Arid5b Cas9-CKO Strategy

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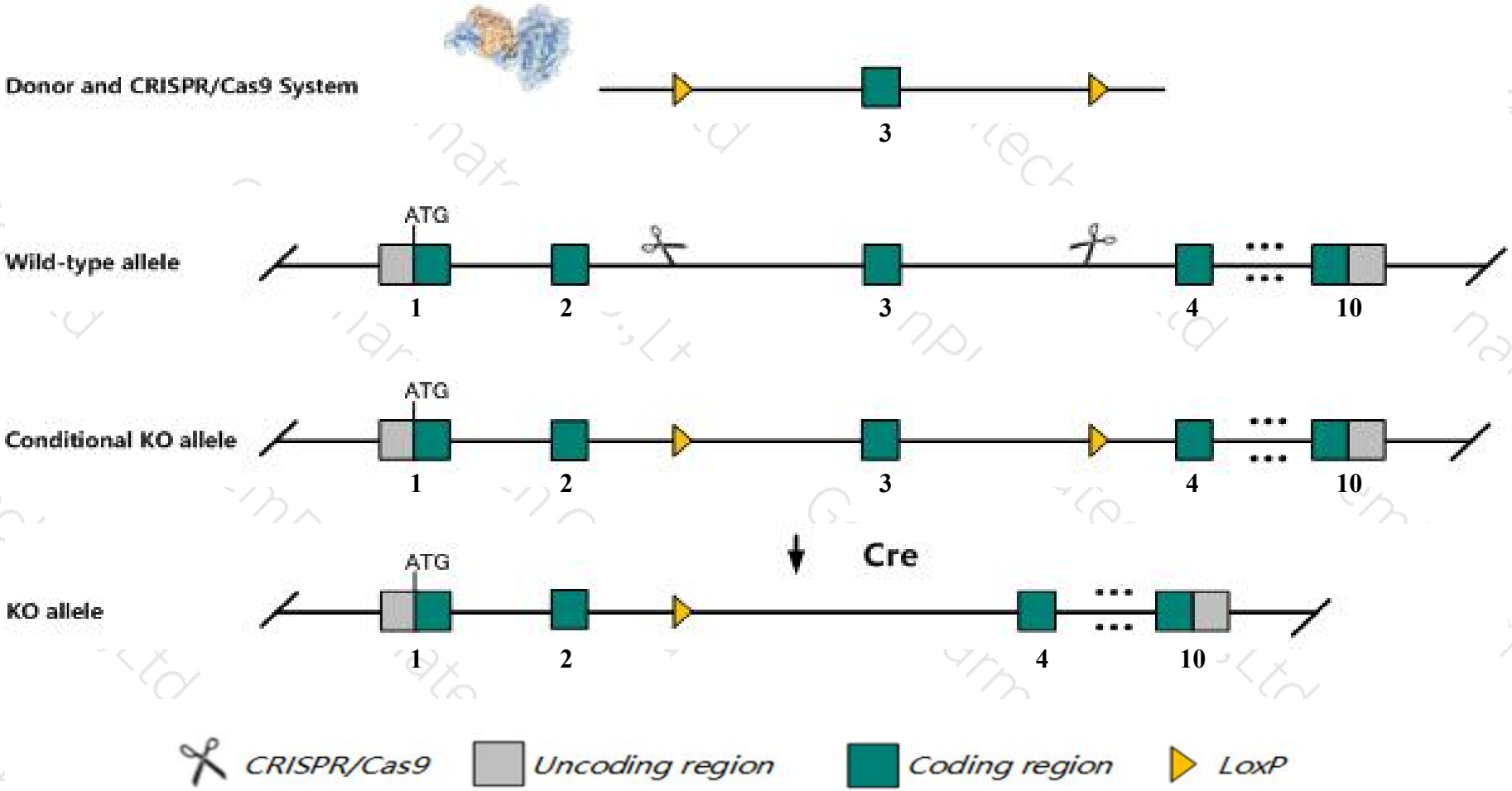
Project Overview

Project Name	***Arid5b***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Arid5b* gene. The schematic diagram is as follows:



Technical routes

- The *Arid5b* gene has 4 transcripts. According to the structure of *Arid5b* gene, exon3 of *Arid5b-204* (ENSMUST00000219238.1) transcript is recommended as the knockout region.The region contains 226bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Arid5b* 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

- According to the existing MGI data,Mice homozygous for disruptions in this gene experience a high level of mortality perinatally or earlier. Growth rates are low and mice remain small throughout live. There are abnormalities in various organ systems as well as the reproductive system. Fertility is reduced.
- Transcript *Arid5b-203* may not be affected.
- The *Arid5b* 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）

集萃药康 GemPharmatech

Arid5b AT rich interactive domain 5B (MRF1-like) [Mus musculus (house mouse)]

