Slc27a2 Cas9-CKO Strategy

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Project Overview

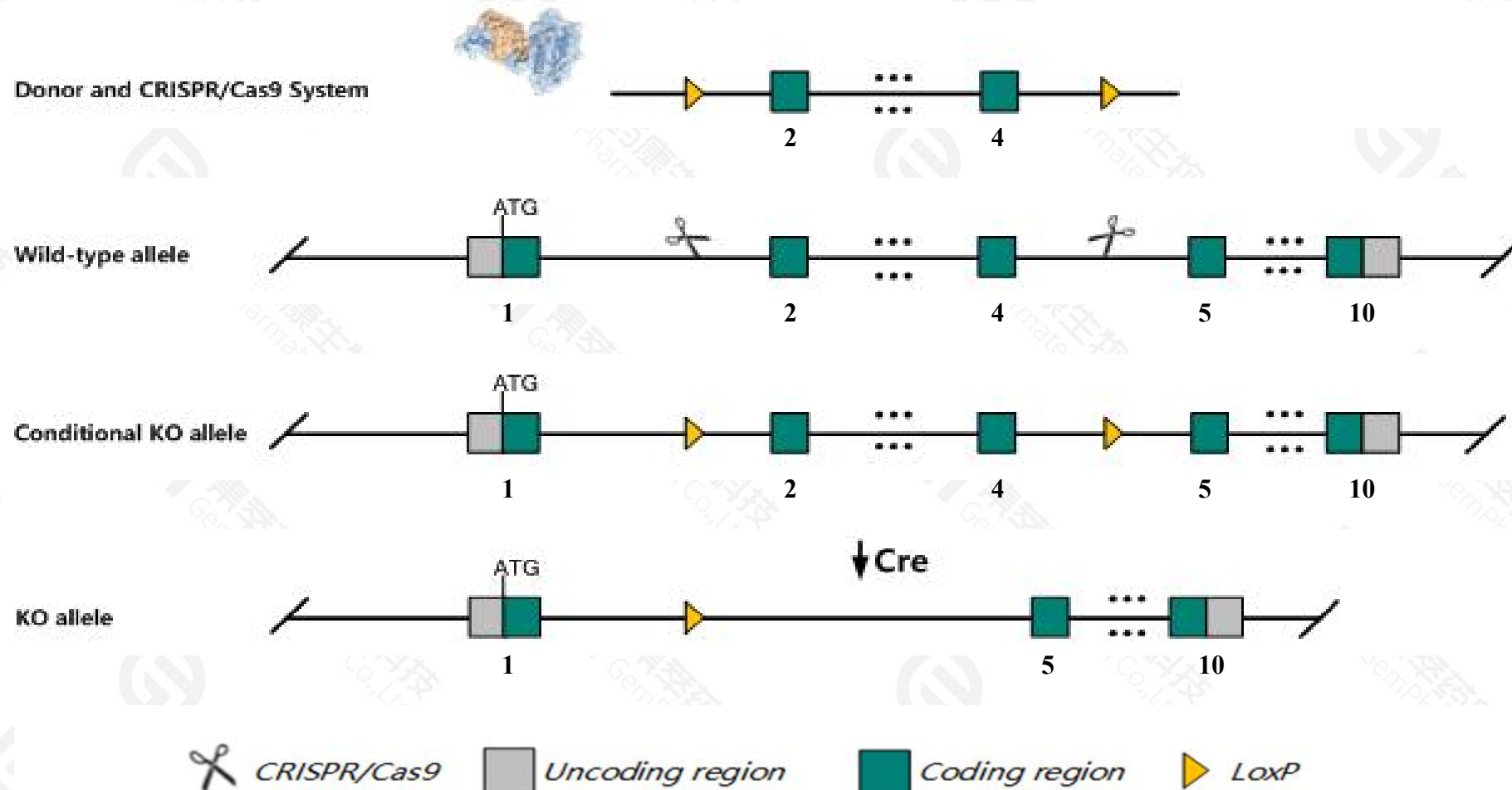|	
Project Name	*Slc27a2*
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc27a2* gene. The schematic diagram is as follows:

Technical routes

➢ The *Slc27a2* gene has 4 transcripts. According to the structure of *Slc27a2* gene, exon2-exon4 of *Slc27a2-201*(ENSMUST00000061491.14) transcript is recommended as the knockout region.The region contains 494bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Slc27a2* gene. The brief process is as follows:gRNA was transcribed in vitro, donor was constructed.Cas9, gRNA 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,homozygous mutant mice are viable and show no gross morphological abnormalities.

