

Arhgap24 Cas9-CKO Strategy

Designer: Xueting Zhang

Reviewer: Daohua Xu

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Project Overview

Project Name

Arhgap24

Project type

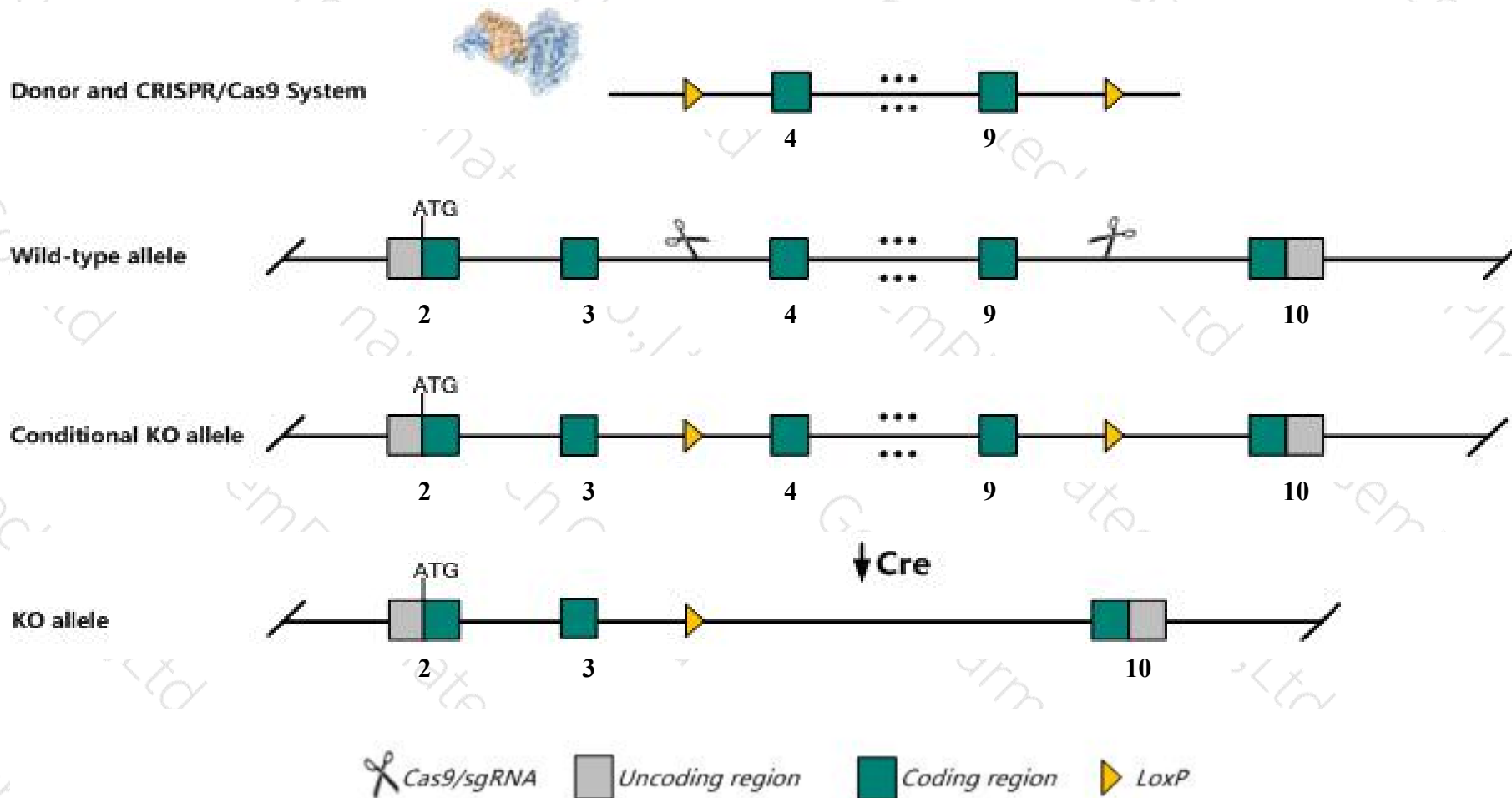
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Arhgap24* gene. The schematic diagram is as follows:



Technical routes

- The *Arhgap24* gene has 8 transcripts. According to the structure of *Arhgap24* gene, exon4-exon9 of *Arhgap24*-203(ENSMUST00000094559.8) transcript is recommended as the knockout region. The region contains 1738bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Arhgap24* 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.

