

Arpc2 Cas9-KO Strategy

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Project Overview

Project Name

Arpc2

Project type

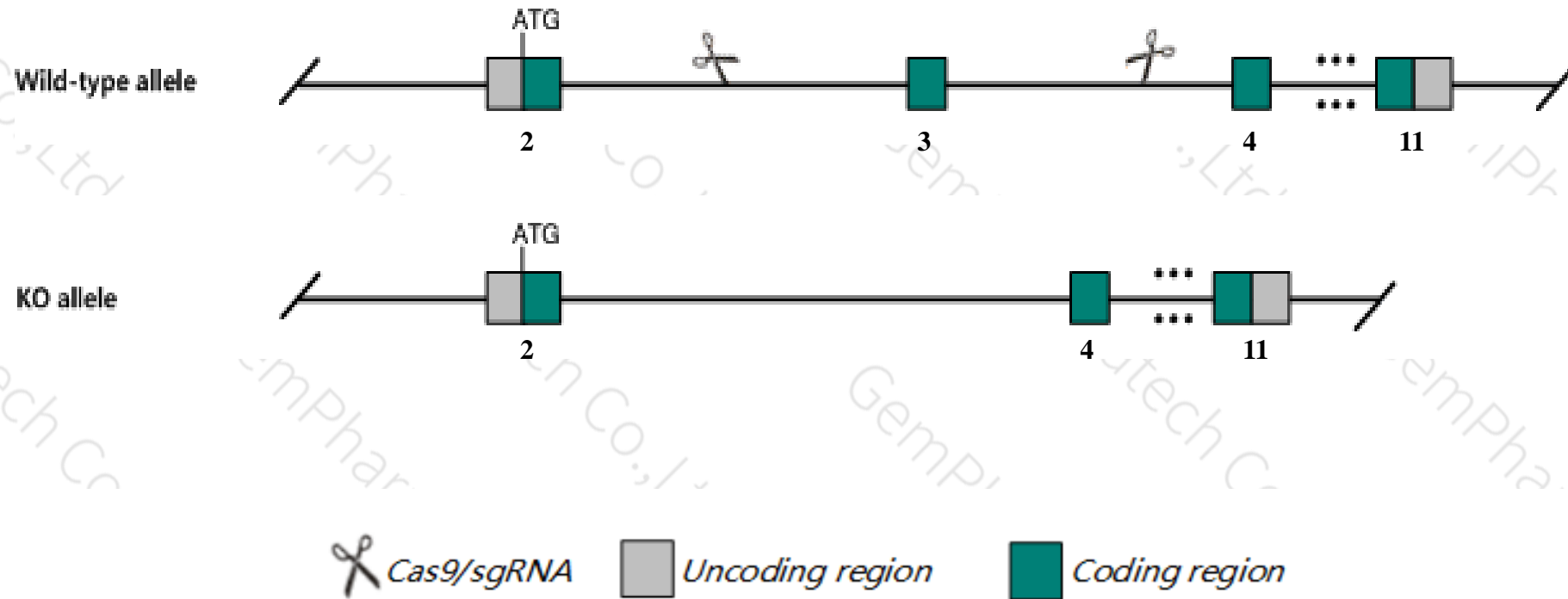
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Arpc2* gene. The schematic diagram is as follows:



- The *Arpc2* gene has 4 transcripts. According to the structure of *Arpc2* gene, exon3 of *Arpc2*-203(ENSMUST00000113820.8) transcript is recommended as the knockout region. The region contains 35bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Arpc2* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA 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 *Arpc2* gene is located on the Chr1. 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 *Arpc2*-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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Arpc2 actin related protein 2/3 complex, subunit 2 [Mus musculus (house mouse)]

Gene ID: 76709, updated on 13-Mar-2020

Summary



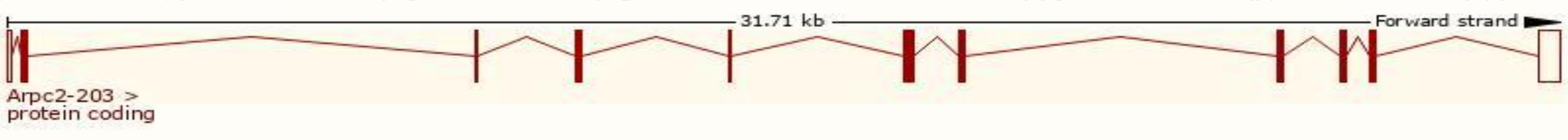
Official Symbol	Arpc2 provided by MGI
Official Full Name	actin related protein 2/3 complex, subunit 2 provided by MGI
Primary source	MGI:MGI:1923959
See related	Ensembl:ENSMUSG00000006304
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2210023N03Rik, 34kDa, p34-Arc
Expression	Ubiquitous expression in placenta adult (RPKM 131.5), bladder adult (RPKM 118.3) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