Gene ID: 71371, updated on 31-Jan-2019

Summary

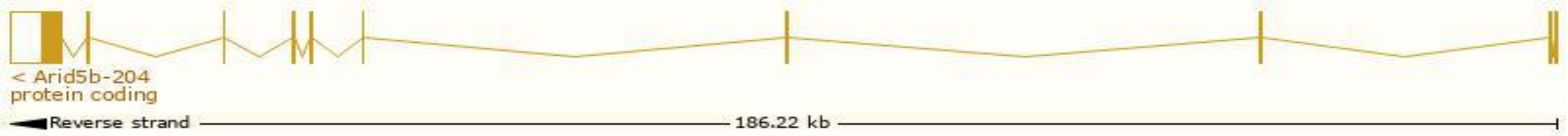
Official Symbol	Arid5b provided by MGI
Official Full Name	AT rich interactive domain 5B (MRF1-like) provided by MGI
Primary source	MGI:MGI:2175912
See related	Ensembl:ENSMUSG00000019947
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	4930580B11, 5430435G07Rik, AI467247, Desrt, Mrf2, Mrf2alpha, Mrf2beta
Expression	Ubiquitous expression in lung adult (RPKM 5.8), bladder adult (RPKM 5.5) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

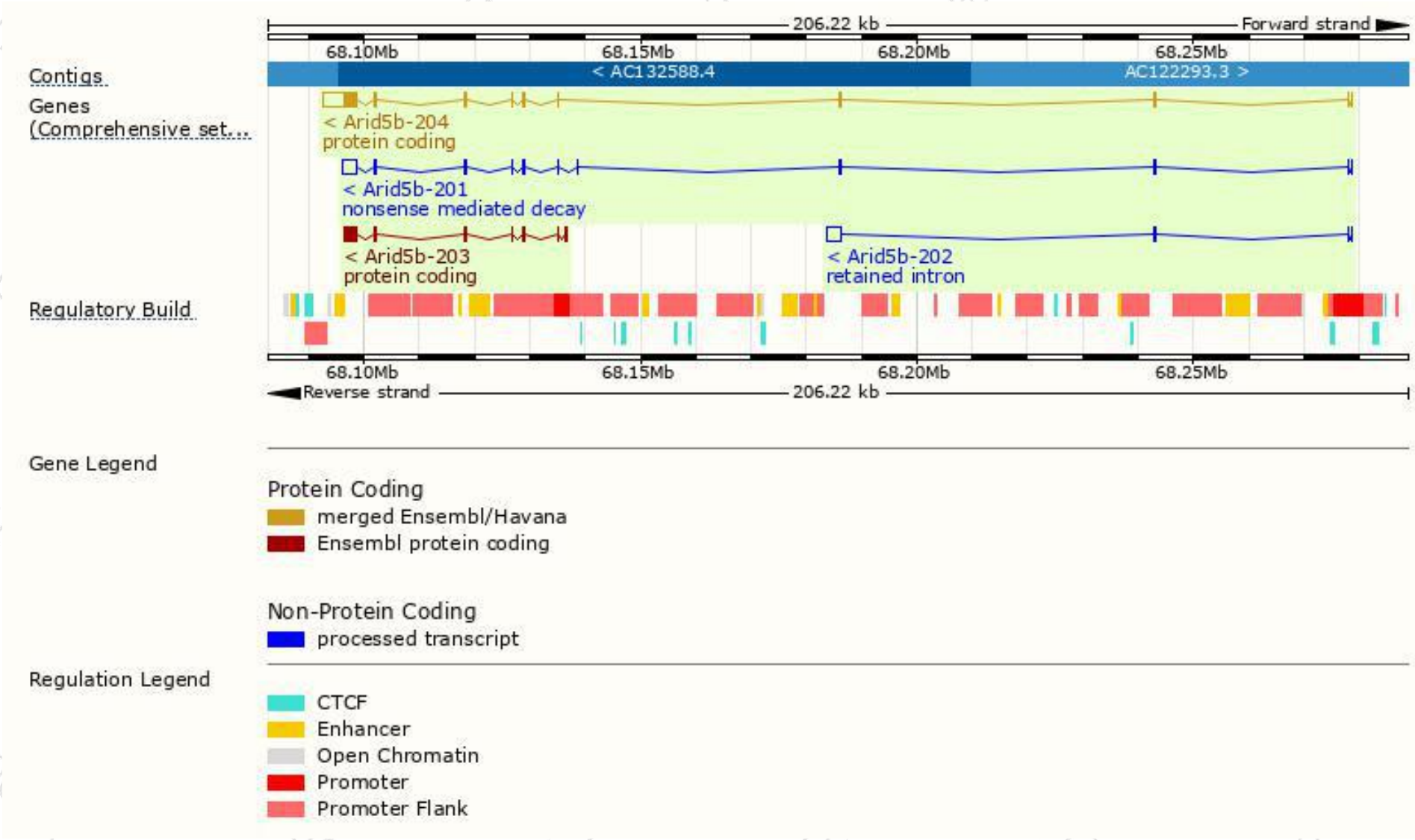
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Arid5b-204	ENSMUST00000219238.1	7581	1188aa	Protein coding	CCDS35929	Q8BM75	TSL:1 GENCODE basic APPRIS P2
Arid5b-203	ENSMUST00000218532.1	3025	945aa	Protein coding	-	Q8BM75	TSL:1 GENCODE basic APPRIS ALT2
Arid5b-201	ENSMUST00000020106.8	4202	254aa	Nonsense mediated decay	-	A0A1X7SB62	TSL:1
Arid5b-202	ENSMUST00000218425.1	2946	No protein	Retained intron	-	-	TSL:1

