

# ***Arid4b* Cas9-KO Strategy**

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# Project Overview

**Project Name**

*Arid4b*

**Project type**

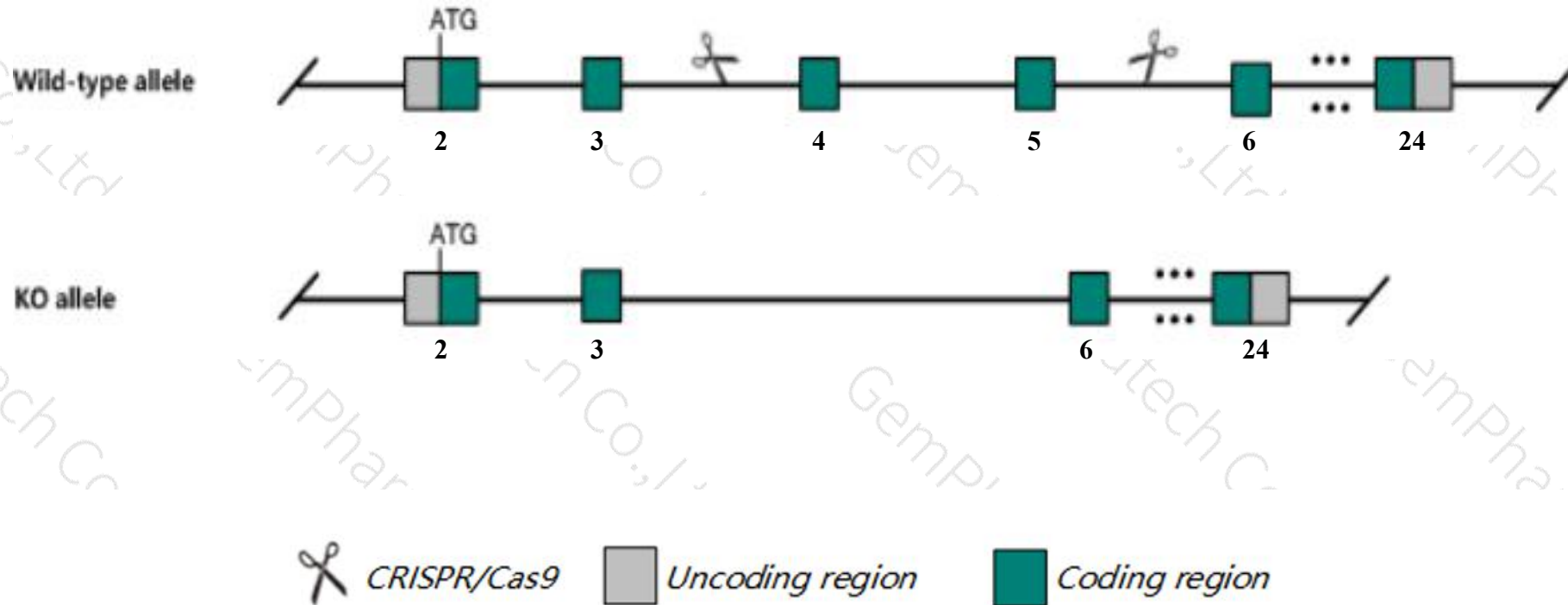
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Arid4b* gene. The schematic diagram is as follows:



- The *Arid4b* gene has 12 transcripts. According to the structure of *Arid4b* gene, exon4-exon5 of *Arid4b*-203(ENSMUST00000110534.7) transcript is recommended as the knockout region. The region contains 157bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Arid4b* gene. The brief process is as follows: CRISPR/Cas9 system 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.

- According to the existing MGI data, mice homozygous for a null allele die pre-implantation.
- The *Arid4b* 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)

## Arid4b AT rich interactive domain 4B (RBP1-like) [ *Mus musculus* (house mouse) ]

Gene ID: 94246, updated on 26-Jun-2020

### Summary



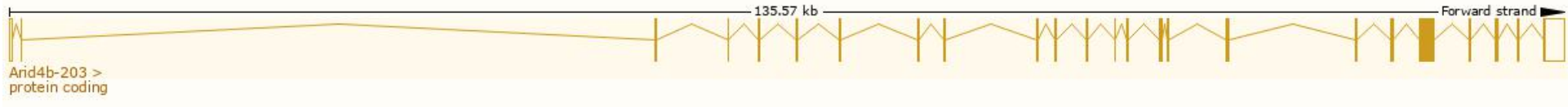
Official Symbol	Arid4b provided by <a href="#">MGI</a>
Official Full Name	AT rich interactive domain 4B (RBP1-like) provided by <a href="#">MGI</a>
Primary source	<a href="#">MGI:MGI:2137512</a>
See related	<a href="#">Ensembl:ENSMUSG00000039219</a>
Gene type	protein coding
RefSeq status	VALIDATED
Organism	<a href="#">Mus musculus</a>
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	BCAA; BRCAA1; Rbp1l1; SAP180; RBBP1L1
Expression	Ubiquitous expression in CNS E11.5 (RPKM 10.1), CNS E14 (RPKM 7.3) and 26 other tissues <a href="#">See more</a>
Orthologs	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

