Arl2 Cas9-KO Strategy

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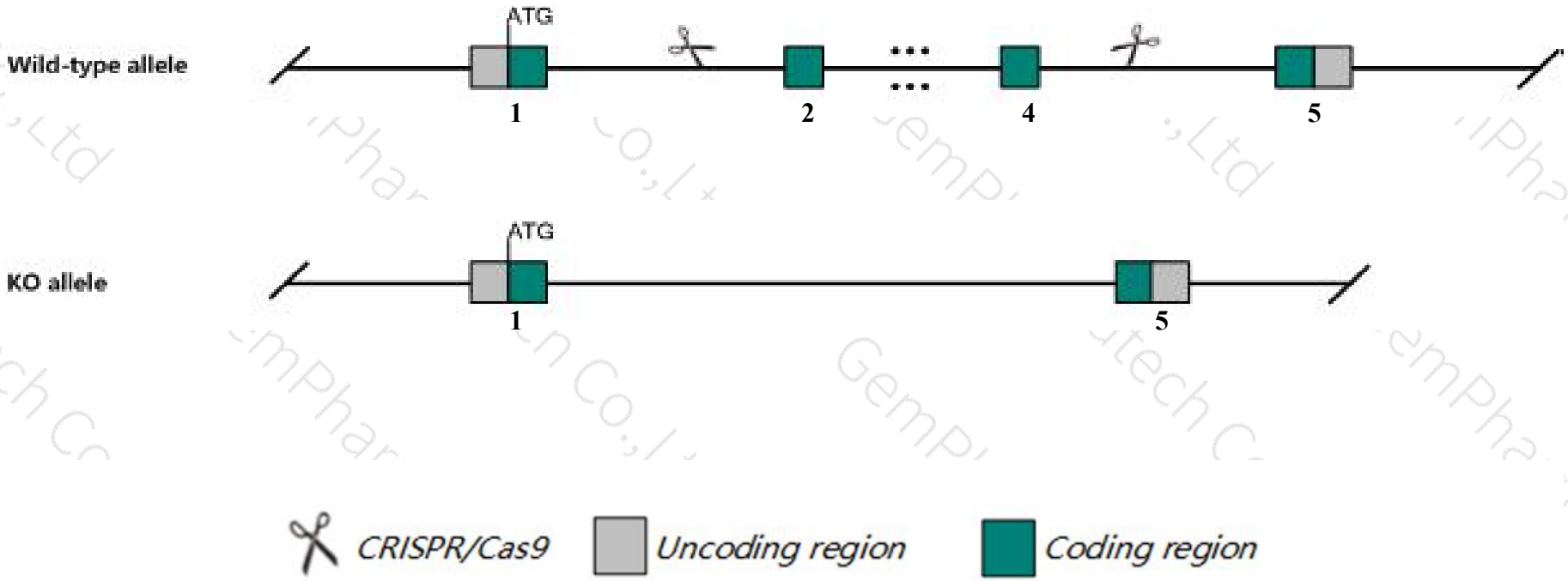
Project Overview

Project Name	***Arl2***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Arl2* gene. The schematic diagram is as follows:



Technical routes

➢ The *Arl2* gene has 5 transcripts. According to the structure of *Arl2* gene, exon2-exon4 of *Arl2-201* (ENSMUST00000025893.6) transcript is recommended as the knockout region.The region contains 355bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Arl2* gene. The brief process is as follows: CRISPR/Cas9 system w

Notice

➢ The *Arl2* gene is located on the Chr19. 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information （NCBI）

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Arl2 ADP-ribosylation factor-like 2 [*Mus musculus* (house mouse)]

Gene ID: 56327, updated on 10-Dec-2019

Summary

Official Symbol	Arl2 provided by MGI
Official Full Name	ADP-ribosylation factor-like 2 provided by MGI
Primary source	MGI:MGI:1928393
See related	Ensembl:ENSMUSG00000024944
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	AI115441; AW553335; 2610009M23Rik
Expression	Ubiquitous expression in adrenal adult (RPKM 136.8), mammary gland adult (RPKM 70.2) and 27 other tissues See more
Orthologs	human all

