Arih1 Cas9-CKO Strategy

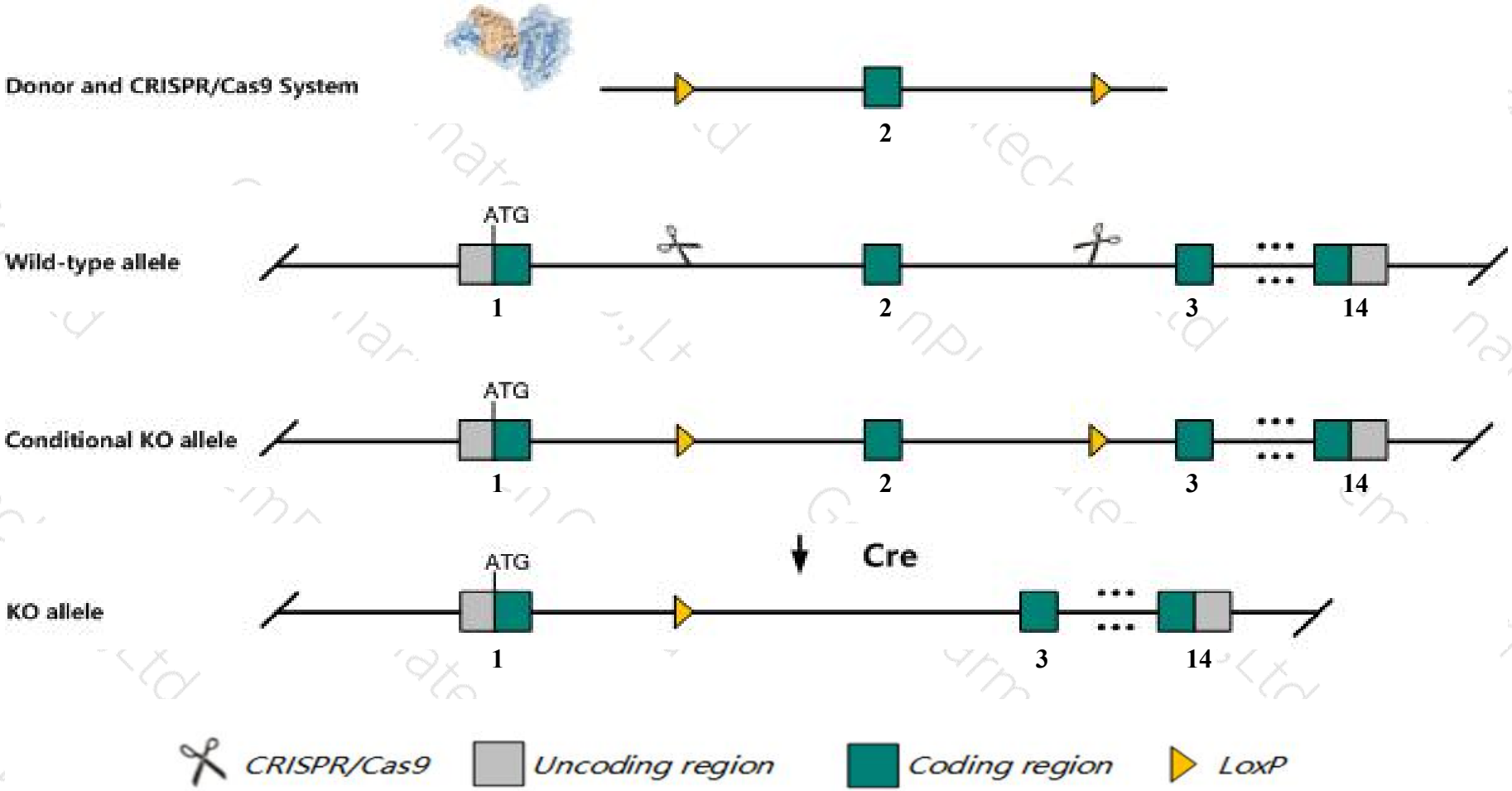
Designer: Lixin Lv

Project Overview

Project Name	***Arih1***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Arih1* gene. The schematic diagram is as follows:



Technical routes

- The *Arih1* gene has 7 transcripts. According to the structure of *Arih1* gene, exon2 of *Arih1-207* (ENSMUST00000171975.7) transcript is recommended as the knockout region.The region contains 68bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Arih1* 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

➢ The *Arih1* gene is located on the Chr9. 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）

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Arih1 ariadne RBR E3 ubiquitin protein ligase 1 [Mus musculus (house mouse)]

