

Arhgef19 Cas9-CKO Strategy

Designer: Xueting Zhang

Reviewer: Daohua Xu

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Project Overview

Project Name

Arhgef19

Project type

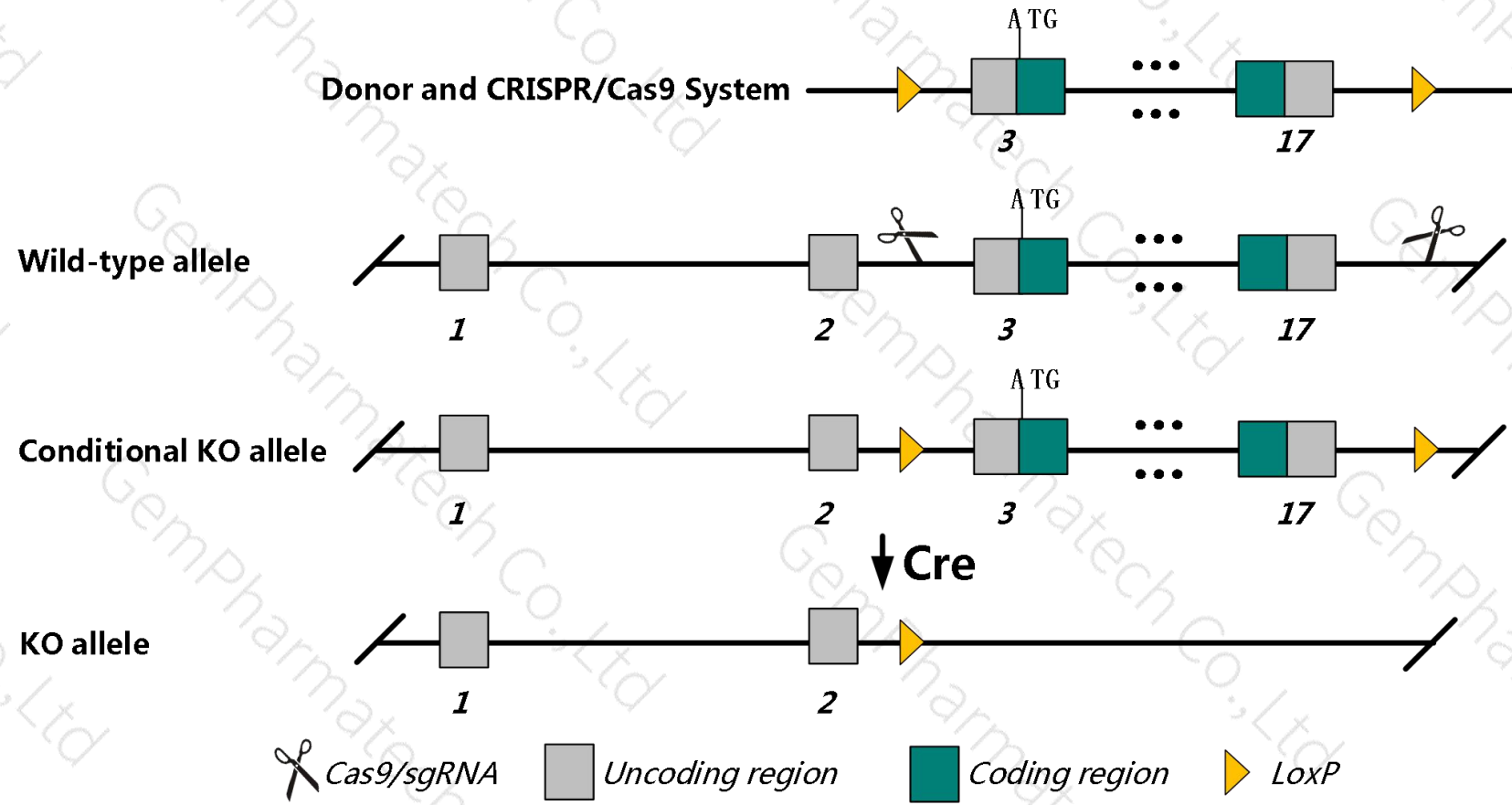
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Arhgef19* gene. The schematic diagram is as follows:



- The *Arhgef19* gene has 8 transcripts. According to the structure of *Arhgef19* gene, exon3-exon17 of *Arhgef19-201*(ENSMUST00000006618.8) transcript is recommended as the knockout region. The region contains all of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Arhgef19* 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.

