

# ***Dnajb1*** Cas9-CKO Strategy

**Designer: JiaYu**

**Reviewer: Xiaojing Li**

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# Project Overview

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**Project Name**

***Dnajib1***

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**Project type**

**Cas9-CKO**

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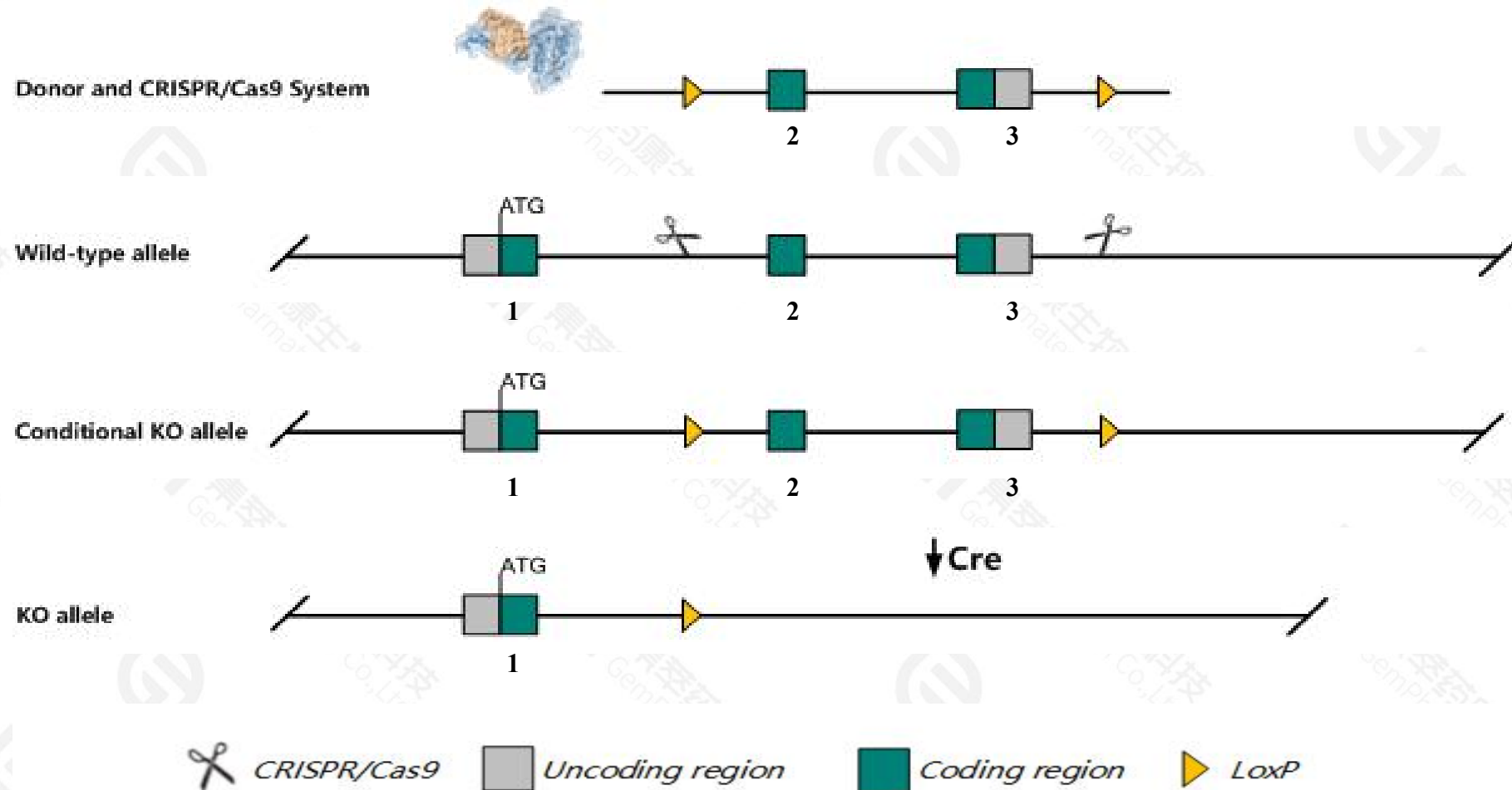
**Strain background**

**C57BL/6JGpt**

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# Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dnajb1* gene. The schematic diagram is as follows:



- The *Dnajb1* gene has 2 transcripts. According to the structure of *Dnajb1* gene, exon2-exon3 of *Dnajb1-201*(ENSMUST00000005620.10) transcript is recommended as the knockout region. The region contains most coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Dnajb1* 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.