Notice

- The *Arhgap24* gene is located on the Chr5. 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.
- Transcript *Arhgap24-207* may not be affected.
- 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)

Arhgap24 Rho GTPase activating protein 24 [Mus musculus (house mouse)]

Gene ID: 231532, updated on 13-Mar-2020

Summary



Official Symbol	Arhgap24 provided by MGI
Official Full Name	Rho GTPase activating protein 24 provided by MGI
Primary source	MGI:MGI:1922647
See related	Ensembl:ENSMUSG00000057315
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	0610025G21Rik
Expression	Biased expression in kidney adult (RPKM 13.2), bladder adult (RPKM 1.9) and 11 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

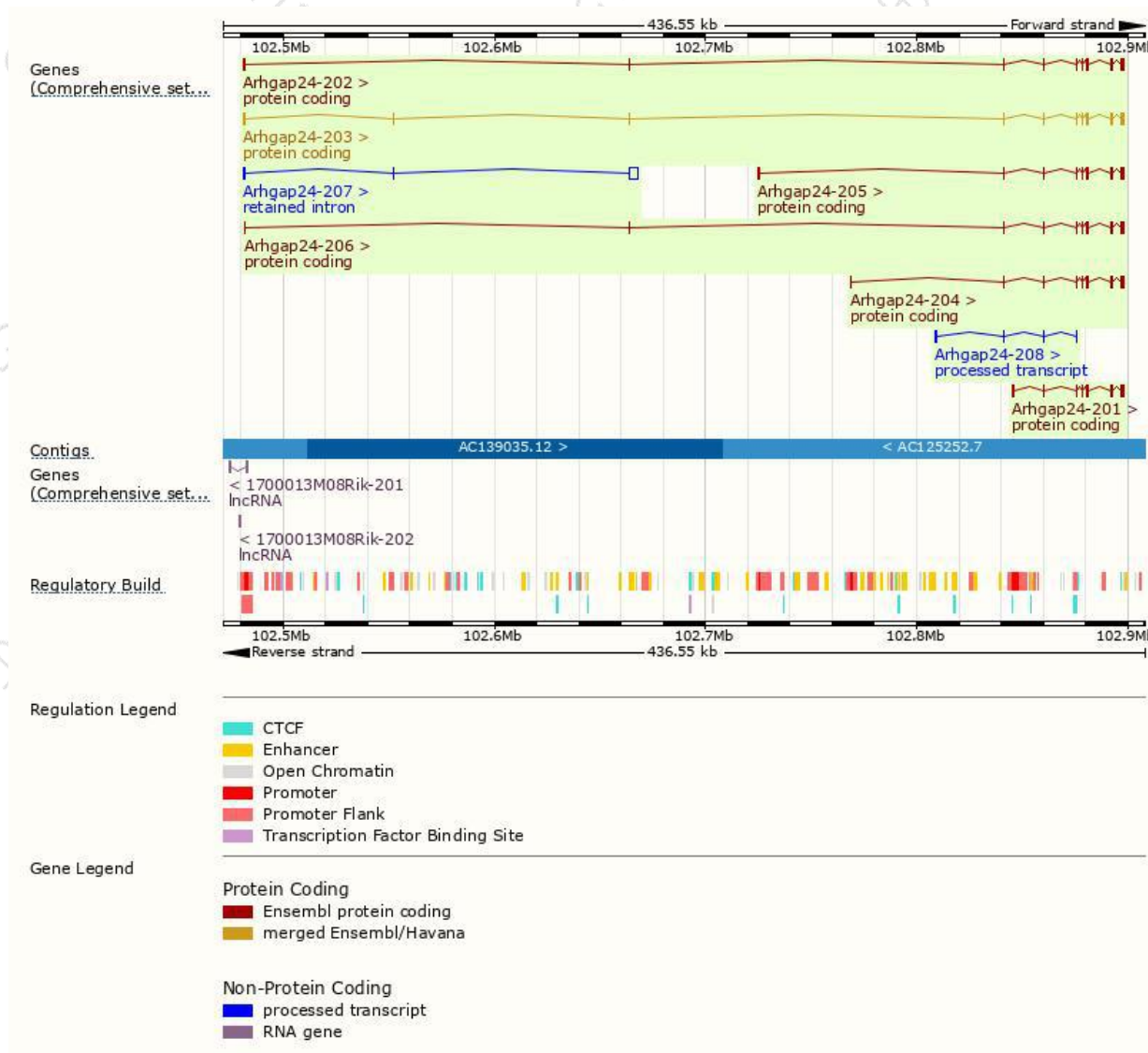
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Arhgap24-201	ENSMUST00000070000.5	3632	657aa	Protein coding	CCDS84922	D3Z5T4	TSL:5 GENCODE basic
Arhgap24-203	ENSMUST00000094559.8	3346	747aa	Protein coding	CCDS19474	G3X9N1	TSL:1 GENCODE basic APPRIS P1
Arhgap24-202	ENSMUST00000073302.11	3151	654aa	Protein coding	CCDS19475	Q8C4V1	TSL:1 GENCODE basic
Arhgap24-206	ENSMUST00000112854.7	2991	654aa	Protein coding	CCDS19475	Q8C4V1	TSL:5 GENCODE basic
Arhgap24-205	ENSMUST00000112853.7	2853	654aa	Protein coding	CCDS19475	Q8C4V1	TSL:5 GENCODE basic
Arhgap24-204	ENSMUST00000112852.7	2783	654aa	Protein coding	CCDS19475	Q8C4V1	TSL:1 GENCODE basic
Arhgap24-208	ENSMUST00000130222.1	632	No protein	Processed transcript	-	-	TSL:3
Arhgap24-207	ENSMUST00000126125.1	4277	No protein	Retained intron	-	-	TSL:1

