Reps2 Cas9-KO Strategy

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Project Overview

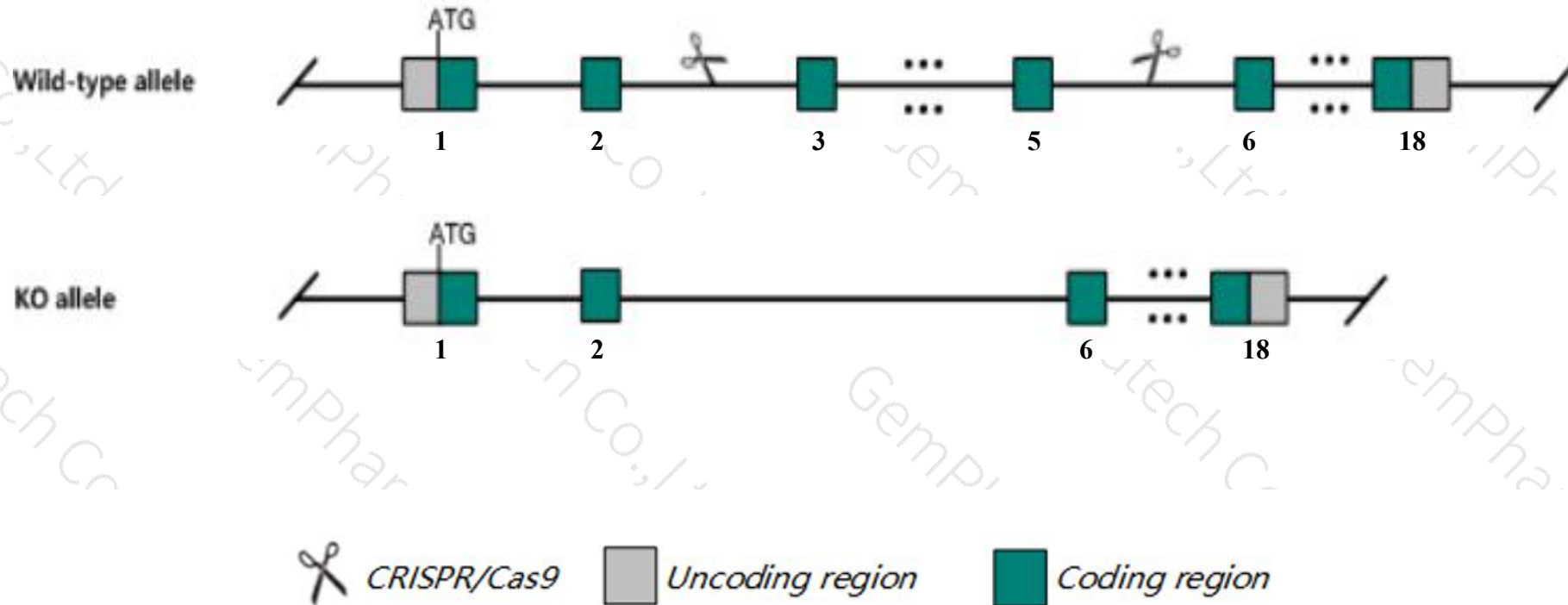|	
Project Name	*Reps2*
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Reps2* gene. The schematic diagram is as follows:

Technical routes

➢ The *Reps2* gene has 5 transcripts. According to the structure of *Reps2* gene, exon3-exon5 of *Reps2-201*(ENSMUST00000101102.1) transcript is recommended as the knockout region.The region contains 371bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Reps2* 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.

Notice

➢ The *Reps2* gene is located on the ChrX. 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.

➢Some amino acids will remain at the N-terminus and some functions may be retained.