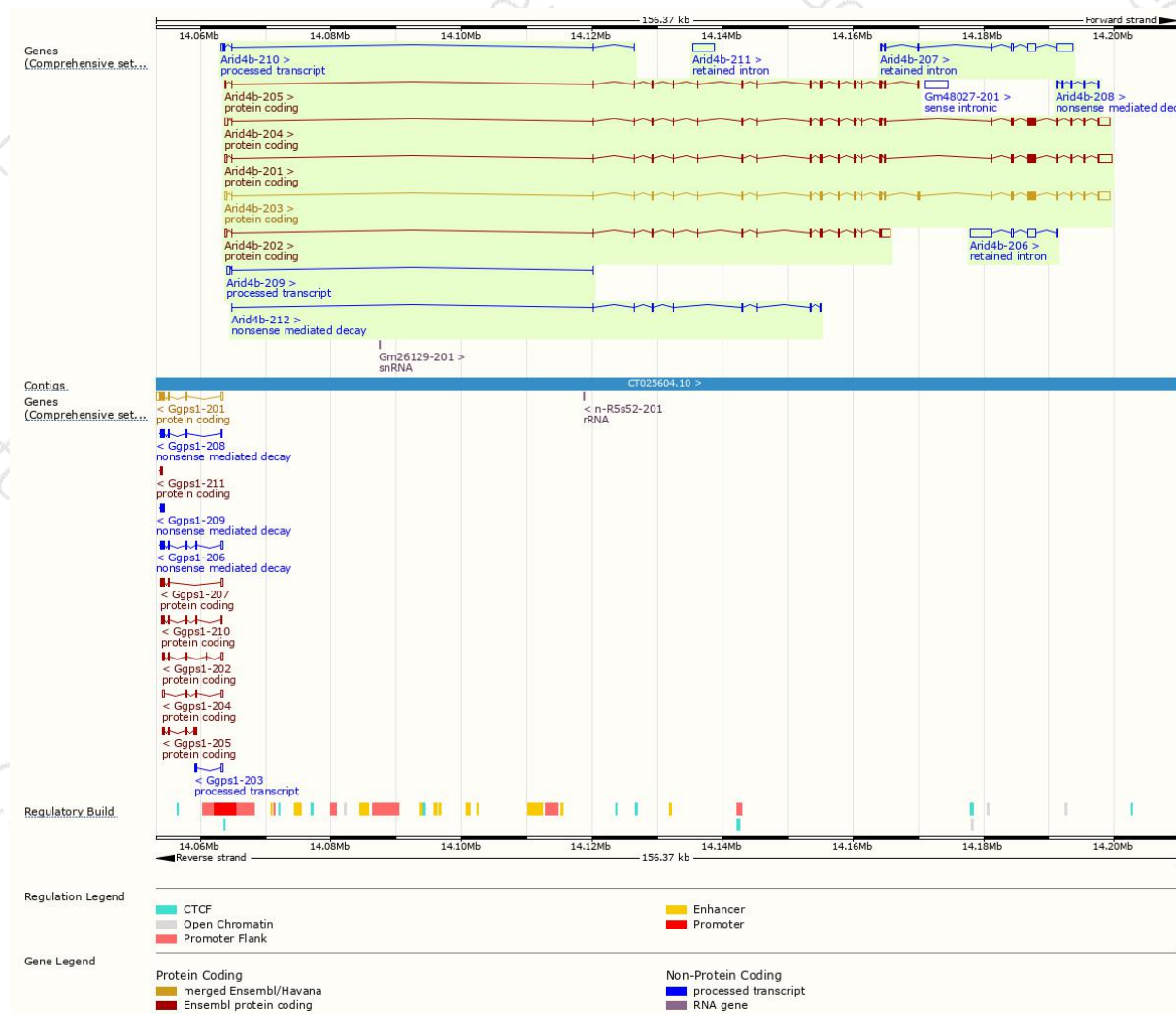
The gene has 12 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Arid4b-208	<a href="#">ENSMUST00000151151.1</a>	745	<a href="#">31aa</a>	Nonsense mediated decay	-	<a href="#">A0A1Y7VKA9</a>	CDS 5' incomplete TSL:3
Arid4b-212	<a href="#">ENSMUST00000222928.1</a>	815	<a href="#">128aa</a>	Nonsense mediated decay	-	<a href="#">A0A1Y7VIX3</a>	TSL:5
Arid4b-202	<a href="#">ENSMUST00000110533.1</a>	3020	<a href="#">473aa</a>	Protein coding	-	<a href="#">Z4YL44</a>	TSL:1 GENCODE basic
Arid4b-205	<a href="#">ENSMUST00000129488.7</a>	1802	<a href="#">540aa</a>	Protein coding	-	<a href="#">Z4YMH1</a>	CDS 3' incomplete TSL:1
Arid4b-201	<a href="#">ENSMUST00000039538.14</a>	5844	<a href="#">1227aa</a>	Protein coding	<a href="#">CCDS36600</a>	<a href="#">A2CG63</a>	TSL:5 GENCODE basic
Arid4b-204	<a href="#">ENSMUST00000110536.7</a>	5783	<a href="#">1227aa</a>	Protein coding	<a href="#">CCDS36600</a>	<a href="#">A2CG63</a>	TSL:5 GENCODE basic
Arid4b-203	<a href="#">ENSMUST00000110534.7</a>	5864	<a href="#">1314aa</a>	Protein coding	<a href="#">CCDS36599</a>	<a href="#">A2CG63</a>	TSL:1 GENCODE basic APPRIS P1
Arid4b-209	<a href="#">ENSMUST00000151182.1</a>	678	No protein	Processed transcript	-	-	TSL:3
Arid4b-210	<a href="#">ENSMUST00000155553.7</a>	571	No protein	Processed transcript	-	-	TSL:3
Arid4b-206	<a href="#">ENSMUST00000148941.1</a>	4828	No protein	Retained intron	-	-	TSL:2
Arid4b-207	<a href="#">ENSMUST00000149579.2</a>	4571	No protein	Retained intron	-	-	TSL:5
Arid4b-211	<a href="#">ENSMUST00000222346.1</a>	3353	No protein	Retained intron	-	-	TSL:NA

