

Arl1 Cas9-CKO Strategy

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Project Overview

Project Name

Arl1

Project type

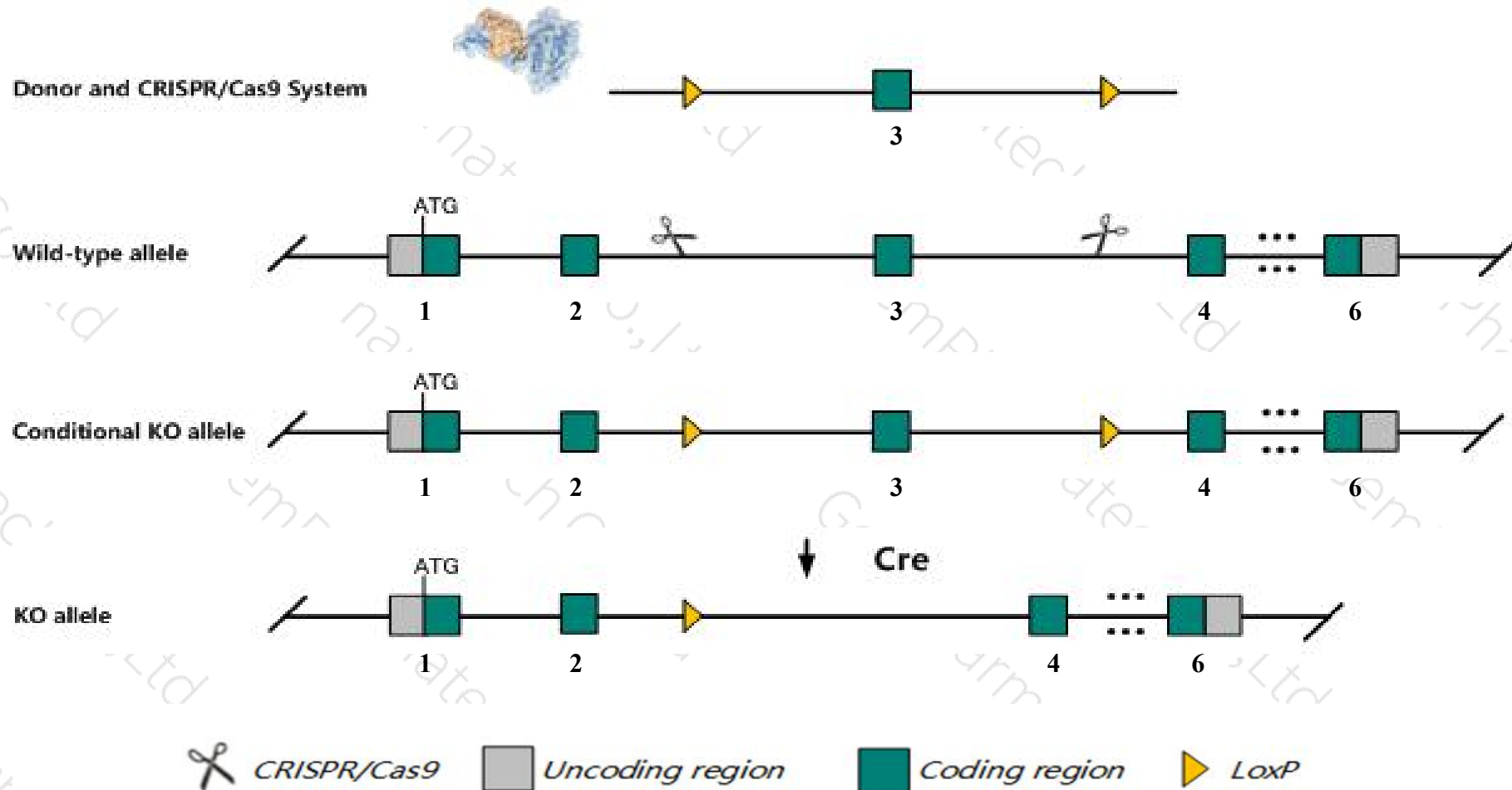
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Arll1* gene. The schematic diagram is as follows:



- The *Arll* gene has 3 transcripts. According to the structure of *Arll* gene, exon3 of *Arll*-202 (ENSMUST00000116234.8) transcript is recommended as the knockout region. The region contains 82bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Arll* 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.