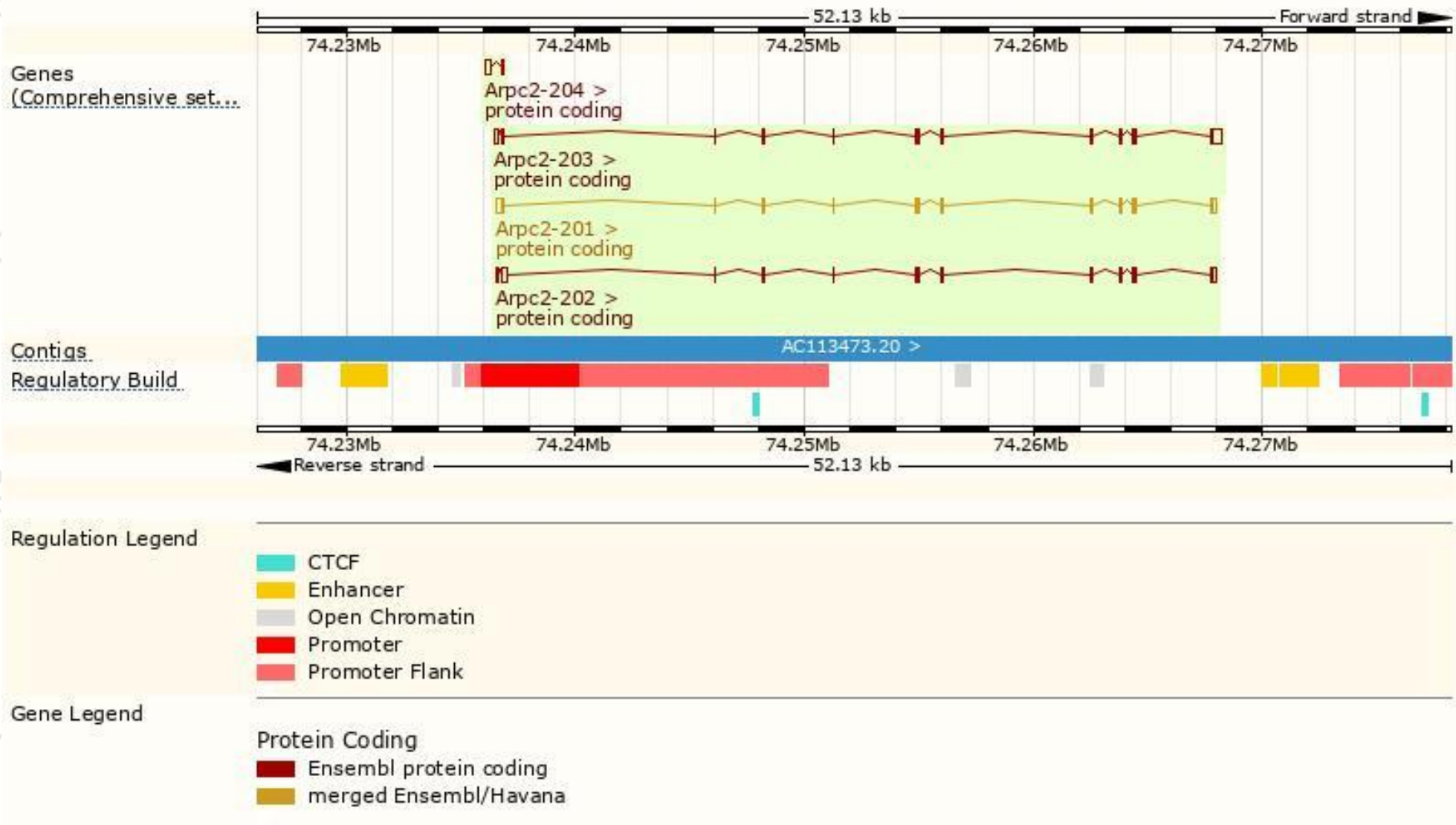
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Arpc2-203	ENSMUST00000113820.8	1439	300aa	Protein coding	CCDS35612	Q9CVB6	TSL:1 GENCODE basic APPRIS P1
Arpc2-201	ENSMUST00000006467.13	1404	300aa	Protein coding	CCDS35612	Q9CVB6	TSL:1 GENCODE basic APPRIS P1
Arpc2-202	ENSMUST00000113819.1	1313	284aa	Protein coding	-	D3YXG6	TSL:5 GENCODE basic
Arpc2-204	ENSMUST00000185733.1	310	26aa	Protein coding	-	A0A087WRT2	CDS 3' incomplete TSL:3

