Jun Cas9-KO Strategy

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Project Overview

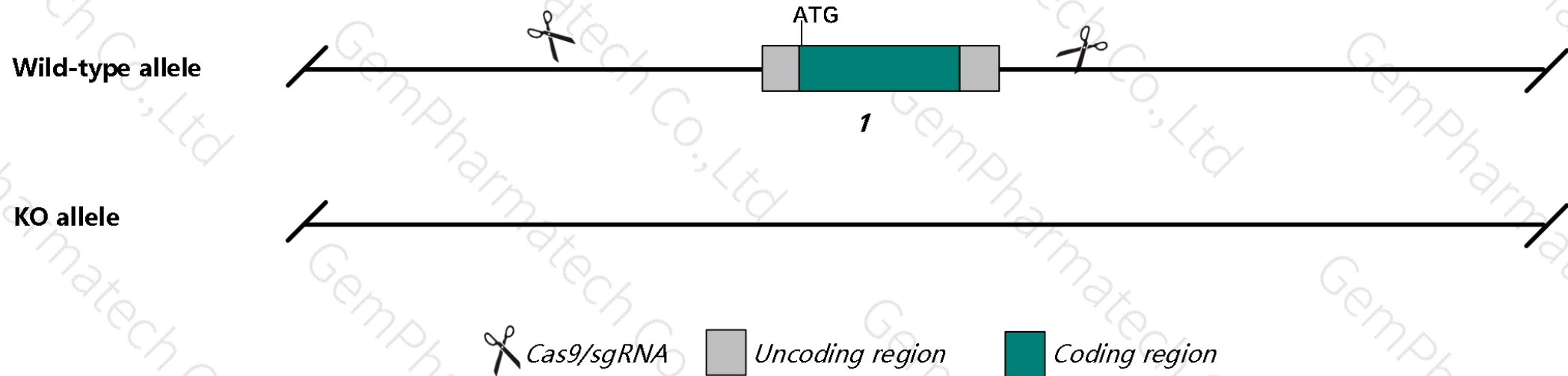|	
Project Name	*Jun*
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

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

Technical routes

➢ The *Jun* gene has 1 transcript. According to the structure of *Jun* gene, exon1of *Jun-201*

   (ENSMUST00000107094.1) transcript is recommended as the knockout region.The region contains all the coding sequence.

   Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Jun* gene. The brief process is as follows: CRISPR/Cas9 system w

Notice

➢ According to the existing MGI data,Null homozygotes die at midgestation with impaired hepatogenesis, altered fetal liver erythropoiesis and edema. A mutant replacing two serines by alanines is viable, fertile, small-sized and resistant to kainate-induced seizures and neuronal apoptosis.

➢The konckout region near to the 5'UTR of *Gm12703* gene.Knockout the region may affect the regulatory function of the 5'UTR of *Gm12703* gene.

➢The partial intron of *Junos* gene may be deleted together in this strategy.

➢Transcript Jun-&204&207 may not be affected .And the effect on transcript Jun-208& is unknown.

➢ The *Jun* gene is located on the Chr4. 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）

Jun jun proto-oncogene [*Mus musculus* (house mouse)]

Gene ID: 16476, updated on 8-Jun-2019

▲ Summary

Official Symbol	Jun provided by MGI
Official Full Name	jun proto-oncogene provided by MGI
Primary source	MGI:MGI:96646
See related	Ensembl:ENSMUSG00000052684
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	AP-1; Junc; c-jun
Orthologs	human all

▲ Genomic context

Location: 4 C5; 4 43.34 cM

See Jun in Genome Data Viewer

Exon count: 1

| Annotation release	Status	Assembly	Chr	Location
106	current	GRCm38.p4 (GCF_000001635.24)	4	NC_000070.6 (95049036..95052222, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	4	NC_000070.5 (94715727..94718913, complement)

Transcript information（Ensembl）

The gene has 1 transcript,the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags		
Jun-201	ENSMUST00000107094.1	3189	334aa	Protein coding	CCDS18364	P05627 Q52L79	TSL:NA	GENCODE basic	APPRIS P1