Gene ID: 23806, updated on 31-Jan-2019

Summary

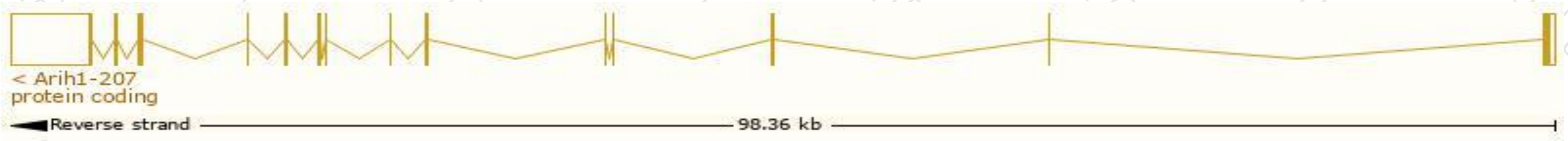
Official Symbol	Arih1 provided by MGI
Official Full Name	ariadne RBR E3 ubiquitin protein ligase 1 provided by MGI
Primary source	MGI:MGI:1344363
See related	Ensembl:ENSMUSG00000025234
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AU021774, Ari, Ari1, Hari, Hhari, Ubch7bp, Uip77
Expression	Ubiquitous expression in CNS E11.5 (RPKM 9.4), testis adult (RPKM 8.9) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

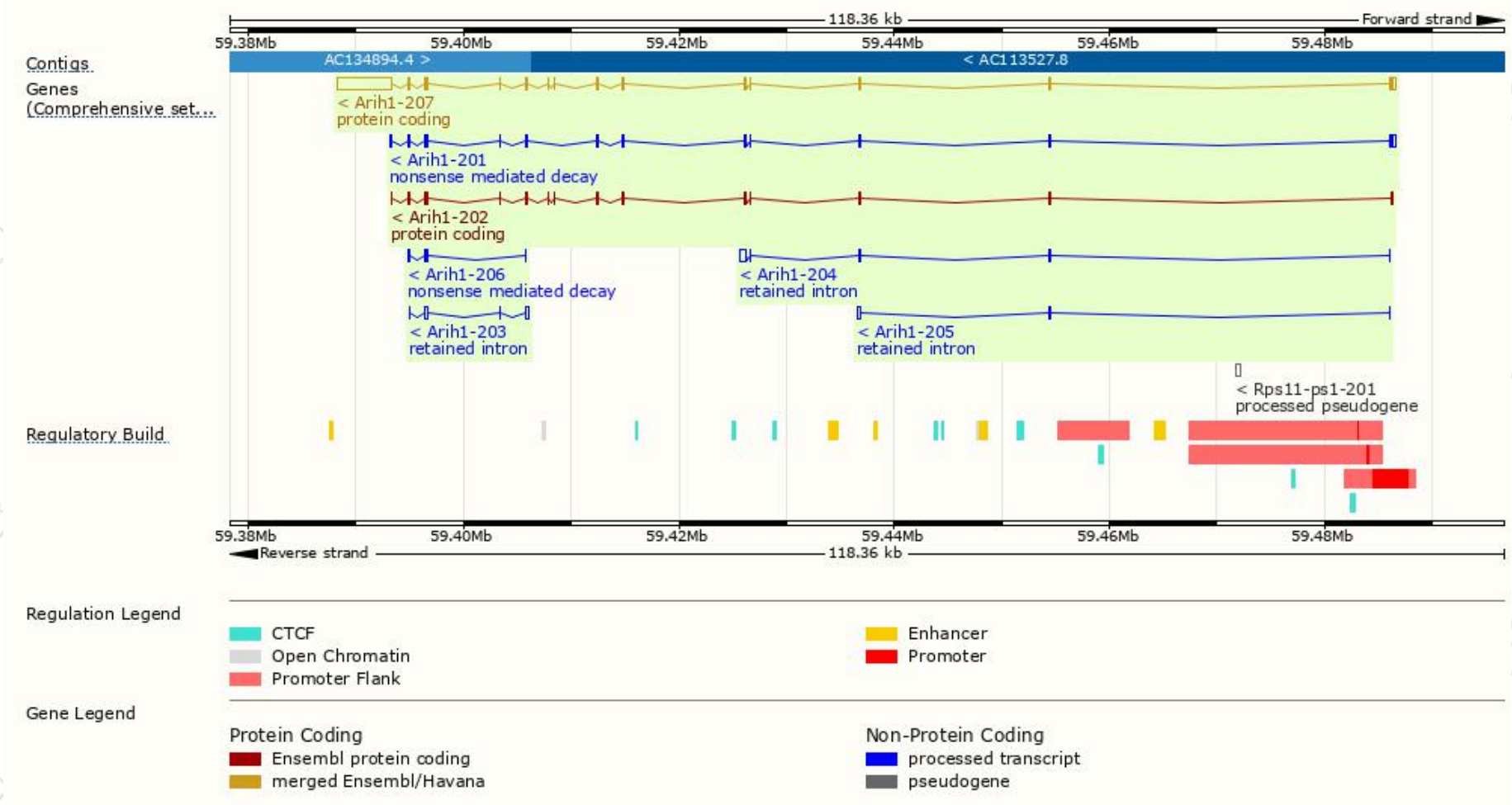
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Arih1-207	ENSMUST00000171975.7	6971	555aa	Protein coding	CCDS52817	Q9Z1K5	TSL:1 GENCODE basic APPRIS P1
Arih1-202	ENSMUST00000165322.1	1431	476aa	Protein coding	-	H9KV21	TSL:5 GENCODE basic
Arih1-201	ENSMUST00000026264.11	2005	381aa	Nonsense mediated decay	-	H7BWY7	TSL:5
Arih1-206	ENSMUST00000171856.1	437	25aa	Nonsense mediated decay	-	F7A7T5	CDS 5' incomplete TSL:3
Arih1-204	ENSMUST00000168497.7	827	No protein	Retained intron	-	-	TSL:2
Arih1-203	ENSMUST00000168456.1	669	No protein	Retained intron	-	-	TSL:5
Arih1-205	ENSMUST00000168982.1	465	No protein	Retained intron	-	-	TSL:2

