

***Arl15* Cas9-KO Strategy**

Designer:

Jing Jin

Reviewer:

Yang Zeng

Design Date:

2018-11-2

Project Overview

Project Name

Arl15

Project type

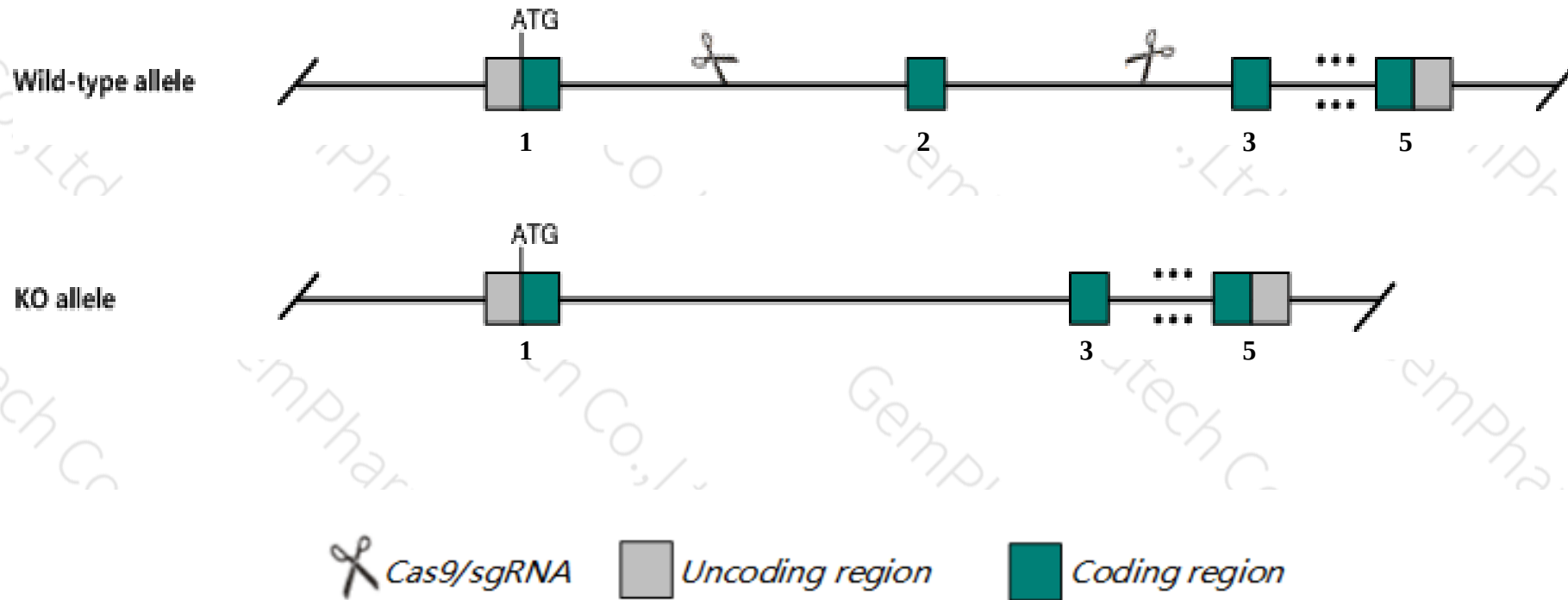
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ar/15* gene. The schematic diagram is as follows:



- The *Arl15* gene has 3 transcripts. According to the structure of *Arl15* gene, exon2 of *Arl15*-201(ENSMUST00000091201.6) transcript is recommended as the knockout region. The region contains 145bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Arl15* 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 *Arl15* gene is located on the Chr13. 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)

Arl15 ADP-ribosylation factor-like 15 [Mus musculus (house mouse)]

Gene ID: 218639, updated on 13-Mar-2020

Summary



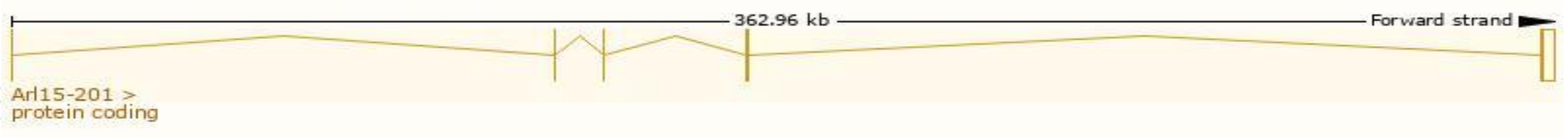
Official Symbol	Arl15 provided by MGI
Official Full Name	ADP-ribosylation factor-like 15 provided by MGI
Primary source	MGI:MGI:2442308
See related	Ensembl:ENSMUSG00000042348
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	A430036I03, Arfrp2, C230032K13Rik
Expression	Ubiquitous expression in CNS E14 (RPKM 3.6), CNS E18 (RPKM 3.3) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