- The *Arhgef19* gene is located on the Chr4. 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)

Arhgef19 Rho guanine nucleotide exchange factor (GEF) 19 [Mus musculus (house mouse)]

Gene ID: 213649, updated on 13-Mar-2020

Summary



Official Symbol Arhgef19 provided by [MGI](#)

Official Full Name Rho guanine nucleotide exchange factor (GEF) 19 provided by [MGI](#)

Primary source [MGI:MGI:1925912](#)

See related [Ensembl:ENSMUSG00000028919](#)

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 6030432F23, 6430573B13Rik, WGEF

Expression Broad expression in adrenal adult (RPKM 12.6), duodenum adult (RPKM 12.6) and 19 other tissues [See more](#)

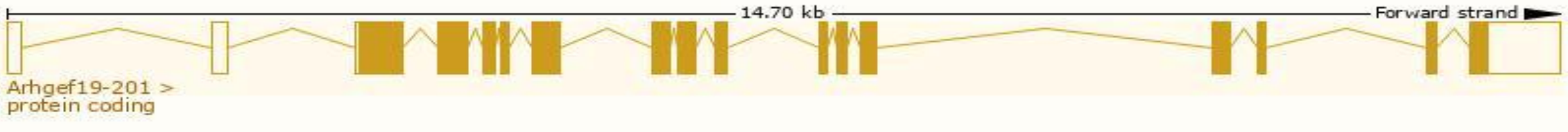
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

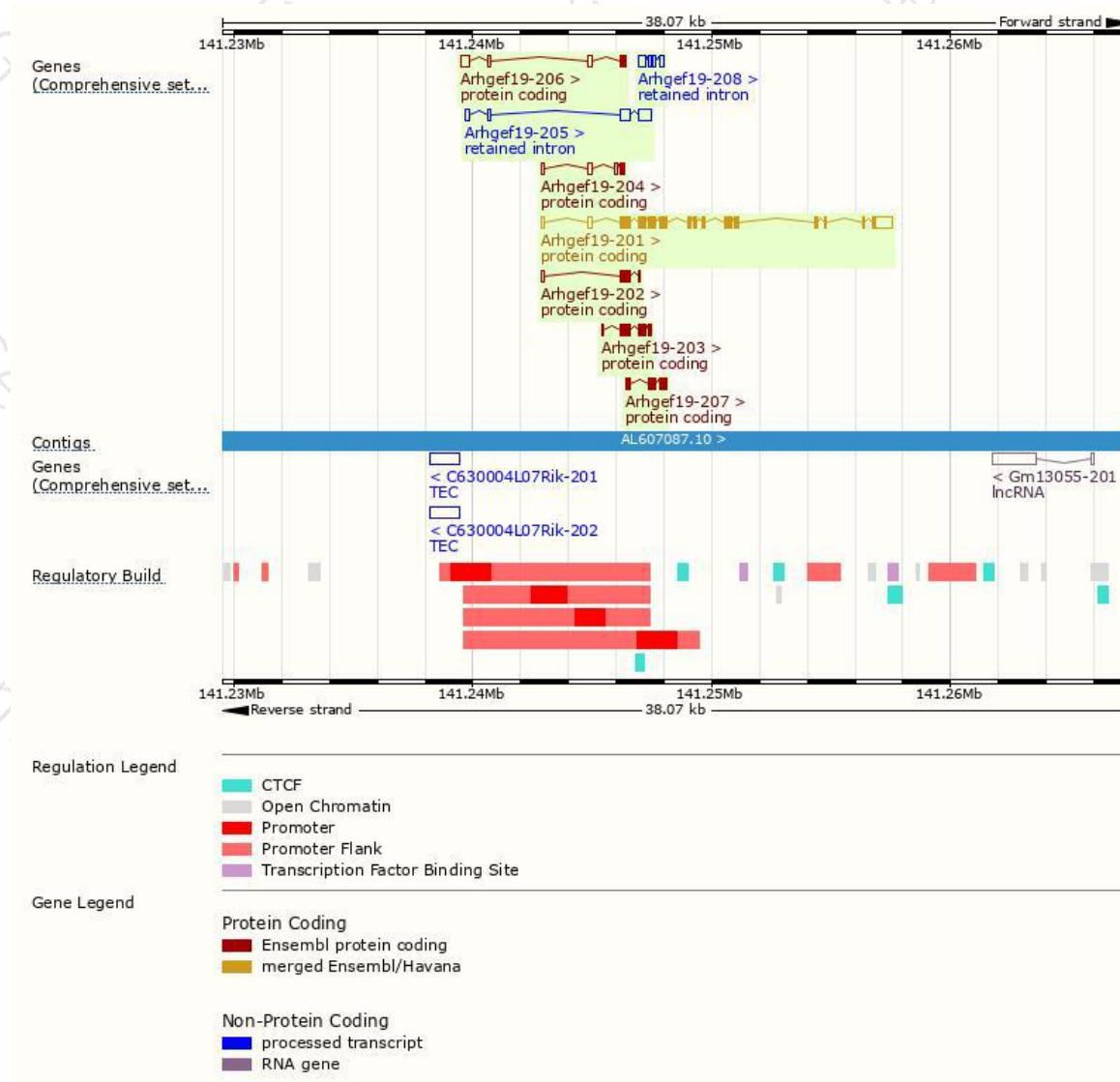
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Arhgef19-201	ENSMUST00000006618.8	3414	802aa	Protein coding	CCDS18868	Q8BWA8	TSL:1 GENCODE basic APPRIS P1
Arhgef19-206	ENSMUST00000141834.8	872	69aa	Protein coding	-	A2A828	CDS 3' incomplete TSL:2
Arhgef19-203	ENSMUST00000135623.2	832	251aa	Protein coding	-	A2A826	CDS 3' incomplete TSL:5
Arhgef19-207	ENSMUST00000147903.2	663	221aa	Protein coding	-	A2A832	CDS 5' and 3' incomplete TSL:3
Arhgef19-202	ENSMUST00000125392.7	606	153aa	Protein coding	-	A2A829	CDS 3' incomplete TSL:3
Arhgef19-204	ENSMUST00000138096.7	594	51aa	Protein coding	-	A2A827	CDS 3' incomplete TSL:5
Arhgef19-205	ENSMUST00000140536.2	1311	No protein	Retained intron	-	-	TSL:3
Arhgef19-208	ENSMUST00000184162.1	621	No protein	Retained intron	-	-	TSL:3

