

Arhgap20 Cas9-KO Strategy

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Project Overview

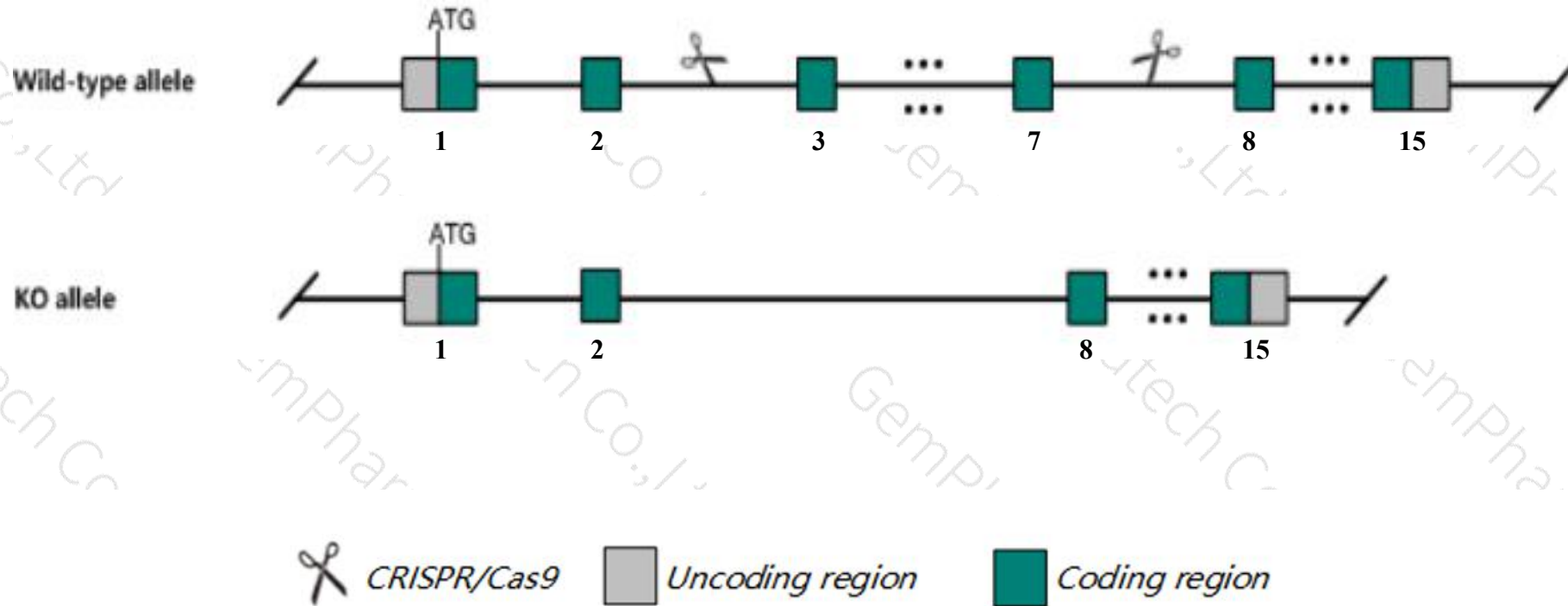
Project Name	<i>Arhgap20</i>
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Project type	Cas9-KO
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Strain background	C57BL/6JGpt
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Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Arhgap20* gene. The schematic diagram is as follows:



- The *Arhgap20* gene has 6 transcripts. According to the structure of *Arhgap20* gene, exon3-exon7 of *Arhgap20-201*(ENSMUST00000065496.11) transcript is recommended as the knockout region. The region contains 520bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Arhgap20* 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 *Arhgap20* gene is located on the Chr9. 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)

Arhgap20 Rho GTPase activating protein 20 [Mus musculus (house mouse)]

Gene ID: 244867, updated on 13-Mar-2020

Summary



Official Symbol	Arhgap20 provided by MGI
Official Full Name	Rho GTPase activating protein 20 provided by MGI
Primary source	MGI:MGI:2445175
See related	Ensembl:ENSMUSG00000053199
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	6530403F17Rik, A530023E23Rik, RARhoGAP, mKIAA1391
Expression	Broad expression in frontal lobe adult (RPKM 5.6), cortex adult (RPKM 5.5) and 16 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

