

# *Arih1* Cas9-KO Strategy

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**Reviewer:**

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**2019-11-5**

# Project Overview

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**Project Name**

*Arih1*

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**Project type**

**Cas9-KO**

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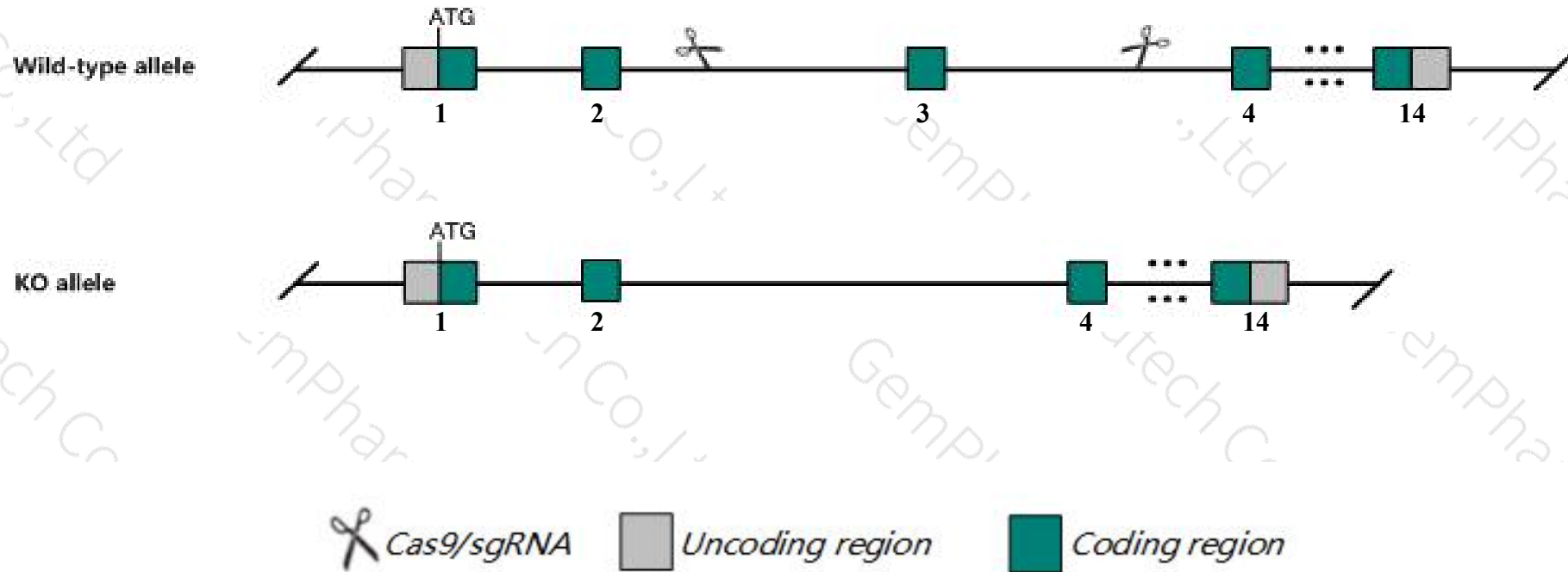
**Strain background**

**C57BL/6J**

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# Knockout strategy

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



- The *Arih1* gene has 7 transcripts. According to the structure of *Arih1* gene, exon3 of *Arih1*-207 (ENSMUST00000171975.7) 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 *Arih1* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6J 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/6J mice.

- 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.



# Gene information (NCBI)

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

Gene ID: 23806, updated on 12-Aug-2019

### Summary

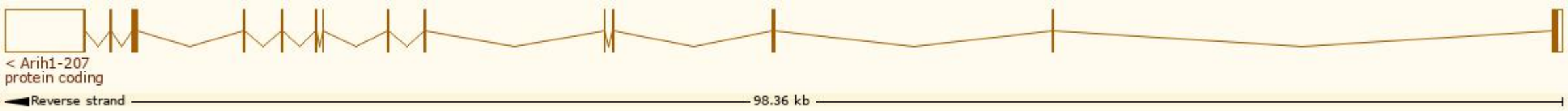
<b>Official Symbol</b>	Arih1 provided by <a href="#">MGI</a>
<b>Official Full Name</b>	ariadne RBR E3 ubiquitin protein ligase 1 provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:1344363</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000025234</a>
<b>Gene type</b>	protein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