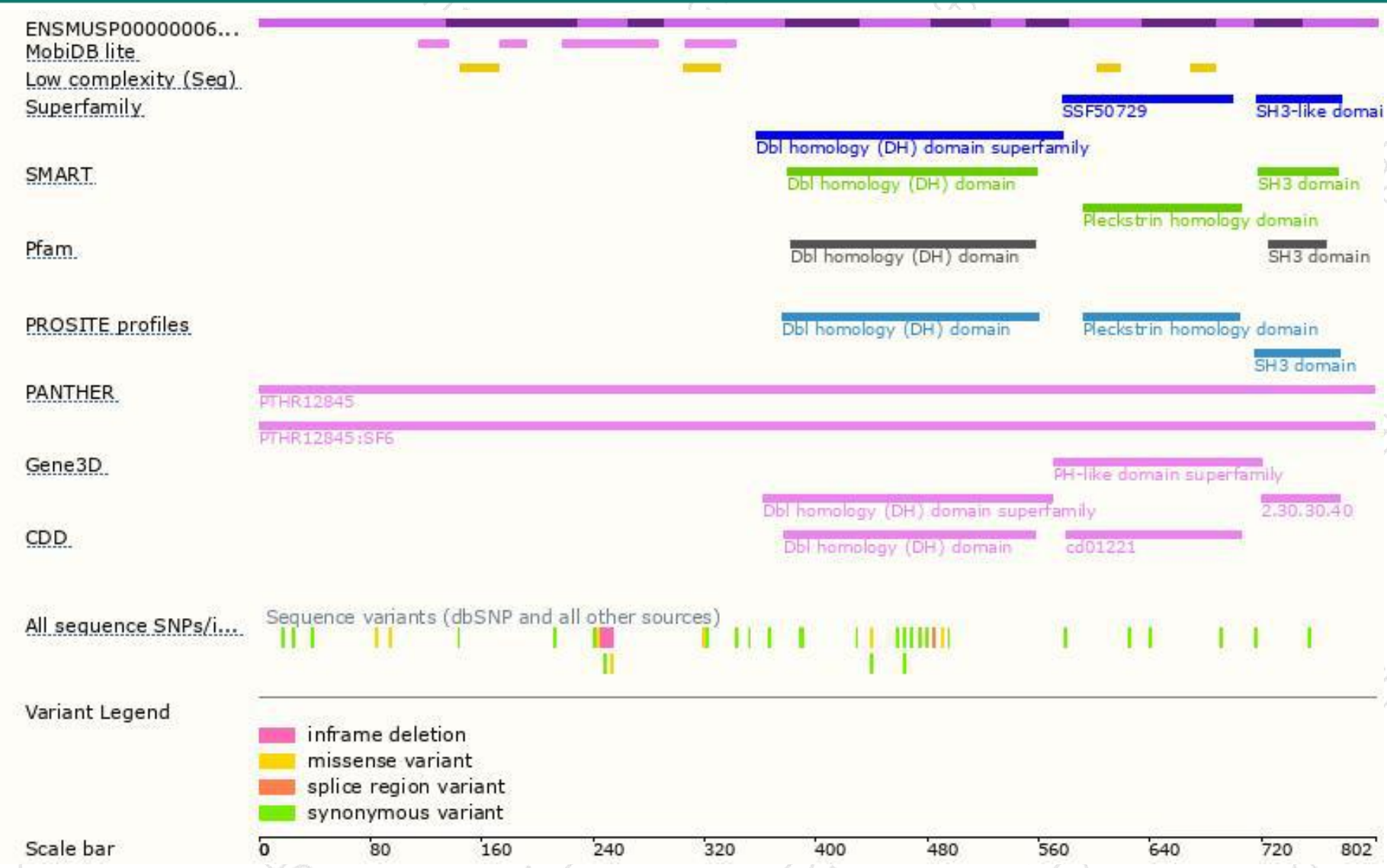
The strategy is based on the design of *Arhgef19-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

Tel: 025-5864 1534