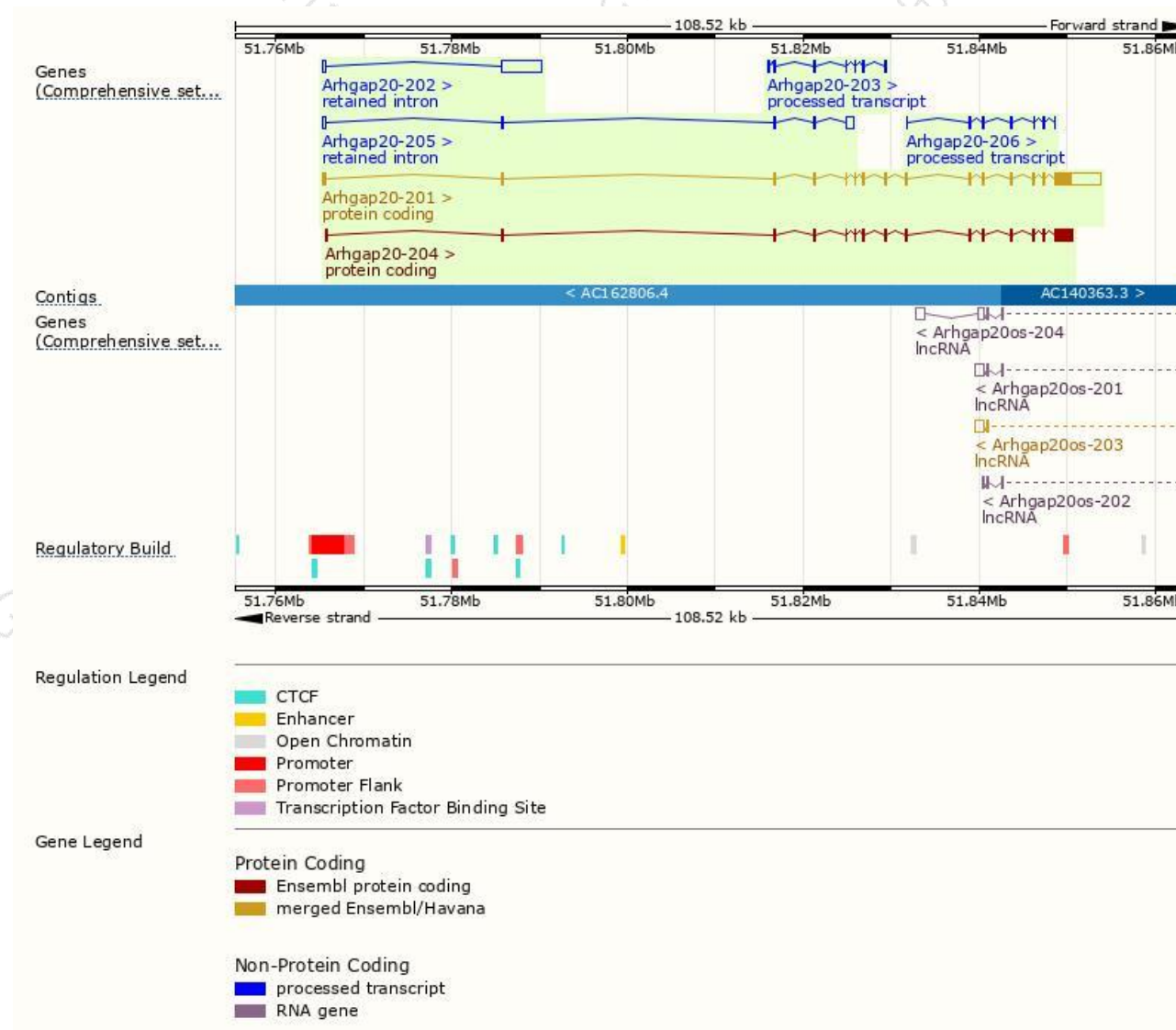
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Arhgap20-201	ENSMUST00000065496.11	7161	1182aa	Protein coding	CCDS23177	Q6IFT4	TSL:5 GENCODE basic APPRIS P2
Arhgap20-204	ENSMUST00000130405.1	3881	1146aa	Protein coding	-	D3YUH8	TSL:5 GENCODE basic APPRIS ALT2
Arhgap20-206	ENSMUST00000149754.1	775	No protein	Processed transcript	-	-	TSL:3
Arhgap20-203	ENSMUST00000126567.1	729	No protein	Processed transcript	-	-	TSL:3
Arhgap20-202	ENSMUST00000124907.1	4789	No protein	Retained intron	-	-	TSL:1
Arhgap20-205	ENSMUST00000146509.7	1458	No protein	Retained intron	-	-	TSL:1