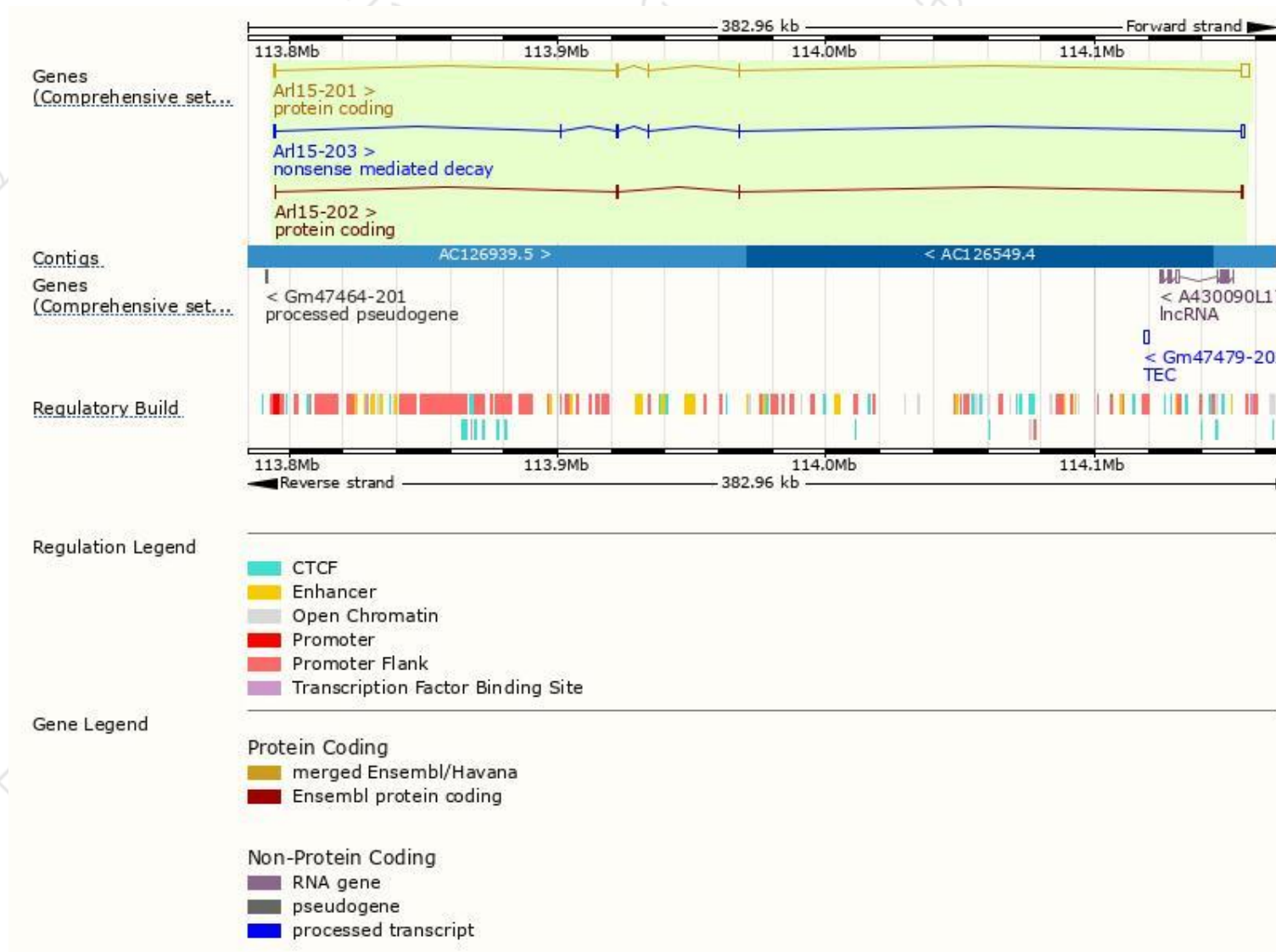
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Arl15-201	ENSMUST00000091201.6	3364	204aa	Protein coding	CCDS36785	Q8BGR6	TSL:1 GENCODE basic APPRIS P1
Arl15-202	ENSMUST00000224068.1	1002	184aa	Protein coding	-	B7ZN40	GENCODE basic
Arl15-203	ENSMUST00000224858.1	1966	56aa	Nonsense mediated decay	-	A0A286YE84	