- According to the existing MGI data, mice homozygous for a knock-out allele are viable, fertile, and overtly normal; however, homozygous null peritoneal macrophages display impaired thermotolerance in the early (but not in the late) phase after mild heat treatment.
- The *Dnajb1* gene is located on the Chr8. 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)

## Dnajb1 DnaJ heat shock protein family (Hsp40) member B1 [Mus musculus (house mouse)]

Gene ID: 81489, updated on 17-Nov-2020

### Summary



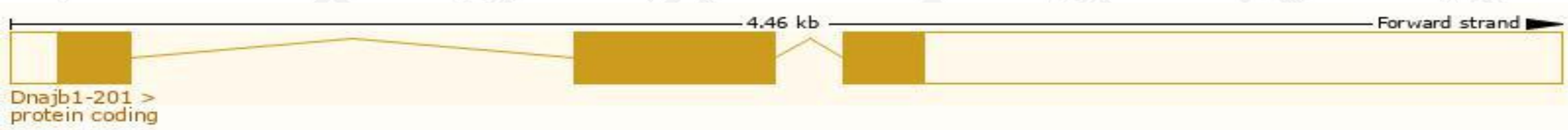
<b>Official Symbol</b>	Dnajb1 provided by <a href="#">MGI</a>
<b>Official Full Name</b>	DnaJ heat shock protein family (Hsp40) member B1 provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:1931874</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000005483</a>
<b>Gene type</b>	protein coding
<b>RefSeq status</b>	REVIEWED
<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>	0610007I11Rik, DjB1, HSPF1, Hdj1, Hsp, Hsp40
<b>Summary</b>	This gene encodes a member of the DnaJ or Hsp40 (heat shock protein 40 kD) family of proteins. The encoded protein is a molecular chaperone that stimulates the ATPase activity of Hsp70 heat-shock proteins in order to promote protein folding and prevent misfolded protein aggregation. The encoded protein may also inhibit apoptosis. Peritoneal macrophages derived from homozygous knockout mice for this gene exhibit impaired heat tolerance. Alternative splicing results in multiple transcript variants. [provided by RefSeq, Apr 2015]
<b>Expression</b>	Ubiquitous expression in testis adult (RPKM 83.7), thymus adult (RPKM 27.3) and 28 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

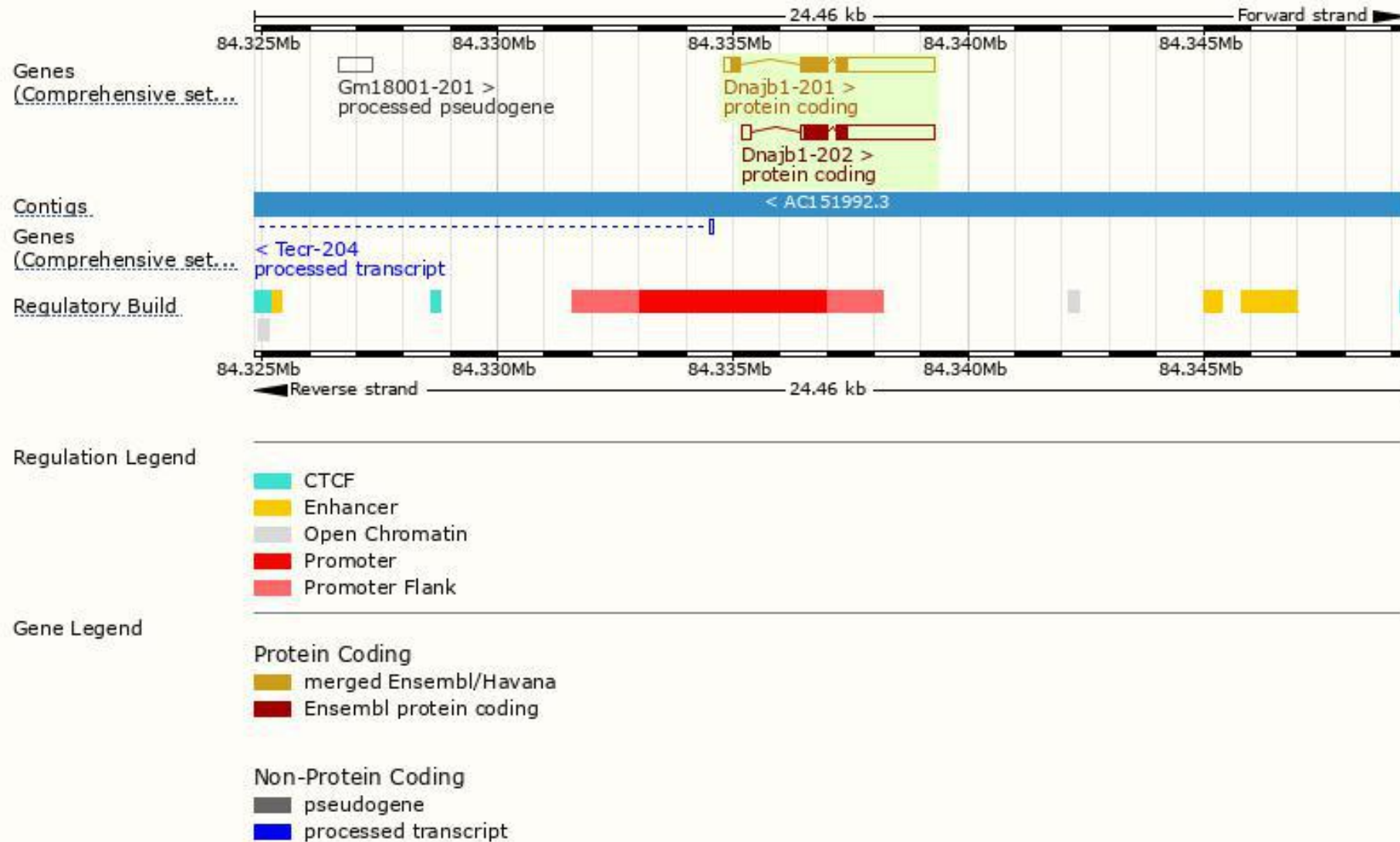
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dnajb1-201	<a href="#">ENSMUST00000005620.10</a>	2996	<a href="#">340aa</a>	Protein coding	<a href="#">CCDS22456</a>		TSL:1 , GENCODE basic , APPRIS P1 ,
Dnajb1-202	<a href="#">ENSMUST00000212300.2</a>	2854	<a href="#">240aa</a>	Protein coding	<a href="#">CCDS85571</a>		TSL:1 , GENCODE basic ,