Notice

- Transcript Arl1-201, Arl1-203 may not be affected.
- The *Arl1* gene is located on the Chr10. 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)

Arl1 ADP-ribosylation factor-like 1 [Mus musculus (house mouse)]

Gene ID: 104303, updated on 13-Mar-2020

Summary



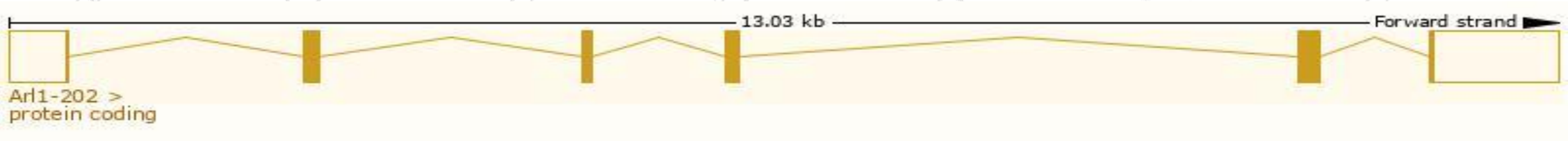
Official Symbol	Arl1 provided by MGI
Official Full Name	ADP-ribosylation factor-like 1 provided by MGI
Primary source	MGI:MGI:99436
See related	Ensembl:ENSMUSG00000060904
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2310008D22Rik, AU019749
Expression	Ubiquitous expression in bladder adult (RPKM 60.6), placenta adult (RPKM 54.1) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

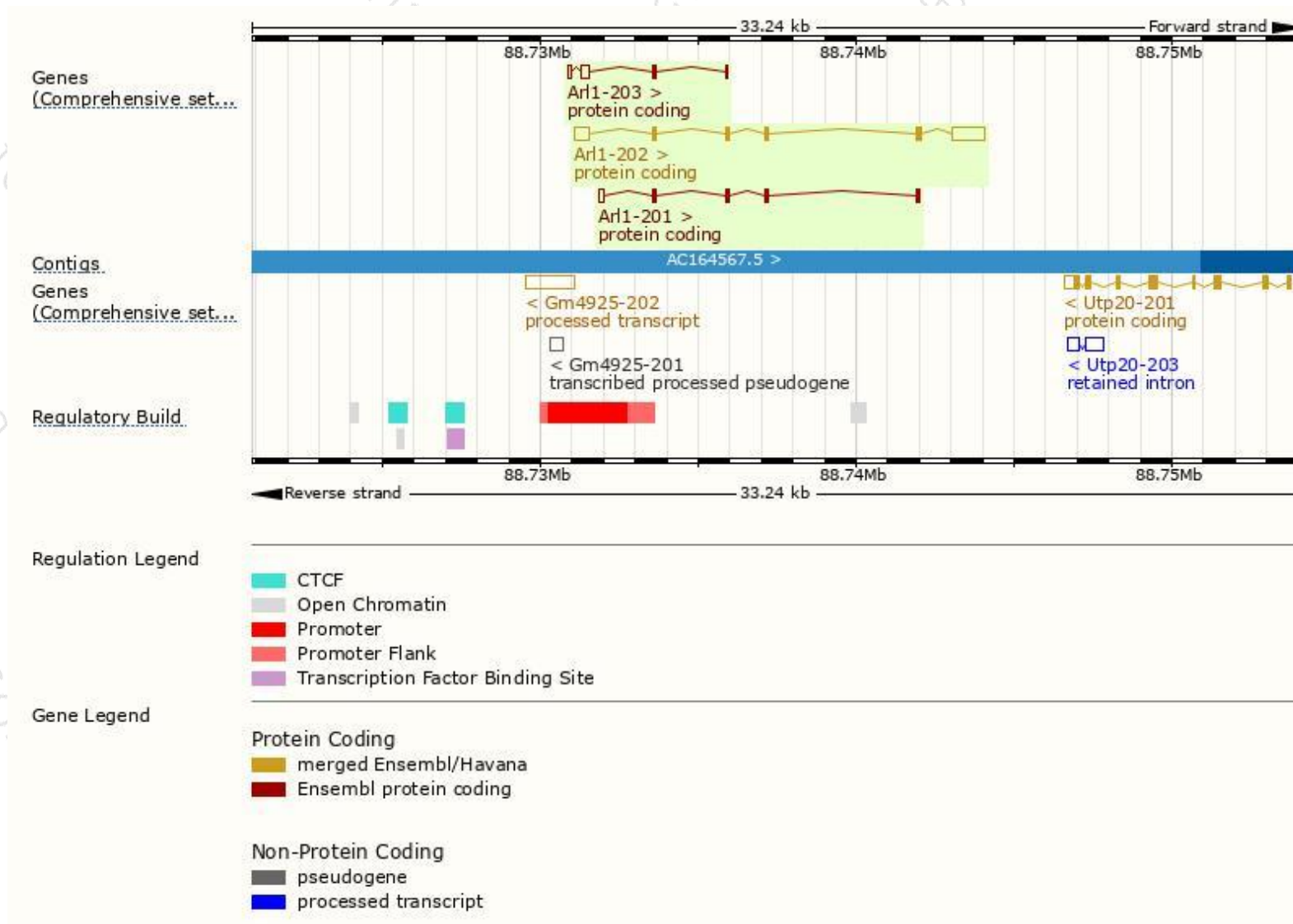
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Arl1-202	ENSMUST00000116234.8	2080	181aa	Protein coding	CCDS36025	P61211_Q14AC7	TSL:1 GENCODE basic APPRIS is a system to annotate alternatively spliced transcripts based on a range of computational methods to identify the most functionally important transcript(s) of a gene. APPRIS P1
Arl1-201	ENSMUST00000080379.6	622	138aa	Protein coding	-	F8WIB1	CDS 3' incomplete TSL:3
Arl1-203	ENSMUST00000170137.7	575	52aa	Protein coding	-	E9Q006	CDS 3' incomplete TSL:5