➢ The *Slc27a2* gene is located on the Chr2. 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）

Slc27a2 solute carrier family 27 (fatty acid transporter), member 2 [Mus musculus (house mouse)]

Gene ID: 26458, updated on 2-Mar-2021

▲ Summary

|	
Official Symbol	Slc27a2 provided by MGI
Official Full Name	solute carrier family 27 (fatty acid transporter), member 2 provided by MGI
Primary source	MGI:MGI:1347099
See related	Ensembl:ENSMUSG00000027359
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	AC, ACSVL1, FAT, FATP2, V, VLCS, Vlac, Vlacs
Expression	Biased expression in kidney adult (RPKM 780.2), liver adult (RPKM 522.9) and 3 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
Slc27a2-201	ENSMUST00000061491.14	2918	620aa	Protein coding	CCDS16683		TSL:1 , GENCODE basic , APPRIS P1 ,
Slc27a2-203	ENSMUST00000141482.3	1478	484aa	Protein coding	-		TSL:5 ,
Slc27a2-204	ENSMUST00000150947.2	1010	No protein	Processed transcript	-		TSL:5 ,
Slc27a2-202	ENSMUST00000126249.2	393	No protein	Processed transcript	-		TSL:5 ,

The strategy is based on the design of *Slc27a2-201* transcript,the transcription is shown below:
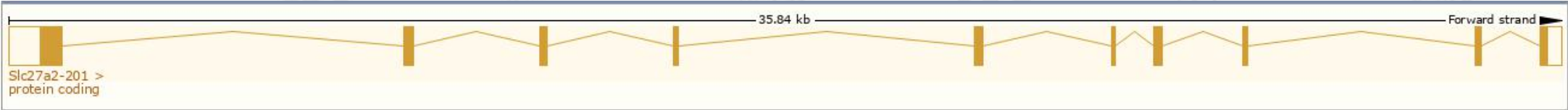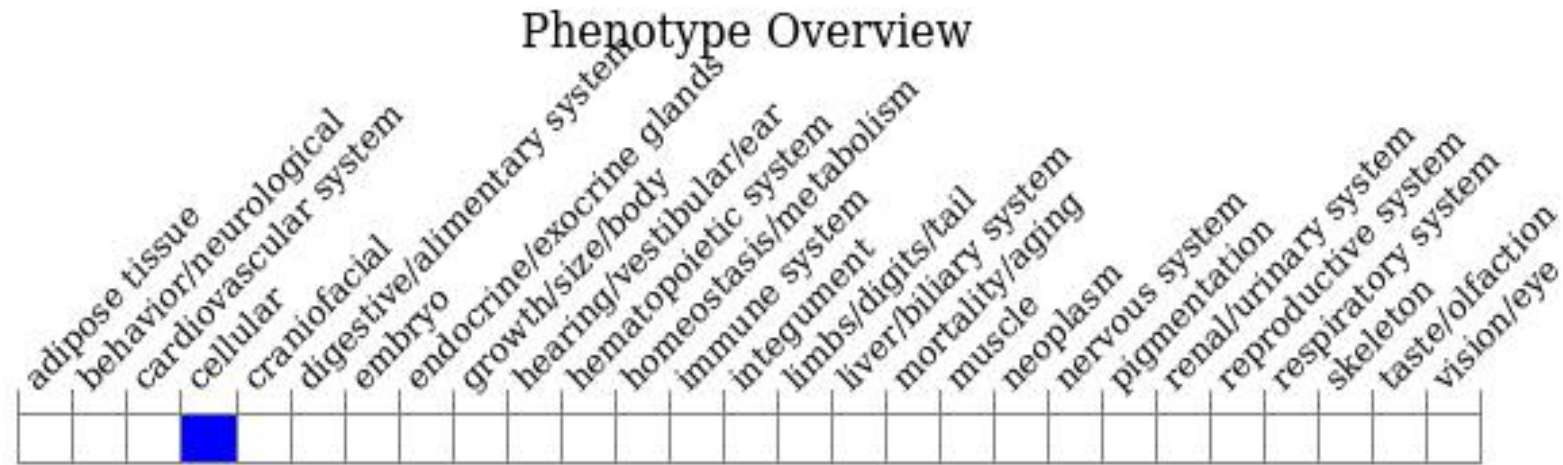
Genomic location distribution
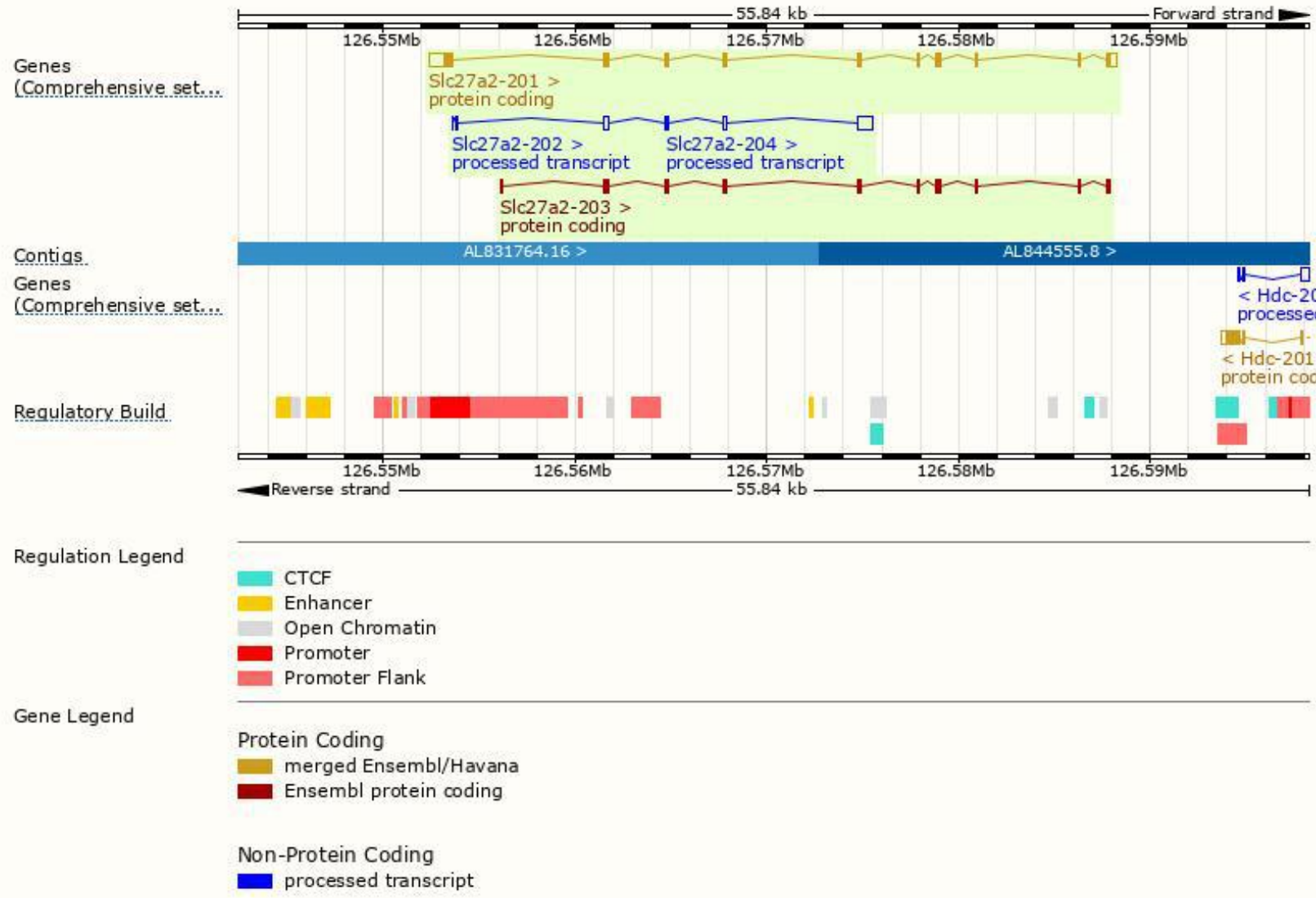
Protein domain
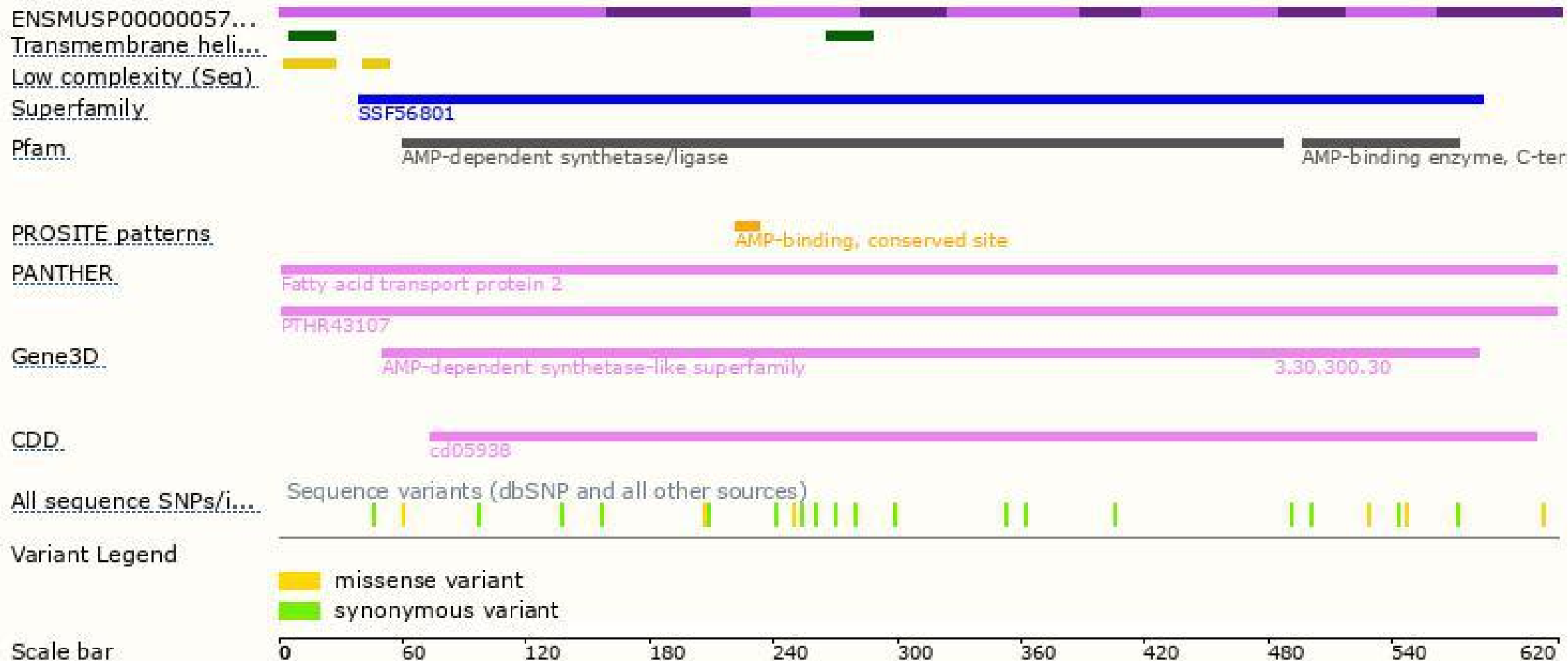
Mouse phenotype description(MGI)

Phenotype Overview

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

According to the existing MGI data,homozygous mutant mice are viable and show no gross morphological abnormalities.

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