➢ 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）

Reps2 RALBP1 associated Eps domain containing protein 2 [Mus musculus (house mouse)]

Gene ID: 194590, updated on 20-Mar-2020

▲ Summary

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Official Symbol	Reps2 provided by MGI
Official Full Name	RALBP1 associated Eps domain containing protein 2 provided by MGI
Primary source	MGI:MGI:2663511
See related	Ensembl:ENSMUSG00000040855
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	POB1
Expression	Broad expression in cortex adult (RPKM 8.4), frontal lobe adult (RPKM 7.3) and 21 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Reps2-202	ENSMUST00000112334.7	7675	647aa	Protein coding	CCDS72462	A2AFI8	TSL:1 GENCODE basic APPRIS ALT2
Reps2-201	ENSMUST00000101102.1	7630	648aa	Protein coding	CCDS30508	B9EI38	TSL:1 GENCODE basic APPRIS P3
Reps2-203	ENSMUST00000154424.7	7146	No protein	Processed transcript	-	-	TSL:1
Reps2-205	ENSMUST00000155863.1	554	No protein	Processed transcript	-	-	TSL:5
Reps2-204	ENSMUST00000155043.1	667	No protein	Retained intron	-	-	TSL:3

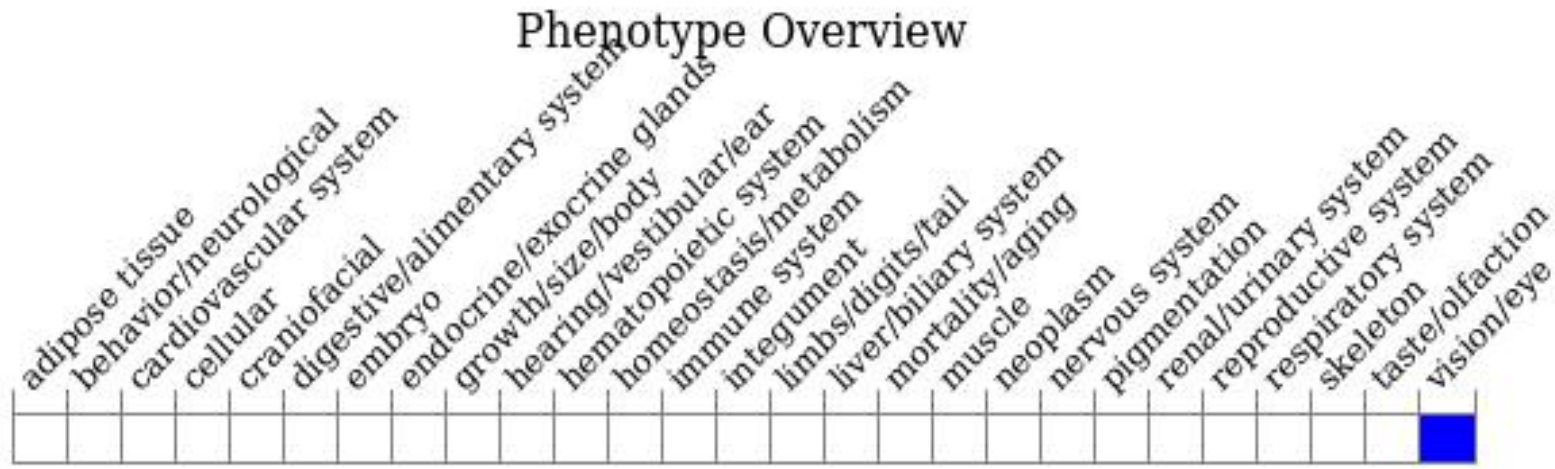The strategy is based on the design of *Reps2-201* transcript,the transcription is shown below:

< Reps2-201
protein coding

◄ Reverse strand

231.65 kb
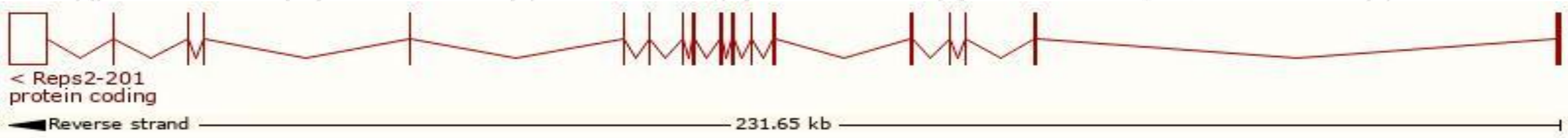
Genomic location distribution
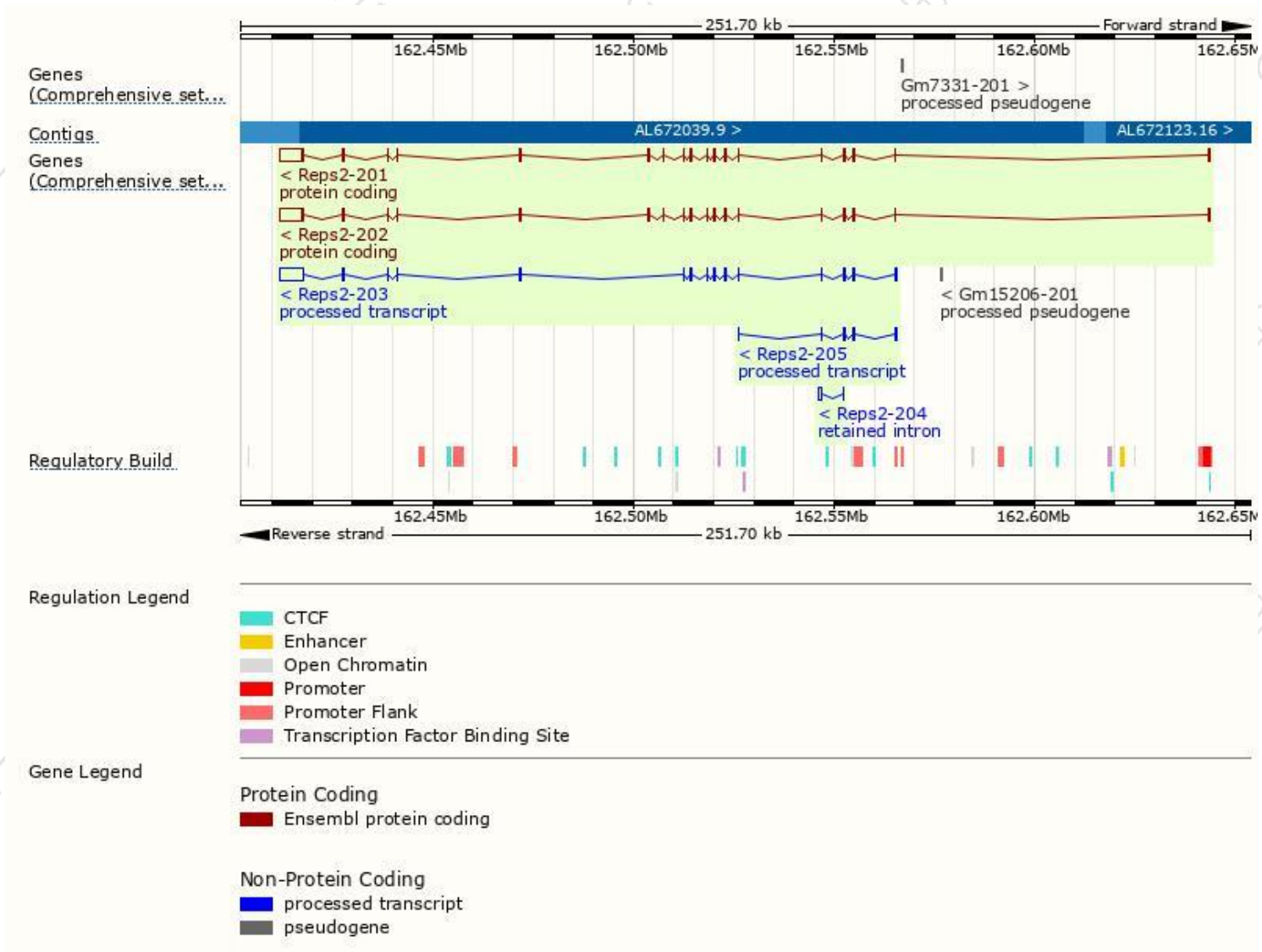
Protein domain
