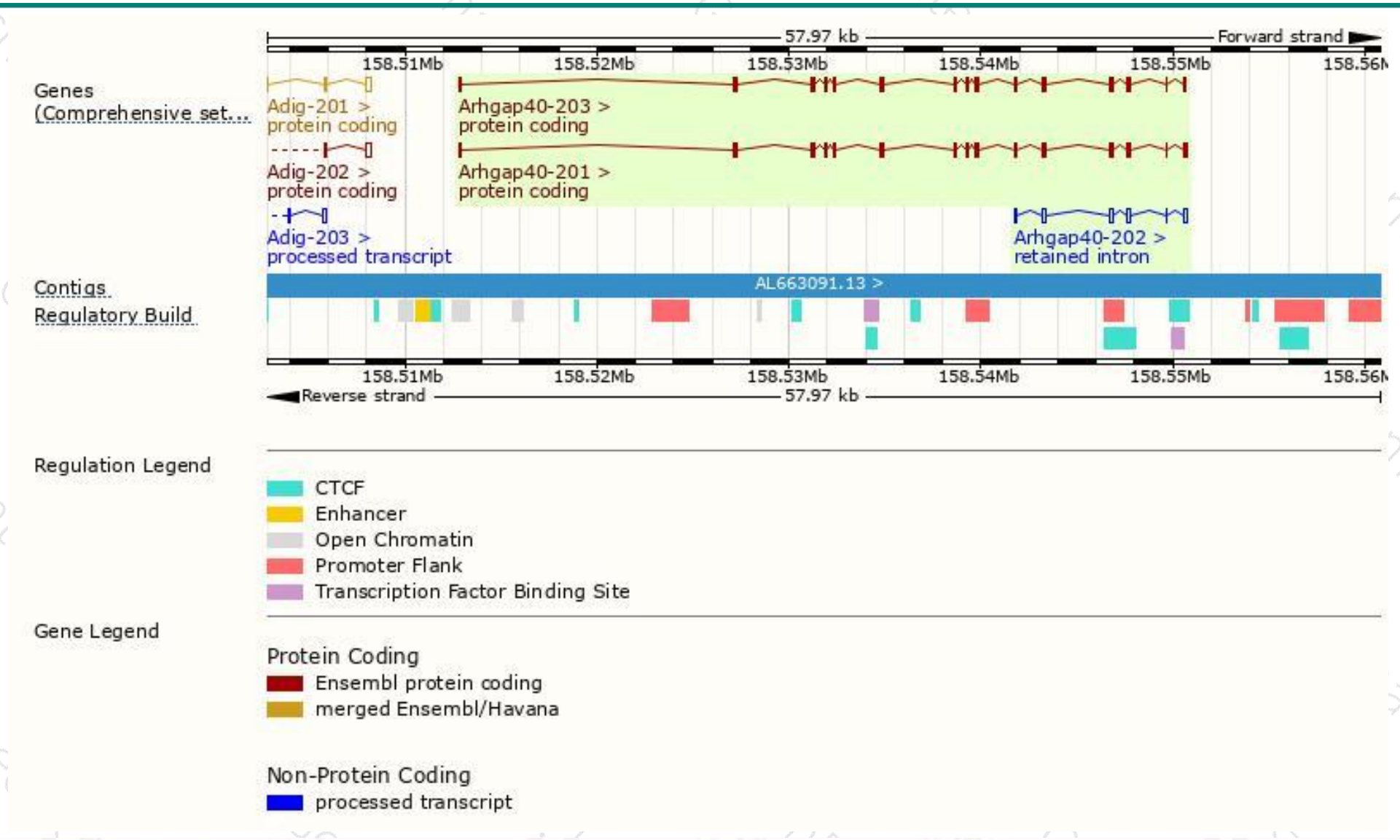
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Arhgap40-203	ENSMUST00000165398.1	2028	672aa	Protein coding	CCDS50787	E9Q6X9	TSL:5 GENCODE basic APPRIS P1
Arhgap40-201	ENSMUST00000099133.9	2162	675aa	Protein coding	-	A0A0A0MQB4	CDS 5' incomplete TSL:5
Arhgap40-202	ENSMUST00000135838.1	924	No protein	Retained intron	-	-	TSL:5

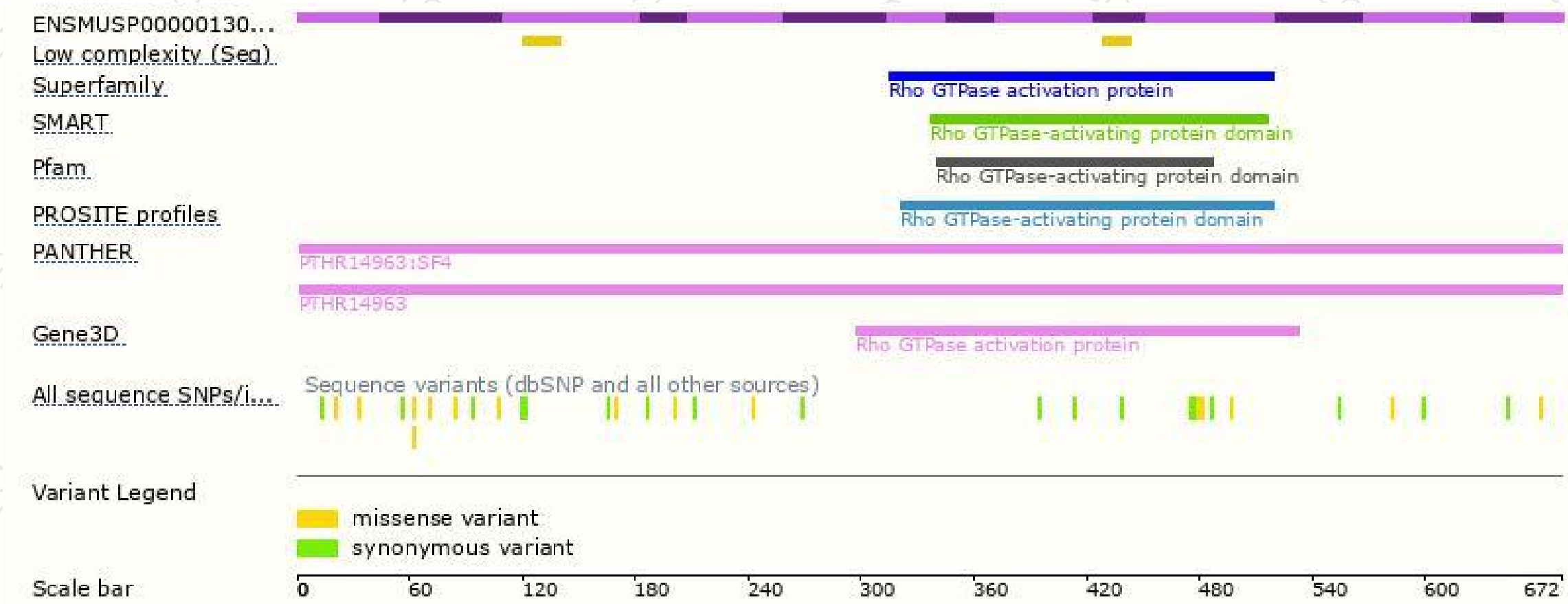
The strategy is based on the design of *Arhgap40-203* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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