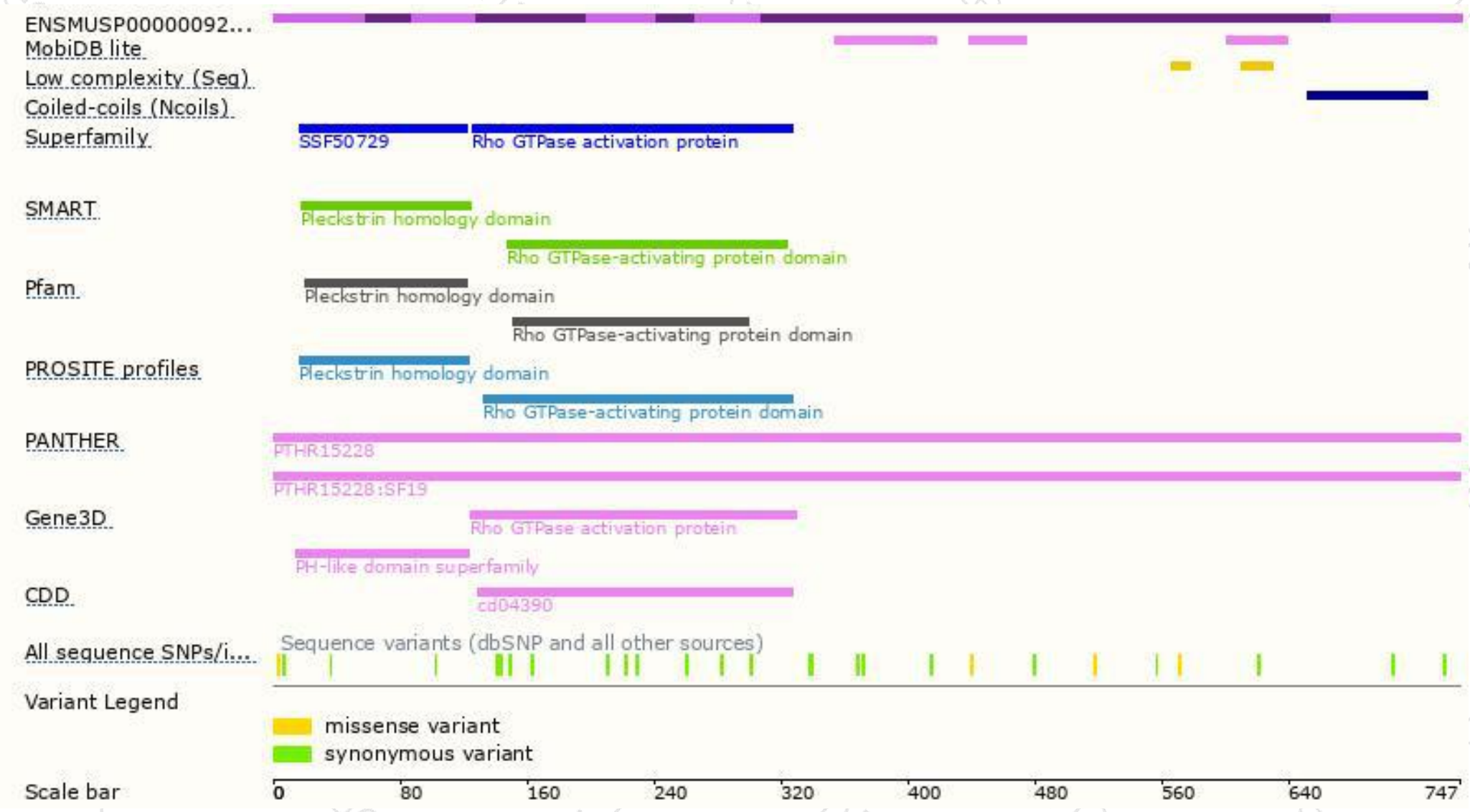
The strategy is based on the design of *Arhgap24-203* transcript,the transcription is shown below:



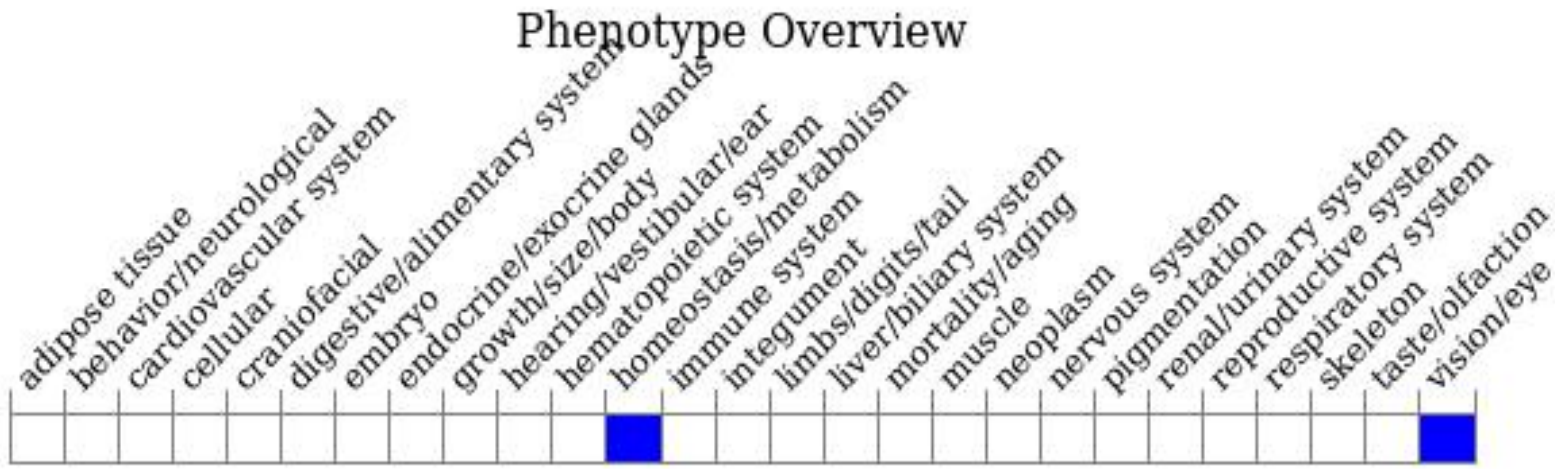
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



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

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

Tel: 025-5864 1534

