

Arfgap3 Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Arfgap3

Project type

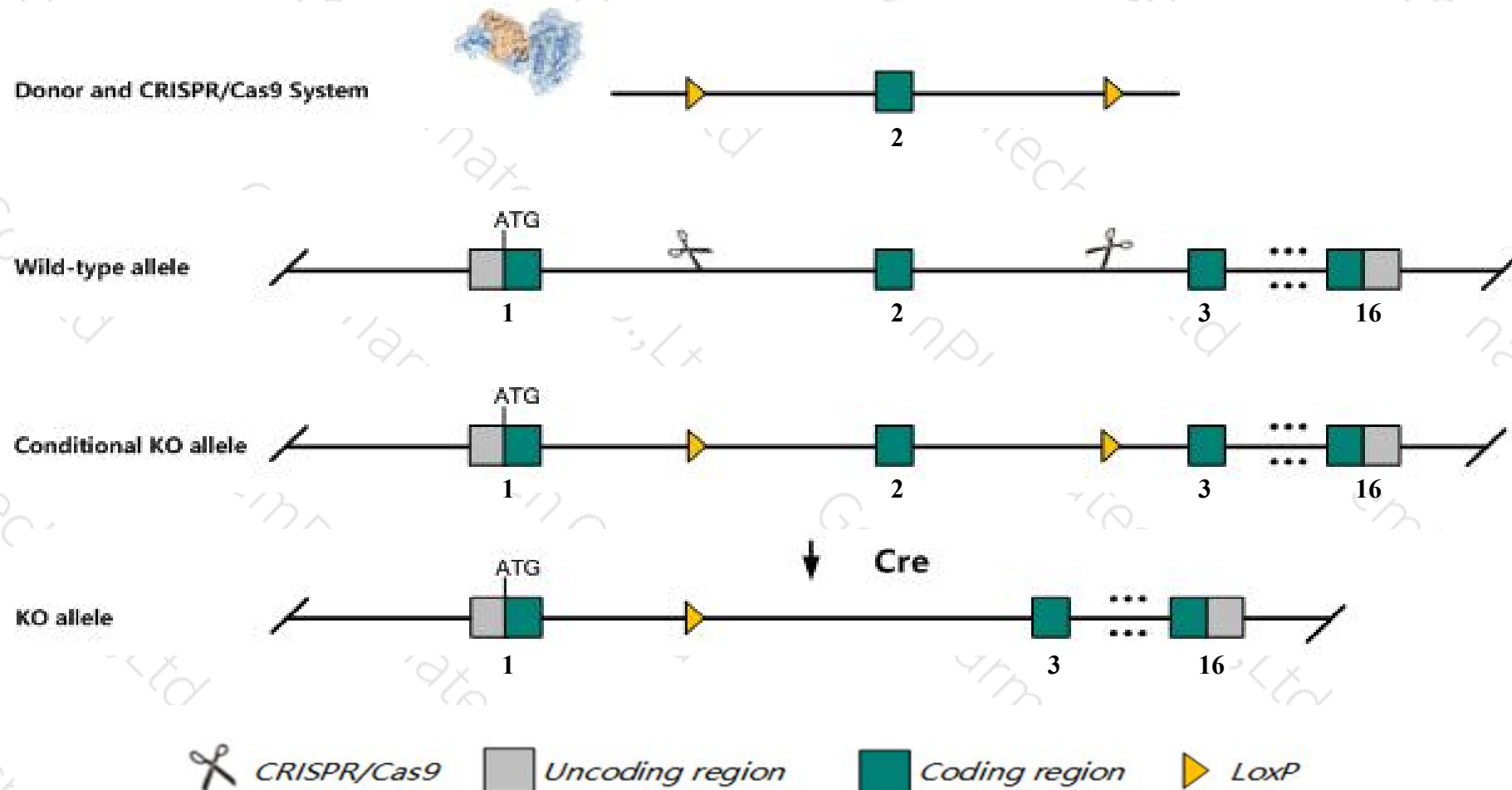
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Arfgap3* gene. The schematic diagram is as follows:



- The *Arfgap3* gene has 6 transcripts. According to the structure of *Arfgap3* gene, exon2 of *Arfgap3-201* (ENSMUST00000067215.8) transcript is recommended as the knockout region. The region contains 119bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Arfgap3* gene. The brief process is as follows: CRISPR/Cas9 system 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 will be 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 *Arfgap3* gene is located on the Chr15. 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 *Arfgap3-204* 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)

Arfgap3 ADP-ribosylation factor GTPase activating protein 3 [Mus musculus (house mouse)]

Gene ID: 66251, updated on 31-Jan-2019

Summary



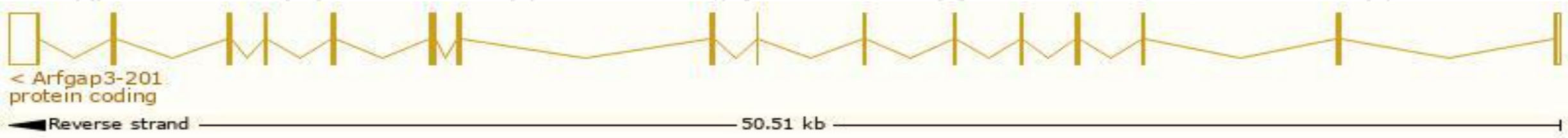
Official Symbol	Arfgap3 provided by MGI
Official Full Name	ADP-ribosylation factor GTPase activating protein 3 provided by MGI
Primary source	MGI:MGI:1913501
See related	Ensembl:ENSMUSG00000054277
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	0610009H19Rik, 1810004P07Rik, 1810035F16Rik, 9130416J18Rik, Arfgap1
Expression	Ubiquitous expression in testis adult (RPKM 30.0), colon adult (RPKM 25.7) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