The strategy is based on the design of *Arl1-202* transcript,The transcription is shown below



Genomic location distribution



Protein domain

ENSMUSP00000111...

Low complexity (Seq)

TIGRFAM

Superfamily

SMART

Prints

Pfam

PROSITE profiles

PANTHER

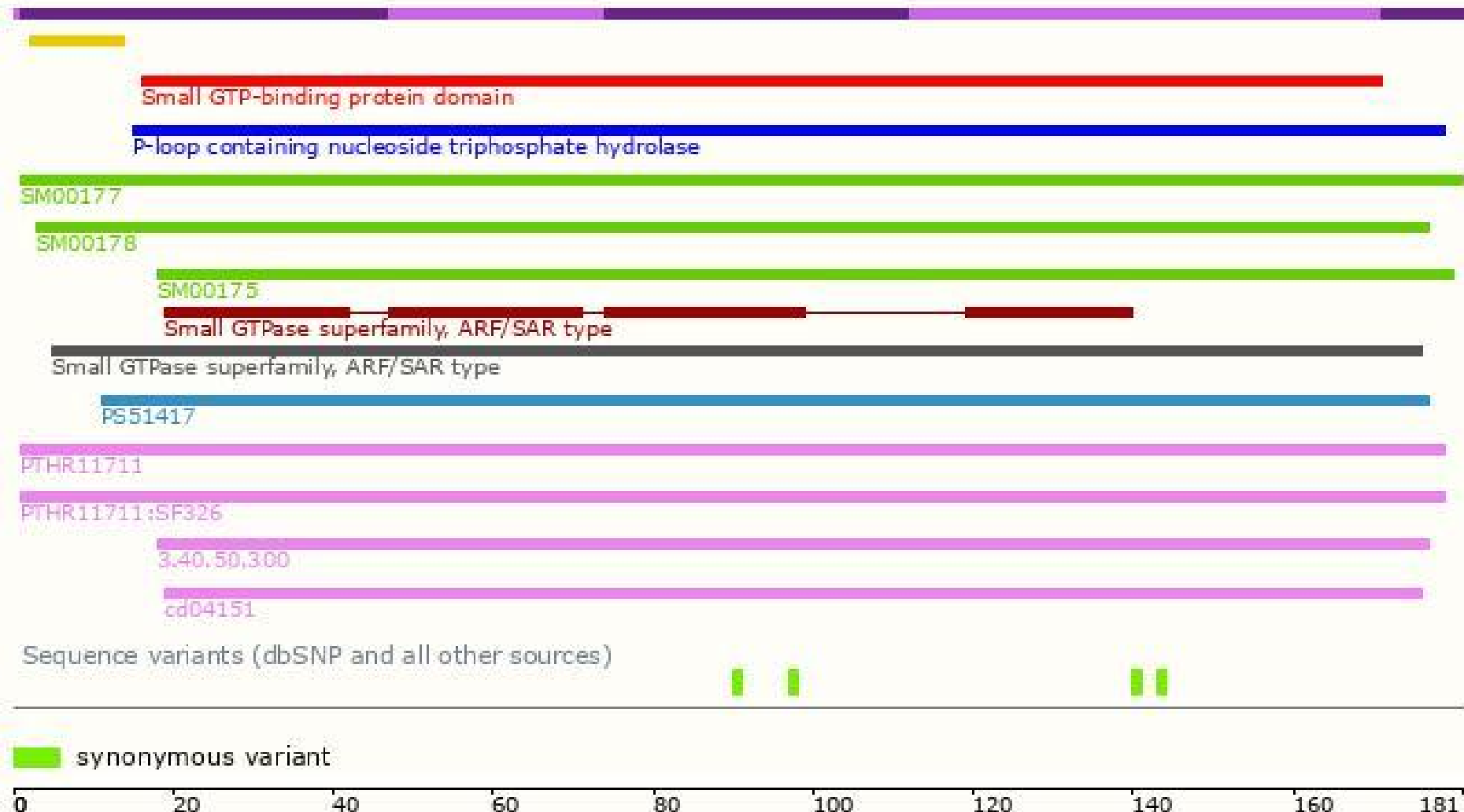
Gene3D

CDD

All sequence SNPs/i...

Variant Legend

Scale bar



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

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