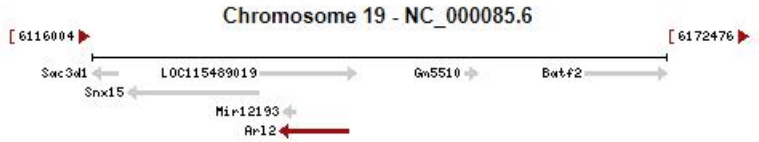
Genomic context

Location: 19; 19 A

See Arl2 in Genome Data Viewer

Exon count: 5

Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	19	NC_000085.6 (6134389..6141137, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	19	NC_000085.5 (6134389..6141137, complement)

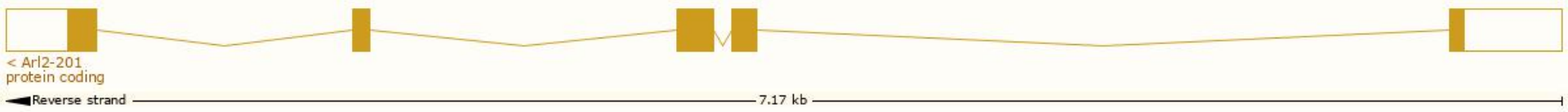


Transcript information（Ensembl）

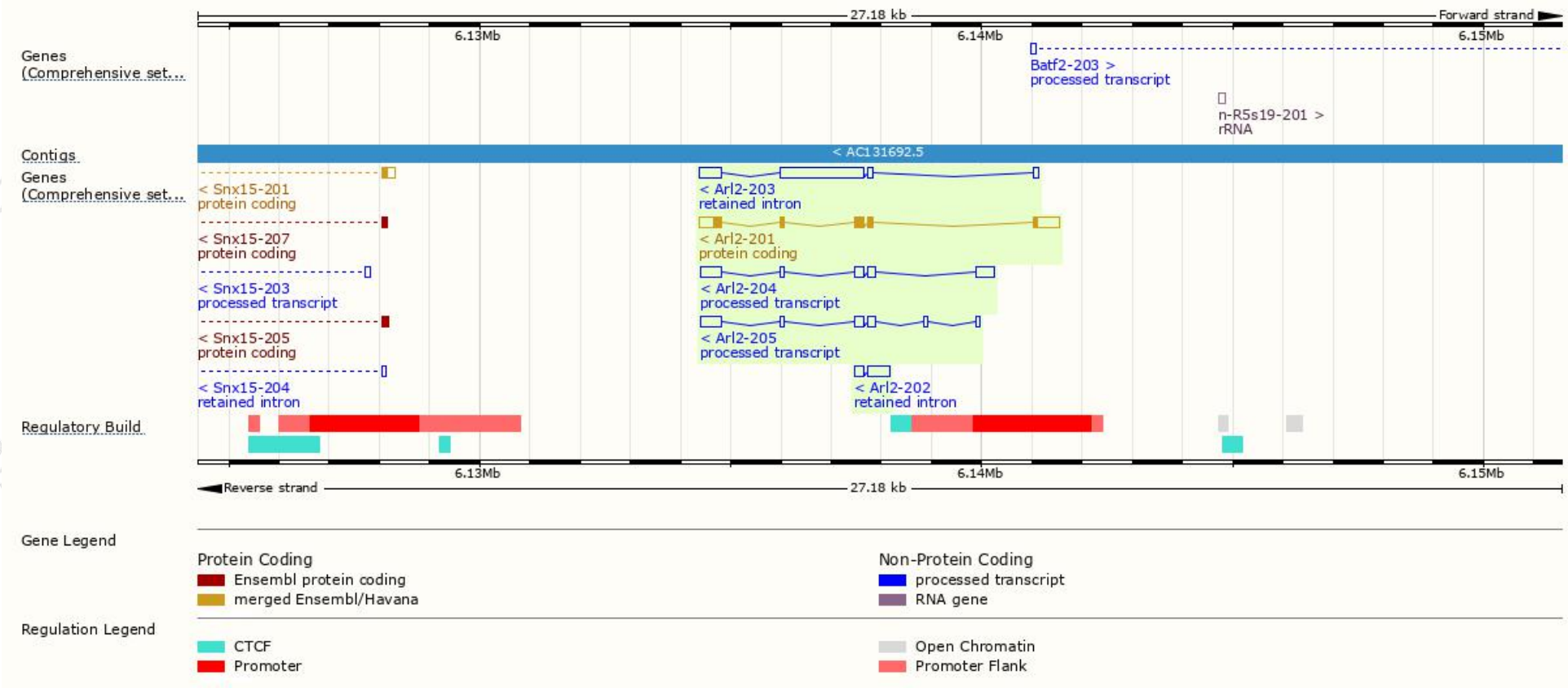
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Arl2-201	ENSMUST00000025893.6	1286	184aa	Protein coding	CCDS29496	Q9D0J4	TSL:1 GENCODE basic APPRIS P1
Arl2-204	ENSMUST00000235200.1	1153	No protein	Processed transcript	-	-	-
Arl2-205	ENSMUST00000236138.1	954	No protein	Processed transcript	-	-	-
Arl2-203	ENSMUST00000134821.1	2305	No protein	Retained intron	-	-	TSL:1
Arl2-202	ENSMUST00000123193.1	602	No protein	Retained intron	-	-	TSL:3