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

< Jun-201
protein coding

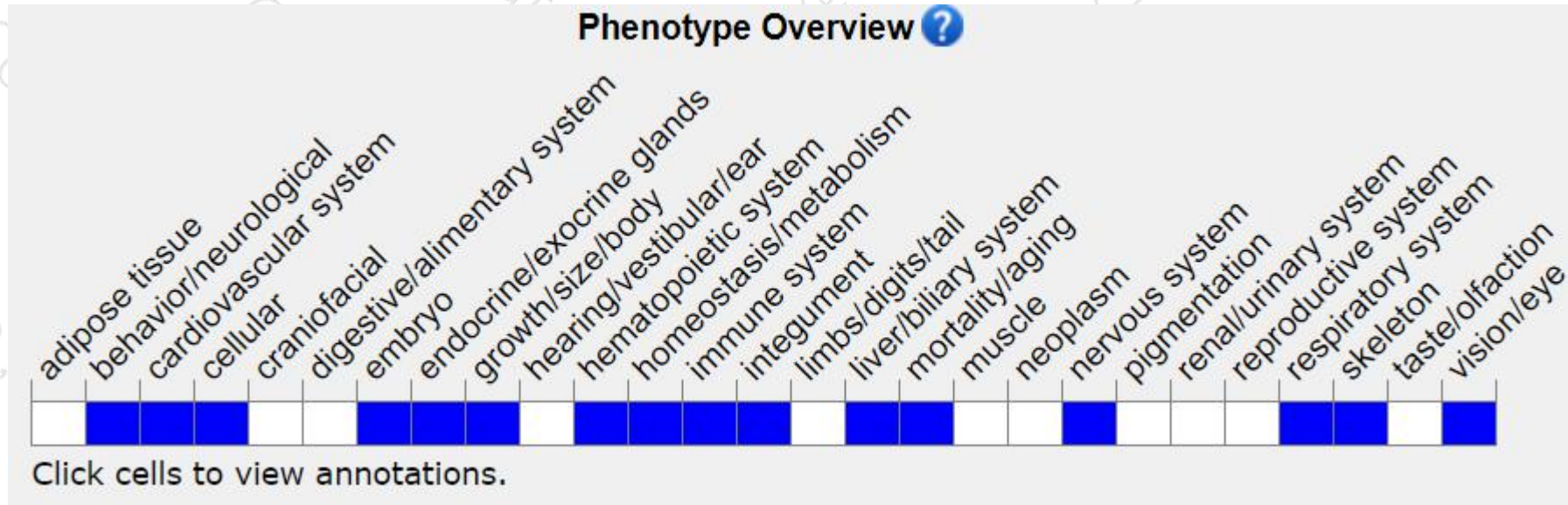◄ Reverse strand ——————————— 3.19 kb ———————————
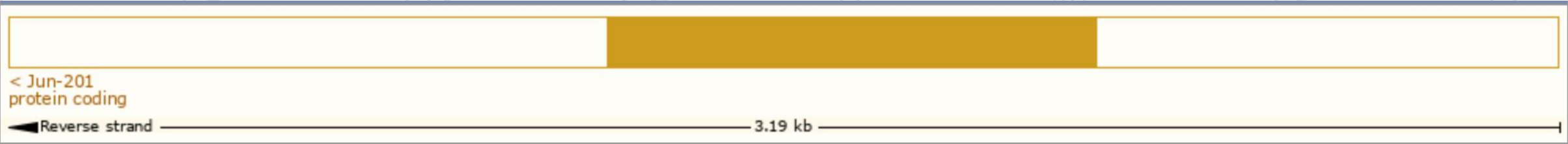
Genomic location distribution