# Transcript information (Ensembl)

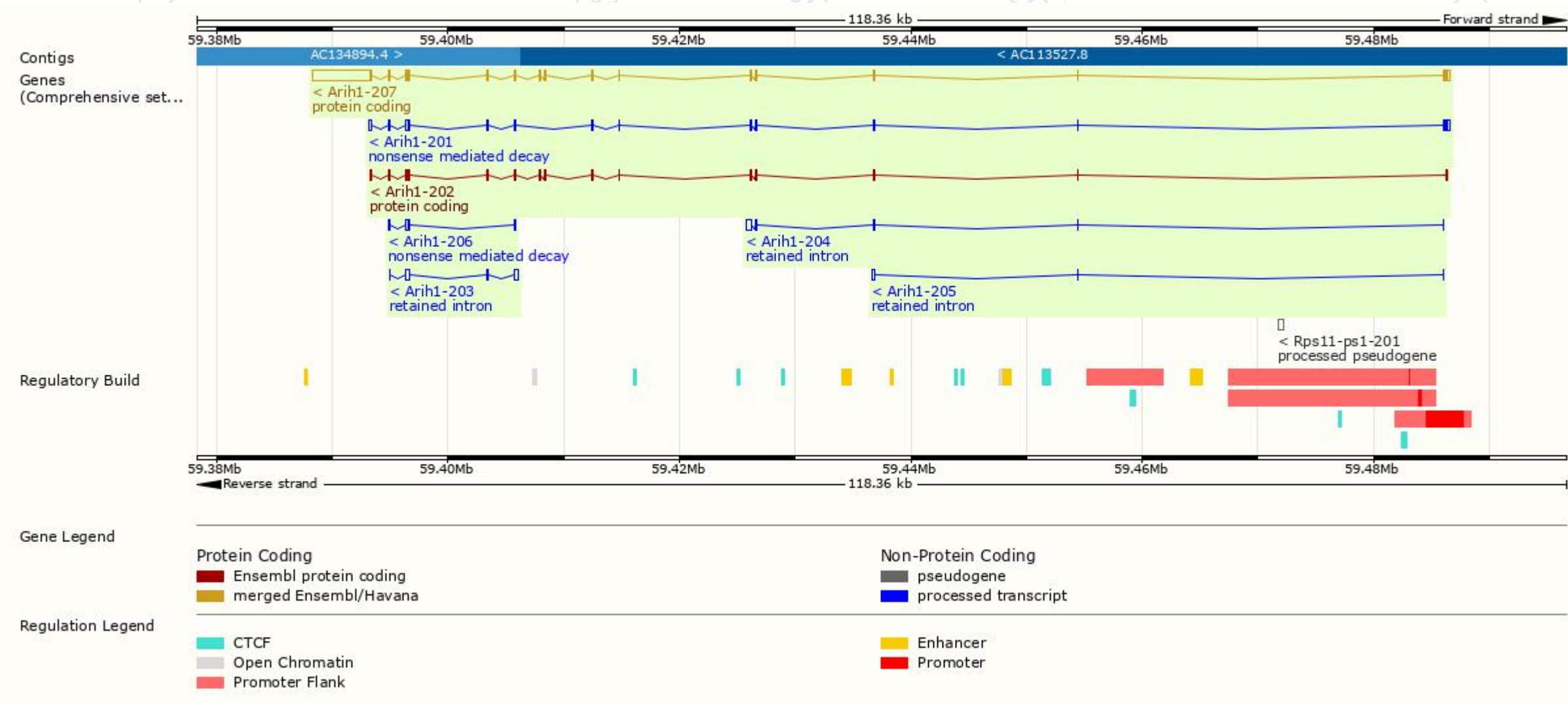
The gene has 7 transcripts,all transcripts are shown below:

Name ▲	Transcript ID ▲	bp ▲	Protein ▲	Biotype ▲	CCDS ▲	UniProt ▲	Flags ▲
Arih1-201	<a href="#">ENSMUST00000026264.11</a>	2005	<a href="#">381aa</a>	<span style="color:blue"> </span> Nonsense mediated decay	-	<a href="#">H7BWY7</a>	TSL:5
Arih1-202	<a href="#">ENSMUST00000165322.1</a>	1431	<a href="#">476aa</a>	<span style="color:red"> </span> Protein coding	-	<a href="#">H9KV21</a>	TSL:5 GENCODE basic
Arih1-203	<a href="#">ENSMUST00000168456.1</a>	669	No protein	<span style="color:blue"> </span> Retained intron	-	-	TSL:5
Arih1-204	<a href="#">ENSMUST00000168497.7</a>	827	No protein	<span style="color:blue"> </span> Retained intron	-	-	TSL:2
Arih1-205	<a href="#">ENSMUST00000168982.1</a>	465	No protein	<span style="color:blue"> </span> Retained intron	-	-	TSL:2
Arih1-206	<a href="#">ENSMUST00000171856.1</a>	437	<a href="#">25aa</a>	<span style="color:blue"> </span> Nonsense mediated decay	-	<a href="#">E7A7T5</a>	CDS 5' incomplete TSL:3
Arih1-207	<a href="#">ENSMUST00000171975.7</a>	6971	<a href="#">555aa</a>	<span style="color:gold"> </span> Protein coding	<a href="#">CCDS52817</a>	<a href="#">Q9Z1K5</a>	TSL:1 GENCODE basic APPRIS P1