The strategy is based on the design of *Arhgap20-201* transcript,the transcription is shown below:



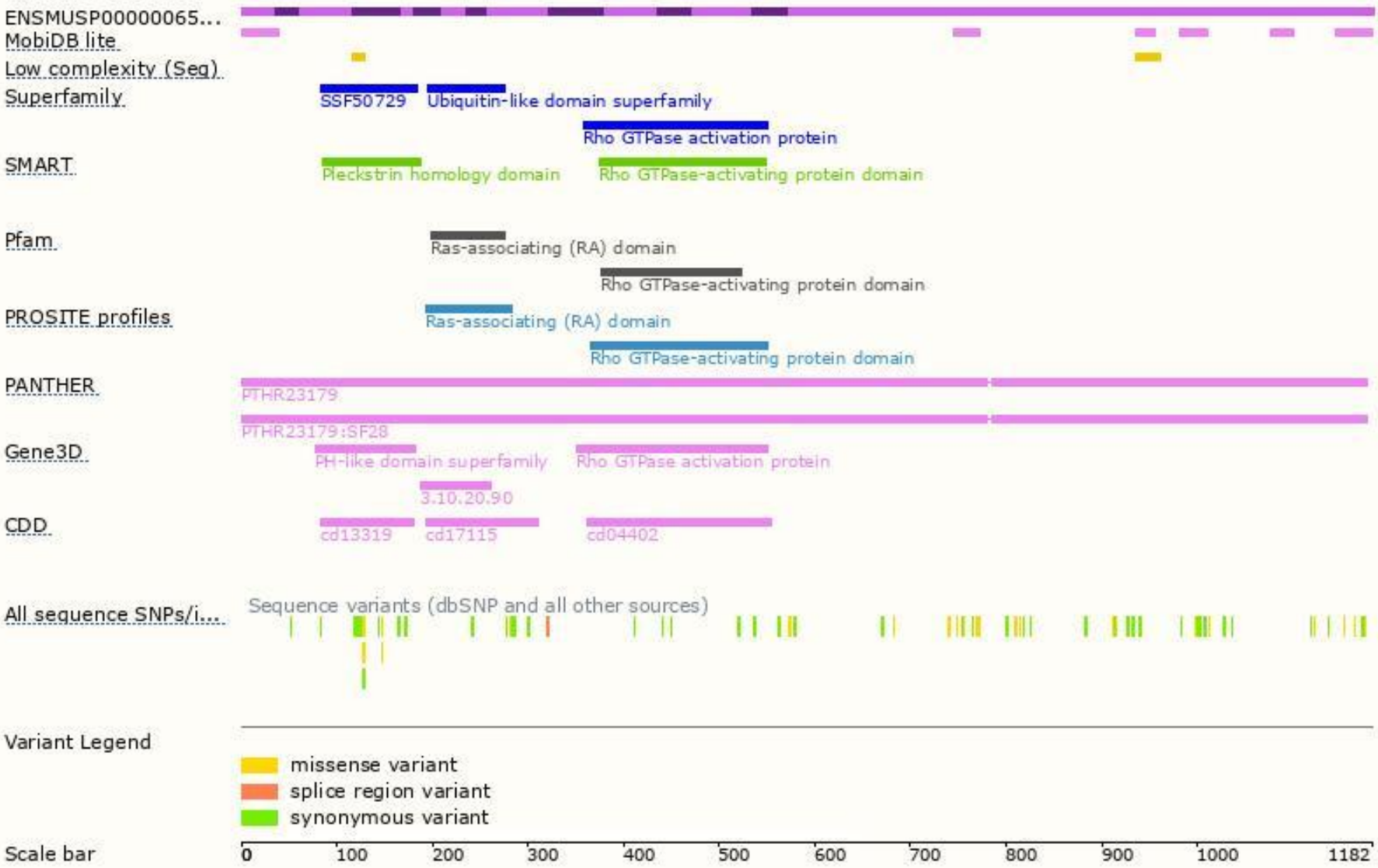
Genomic location distribution



Protein domain



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

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