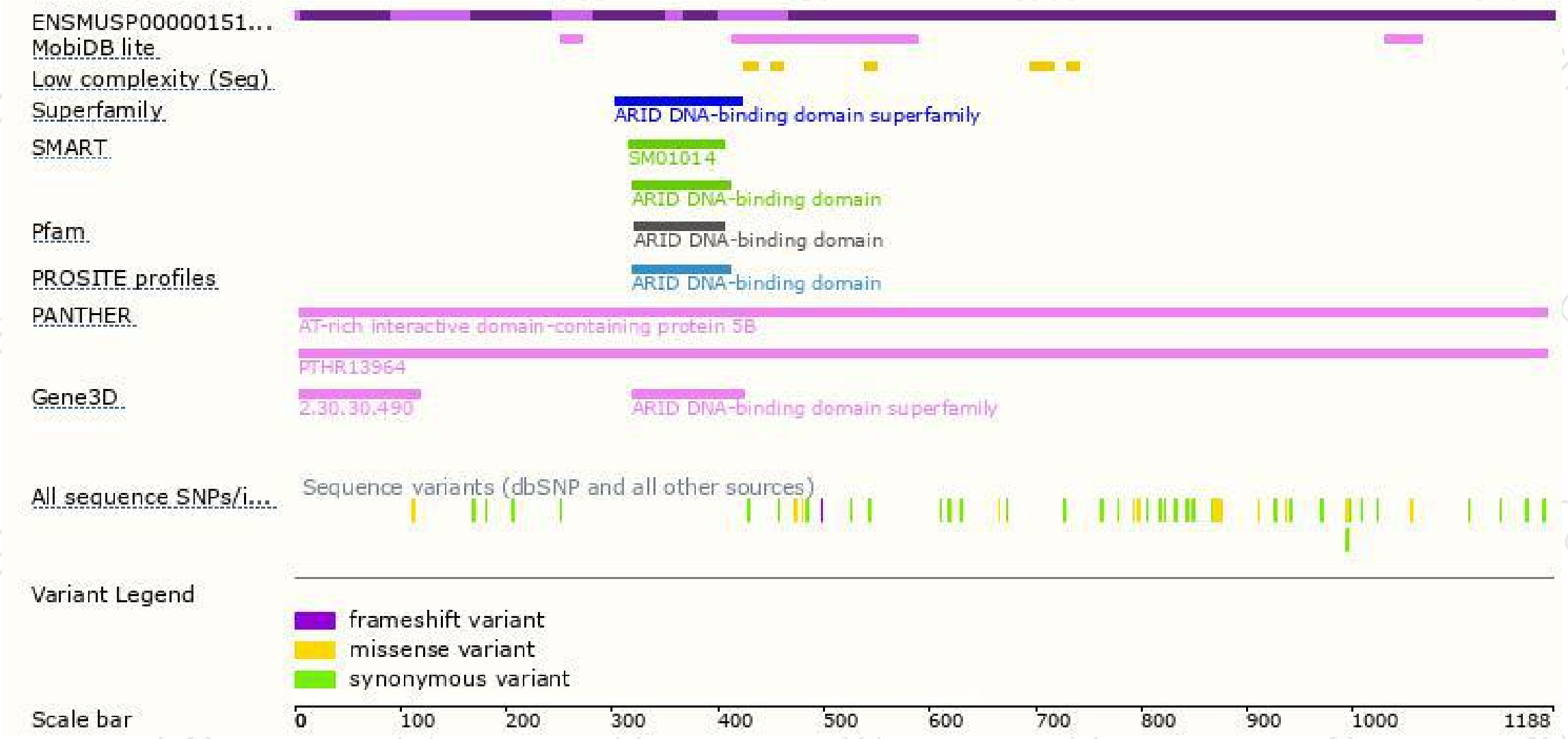
The strategy is based on the design of *Arid5b-204* transcript,The transcription is shown below



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/).

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

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