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

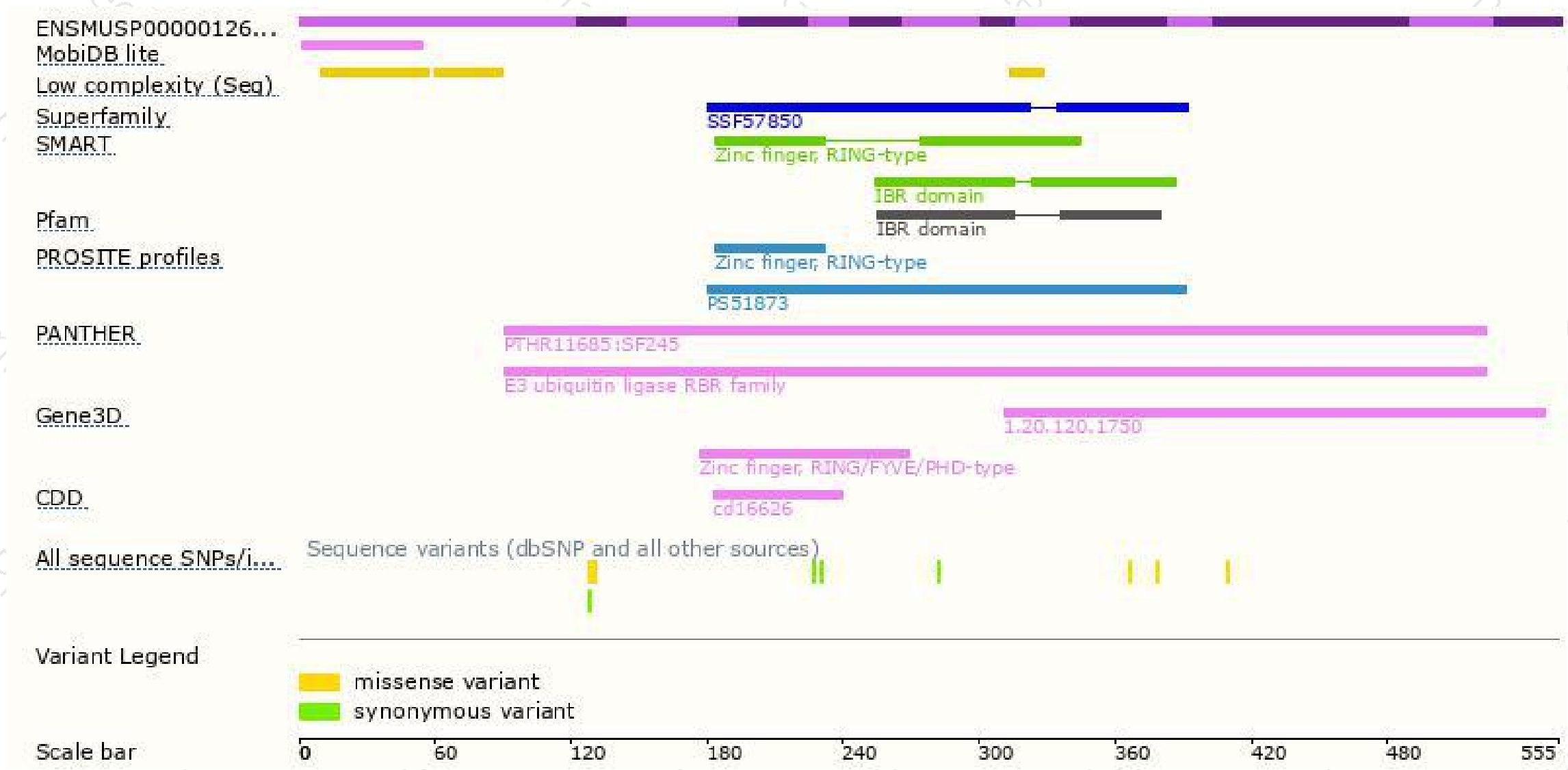


# Genomic location distribution





# Protein domain



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

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