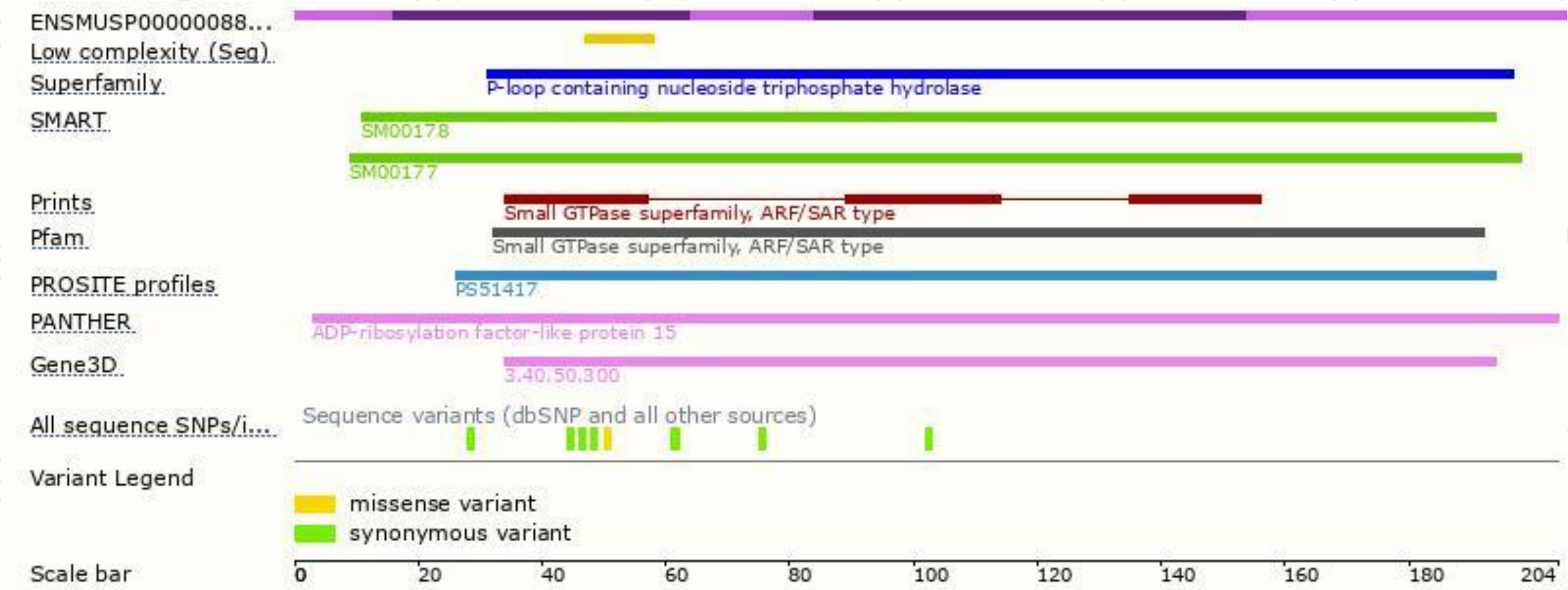
The strategy is based on the design of *Arl15-201* transcript,the transcription is shown below:



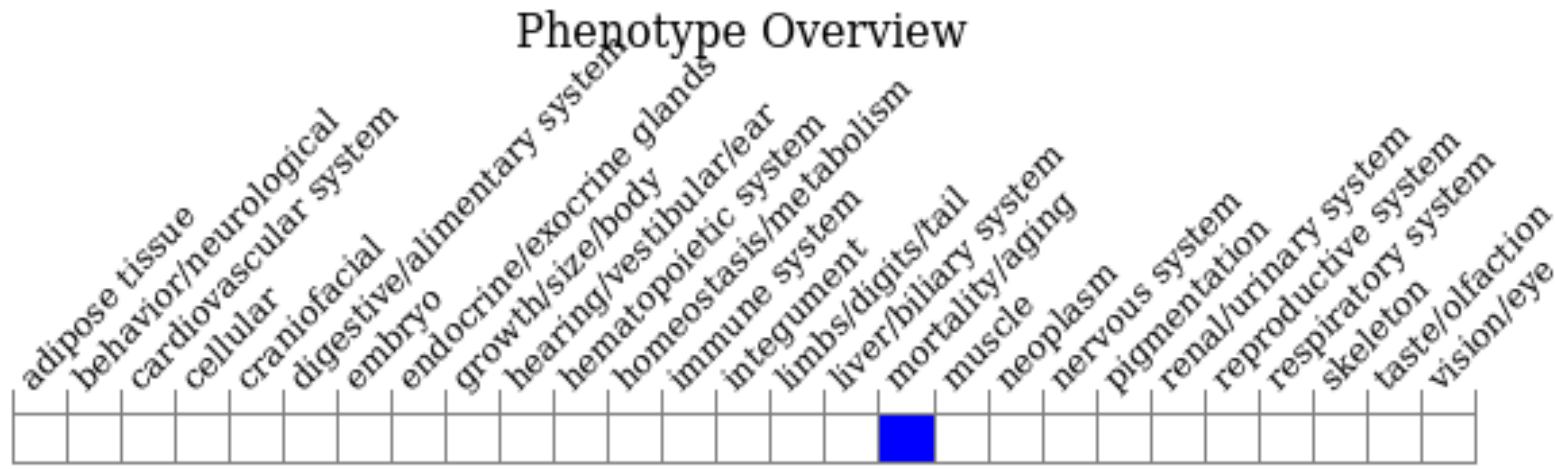
Genomic location distribution



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