The strategy is based on the design of *Dnajb1-201* transcript,the transcription is shown below:

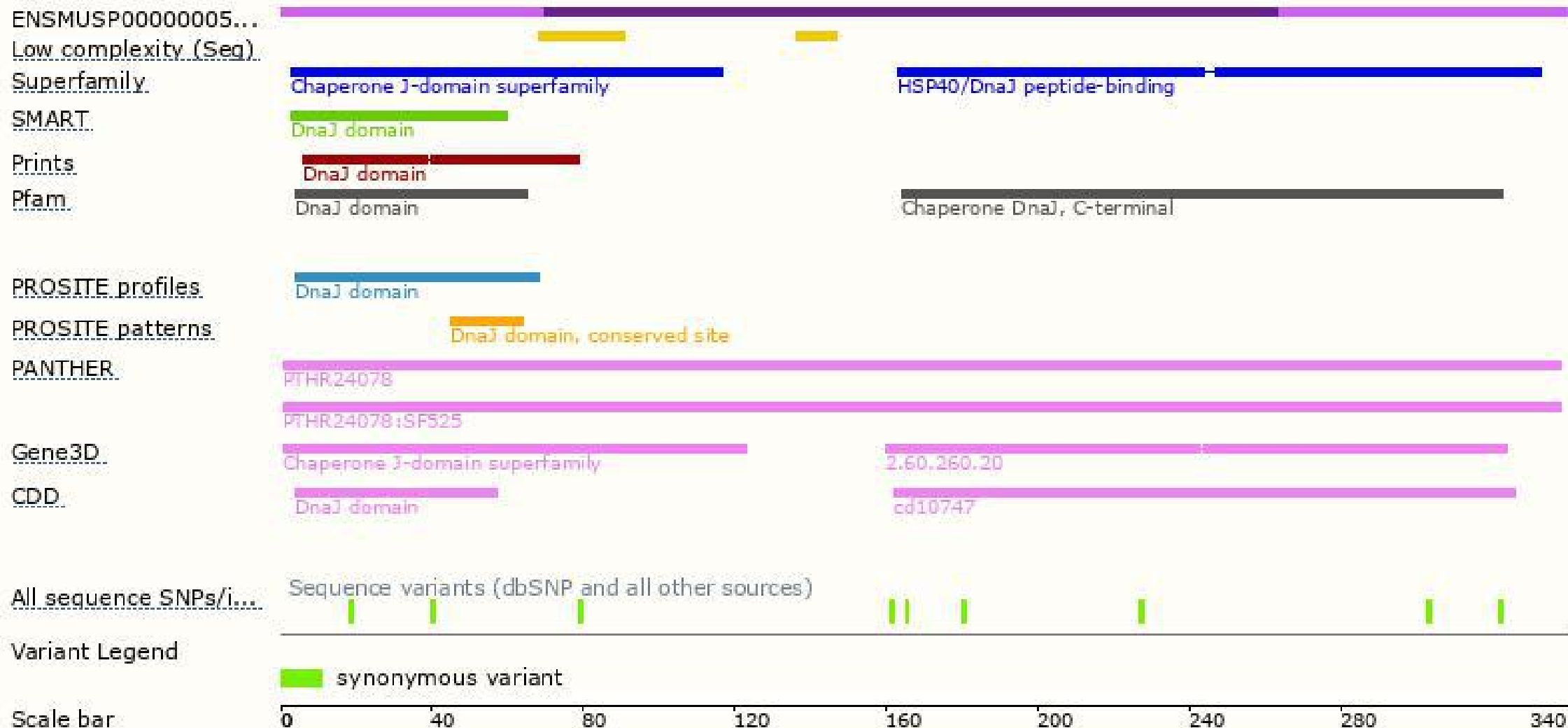


# Genomic location distribution





# Protein domain



If you have any questions, you are welcome to inquire.  
Tel: 400-9660890