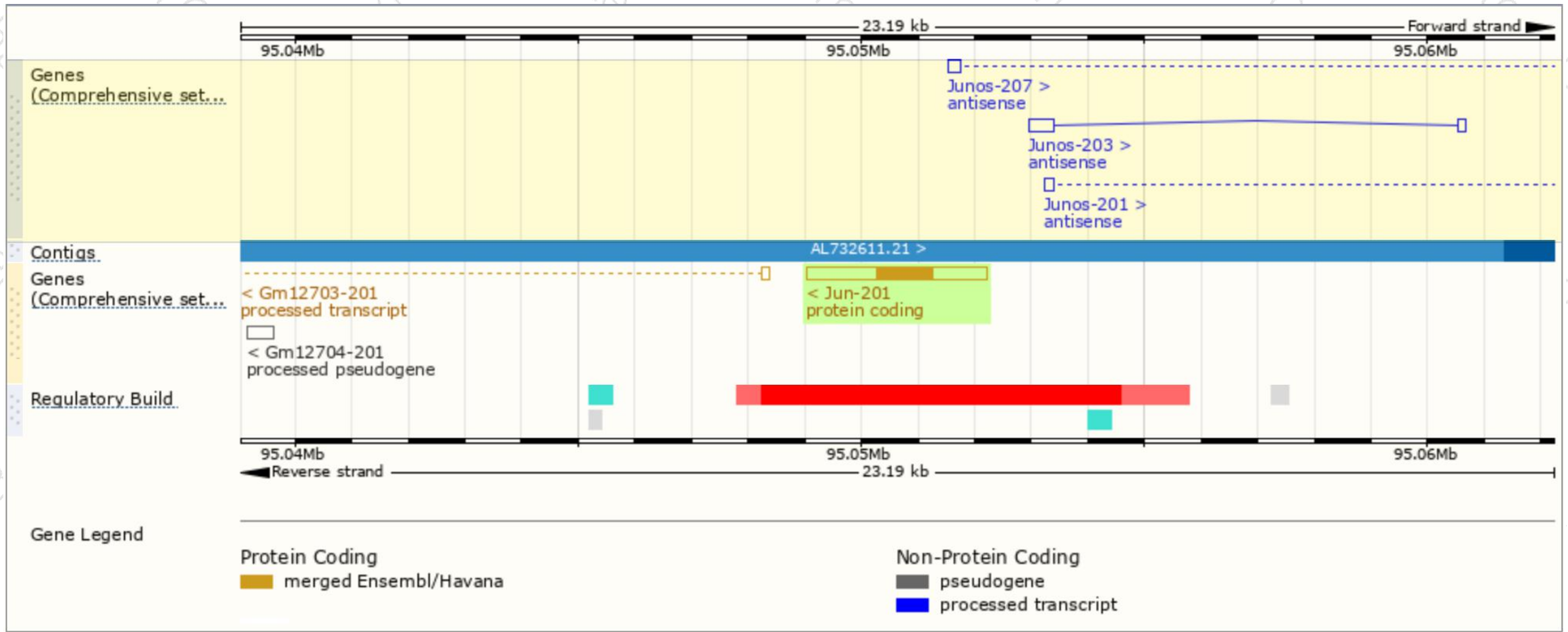
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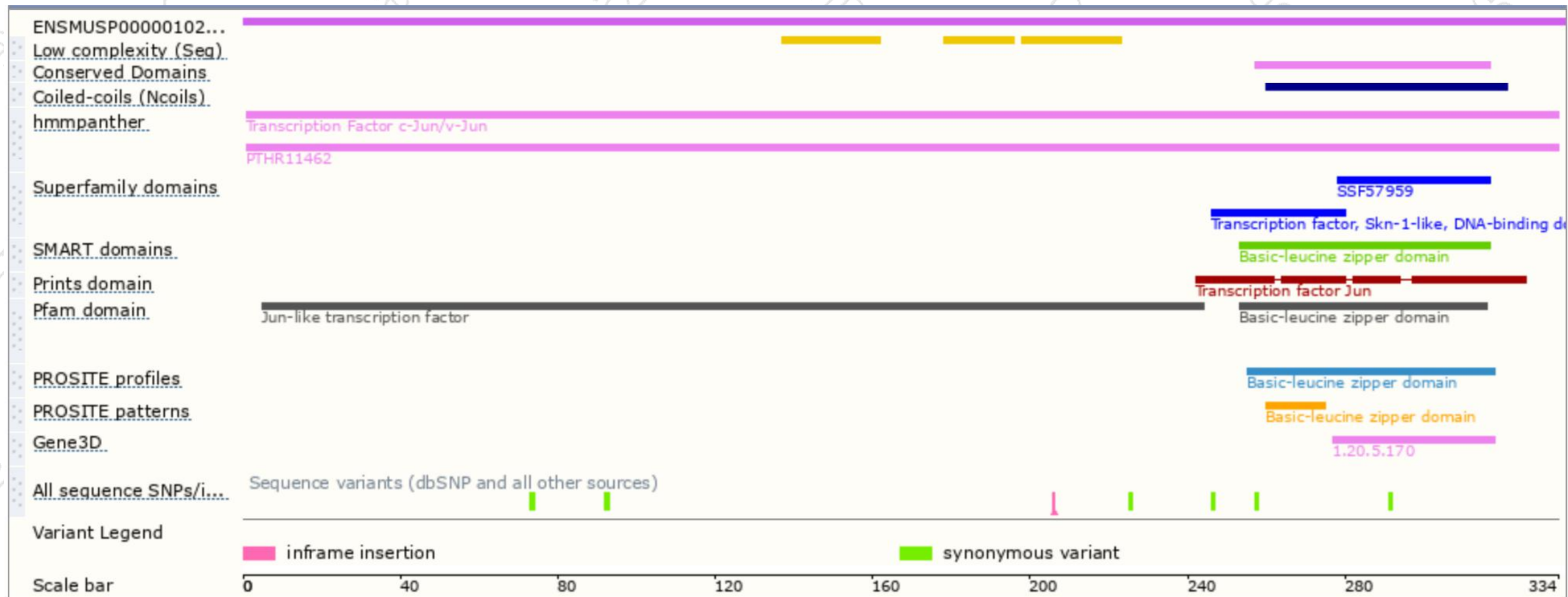
Mouse phenotype description(MGI)

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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