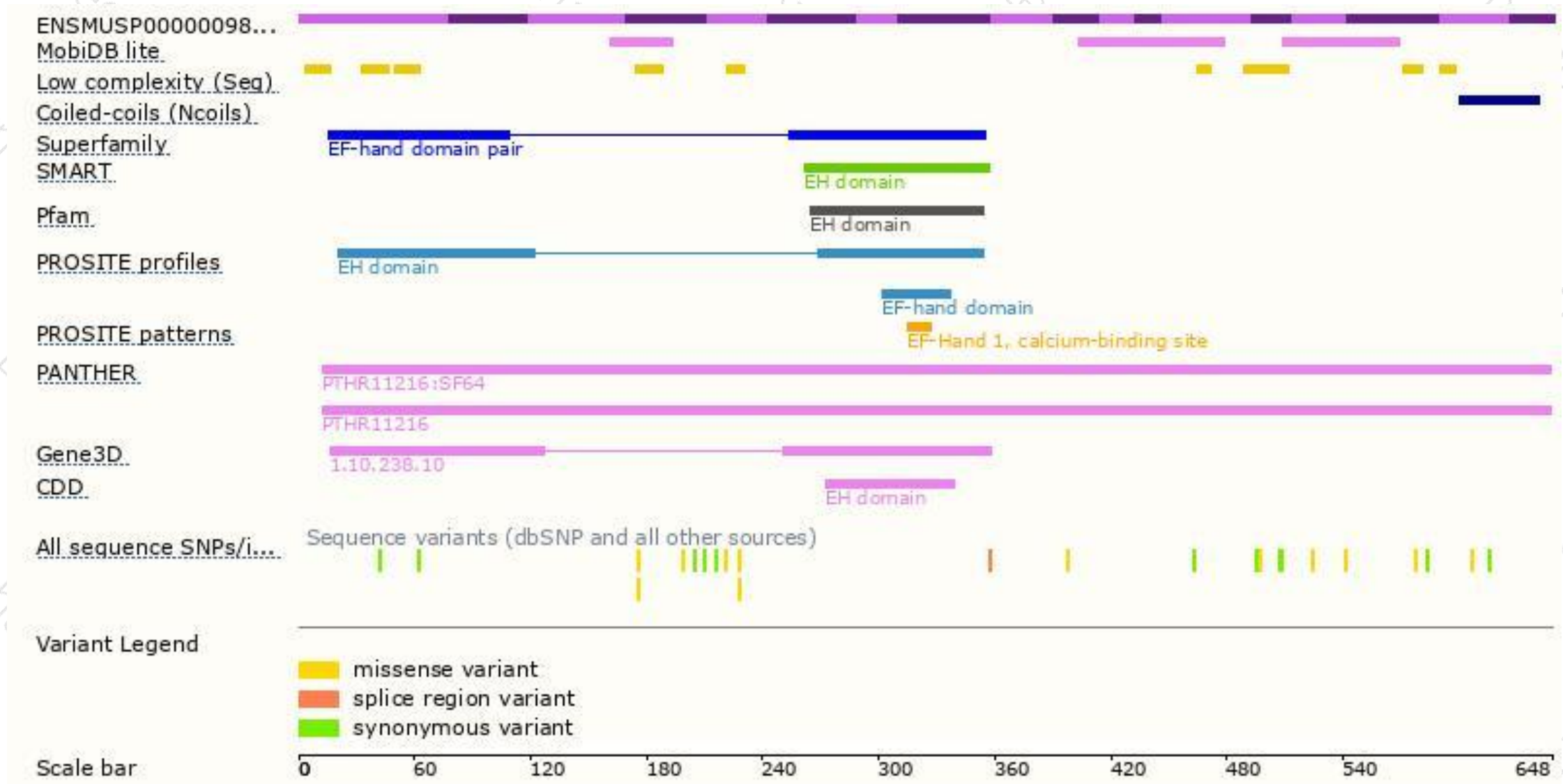
Mouse phenotype description(MGI)

Phenotype Overview

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

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