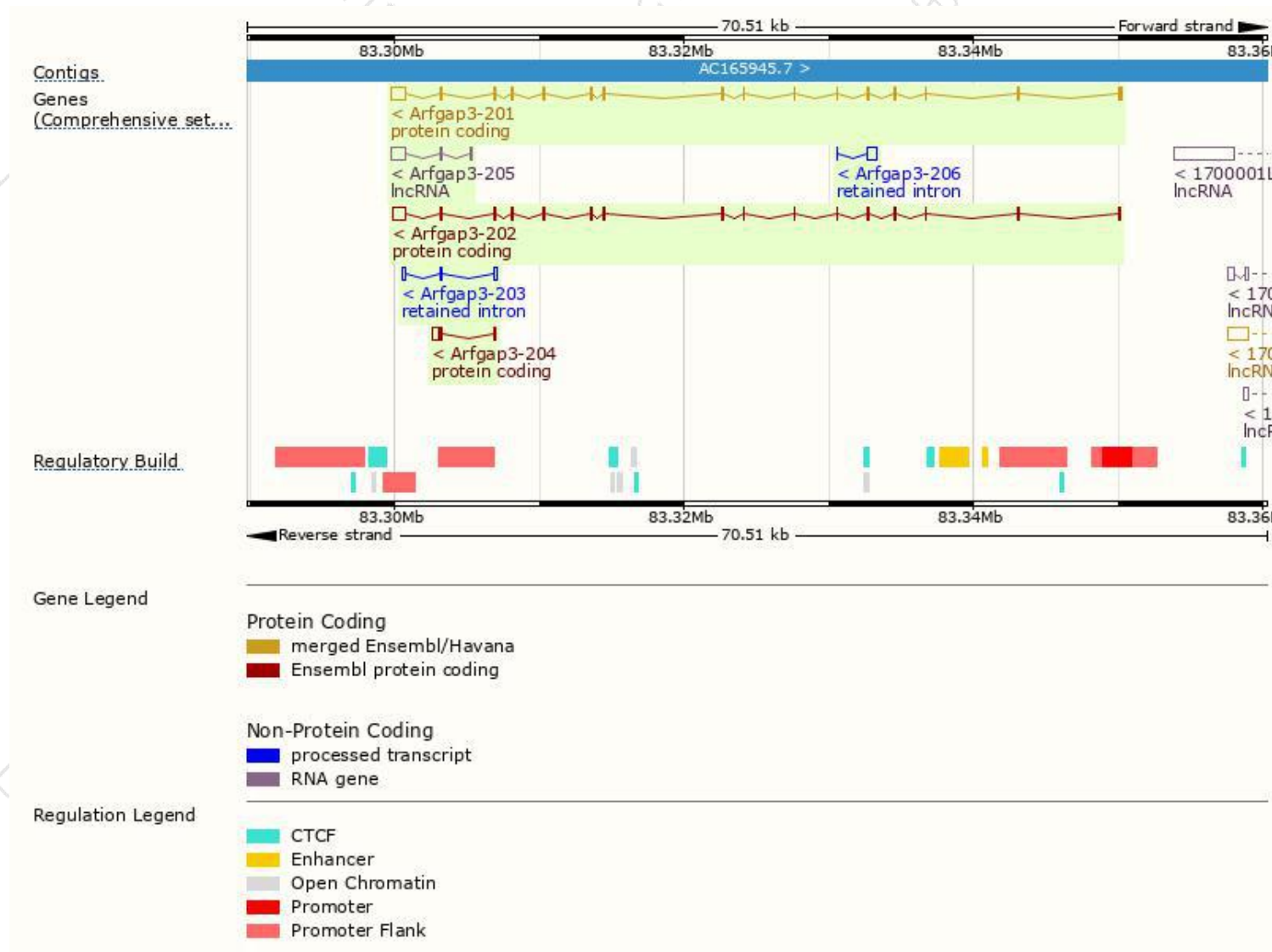
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Arfgap3-201	ENSMUST00000067215.8	2619	524aa	Protein coding	CCDS49683	A0A0R4J0T8	TSL:1 GENCODE basic APPRIS P2
Arfgap3-202	ENSMUST00000226124.1	2461	523aa	Protein coding	-	Q9D8S3	GENCODE basic APPRIS ALT2
Arfgap3-204	ENSMUST00000226764.1	741	105aa	Protein coding	-	A0A2I3BQY0	CDS 5' incomplete
Arfgap3-206	ENSMUST00000227511.1	600	No protein	Retained intron	-	-	
Arfgap3-203	ENSMUST00000226411.1	493	No protein	Retained intron	-	-	
Arfgap3-205	ENSMUST00000226816.1	1186	No protein	lncRNA	-	-	

The strategy is based on the design of *Arfgap3-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain

ENSMUSP000000064...

[MobiDB lite](#)

[Low complexity \(Seg\)](#)

[Superfamily](#)

[SMART](#)

[Prints](#)

[Pfam](#)

[PROSITE profiles](#)

[PANTHER](#)

[Gene3D](#)

[All sequence SNPs/i....](#)

[Variant Legend](#)

[Scale bar](#)



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

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