The strategy is based on the design of *Arid4b-203* transcript,the transcription is shown below:

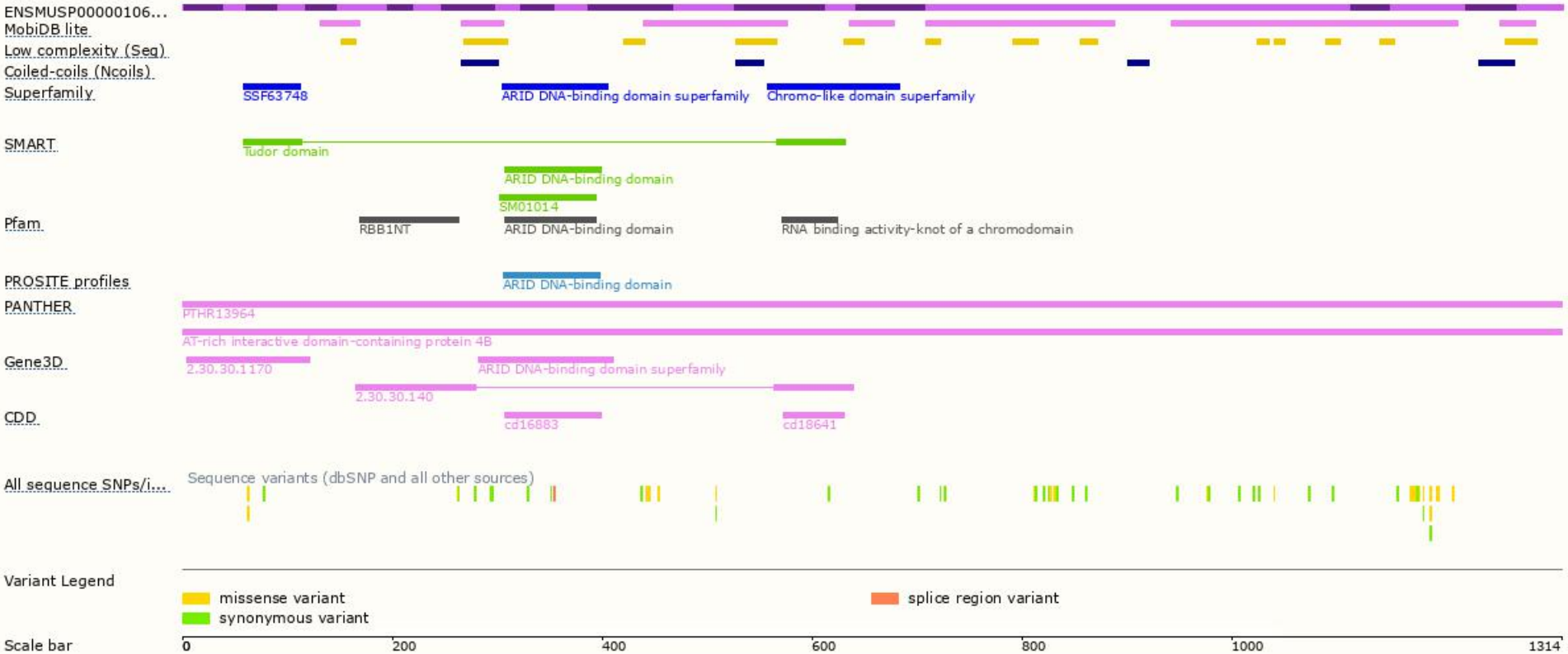


# Genomic location distribution





# Protein domain



# Mouse phenotype description(MGI)

## Phenotype Overview



*Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).*

According to the existing MGI data, mice homozygous for a null allele die pre-implantation.

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

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