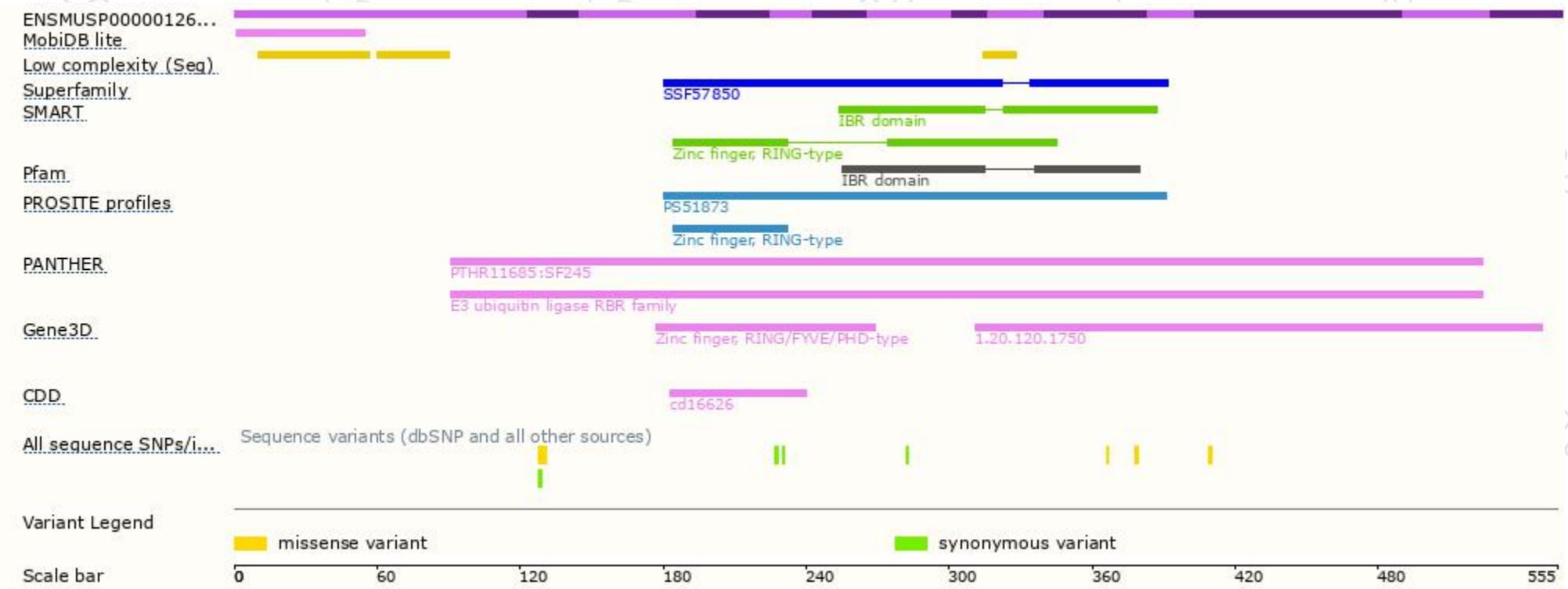
The strategy is based on the design of *Arih1-207* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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