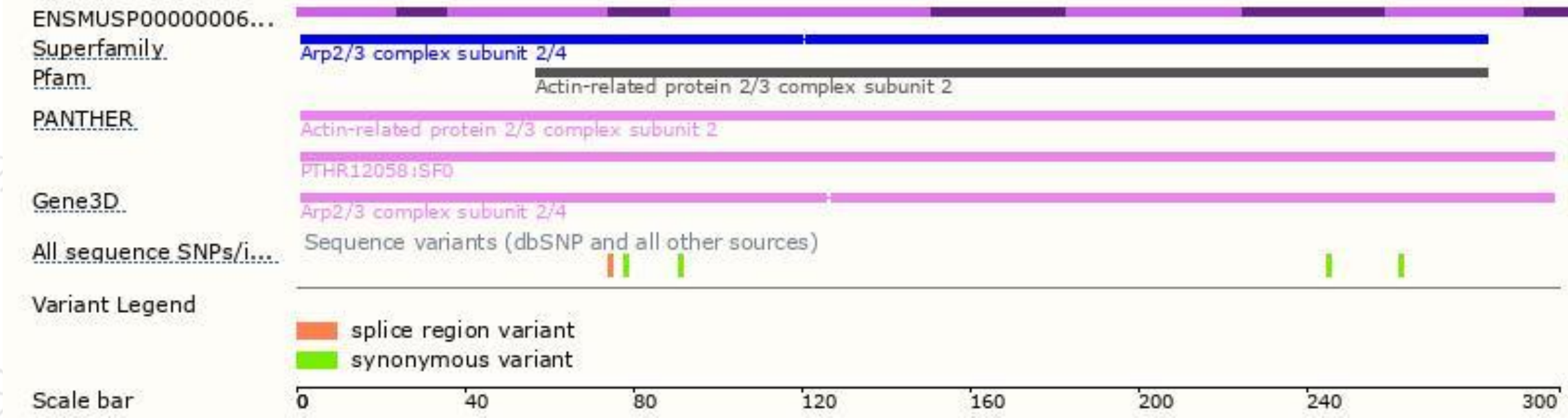
The strategy is based on the design of *Arpc2-203* transcript,the transcription is shown below:



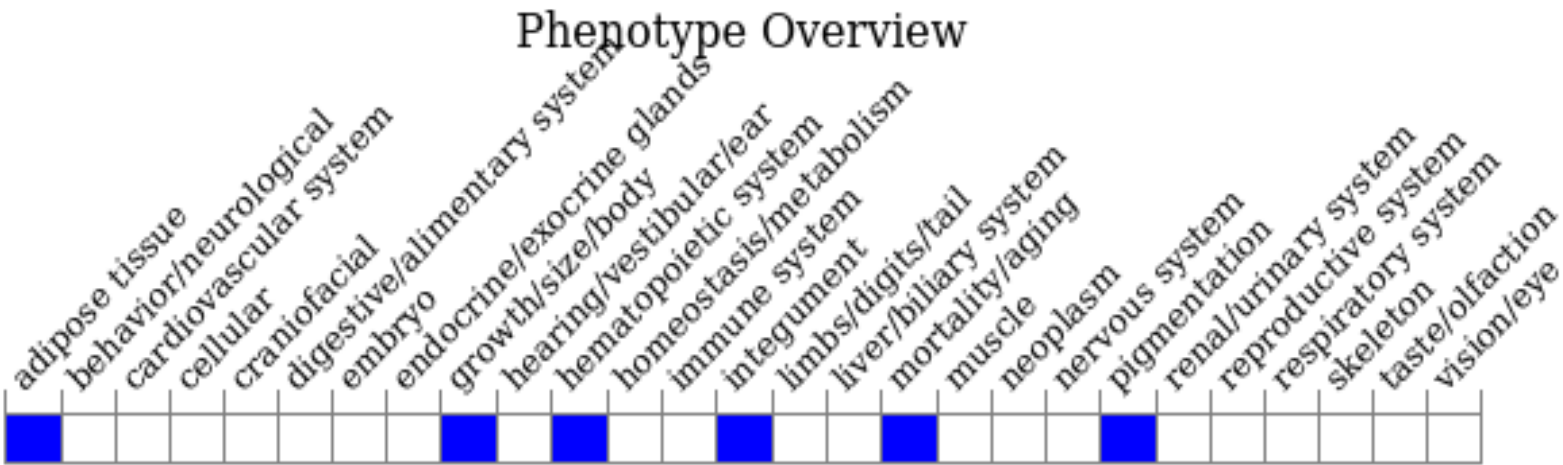
Genomic location distribution



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.

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