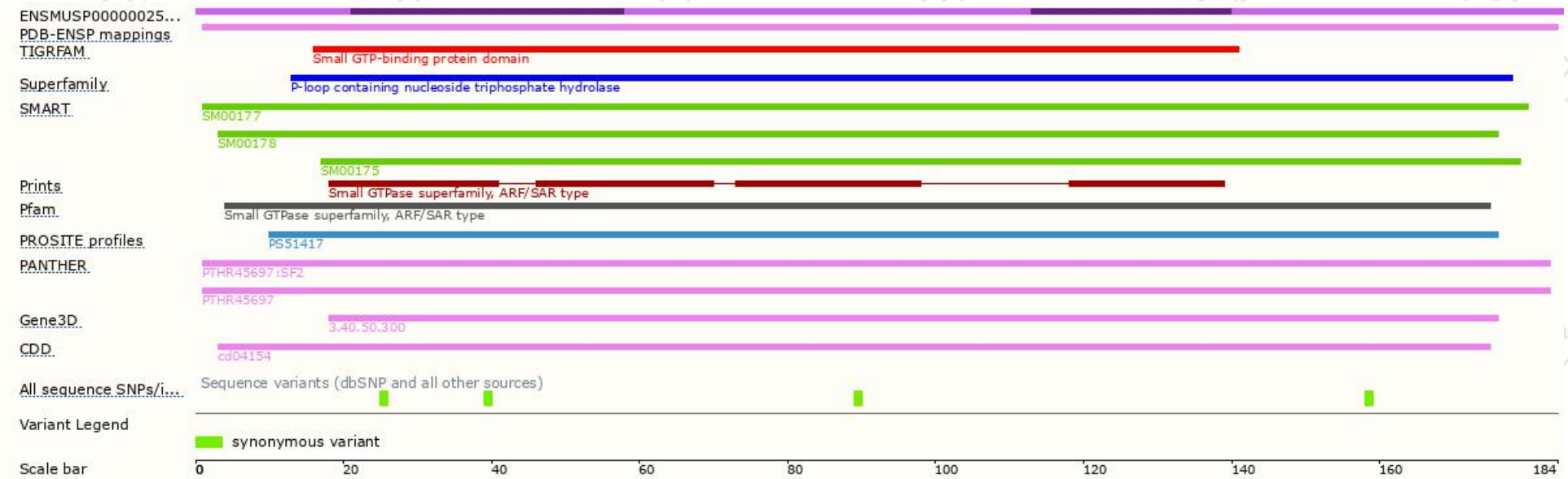
The strategy is based on the design of *Arl2-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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