Sypl2 Cas9-KO Strategy

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Project Overview

Project Name	***Sypl2***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Sypl2* gene. The schematic diagram is as follows:

Technical routes

➢ The *Sypl2* gene has 2 transcripts. According to the structure of *Sypl2* gene, exon3 of *Sypl2-201* (ENSMUST00000141387.3) transcript is recommended as the knockout region.The region contains 125bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Sypl2* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

➢ According to the existing MGI data,Mice homozygous for a targeted null mutation are viable and fertile, but exhibit reduced body weight, abnormal skeletal muscle membranes and irregular skeletal muscle contractility.

➢ The *Sypl2* gene is located on the Chr3. 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）

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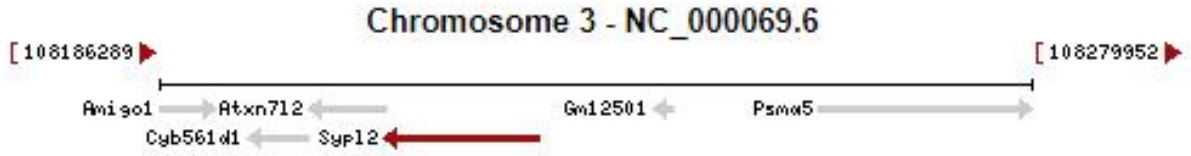
Sypl2 synaptophysin-like 2 [*Mus musculus* (house mouse)]

Gene ID: 17306, updated on 12-Aug-2019

Summary

Official Symbol	Sypl2 provided by MGI
Official Full Name	synaptophysin-like 2 provided by MGI
Primary source	MGI:MGI:1328311
See related	Ensembl:ENSMUSG00000027887
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Mg29; AI552439
Expression	Biased expression in mammary gland adult (RPKM 12.7), kidney adult (RPKM 10.8) and 11 other tissues See more
Orthologs	human all

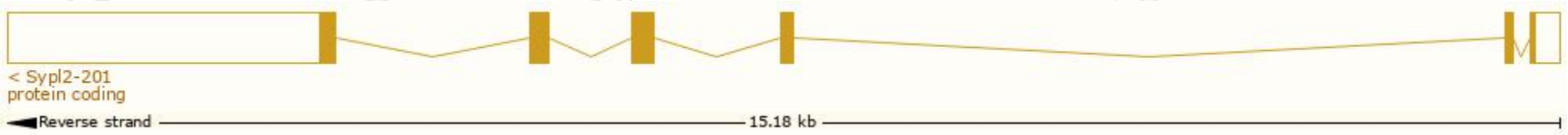


Transcript information（Ensembl）

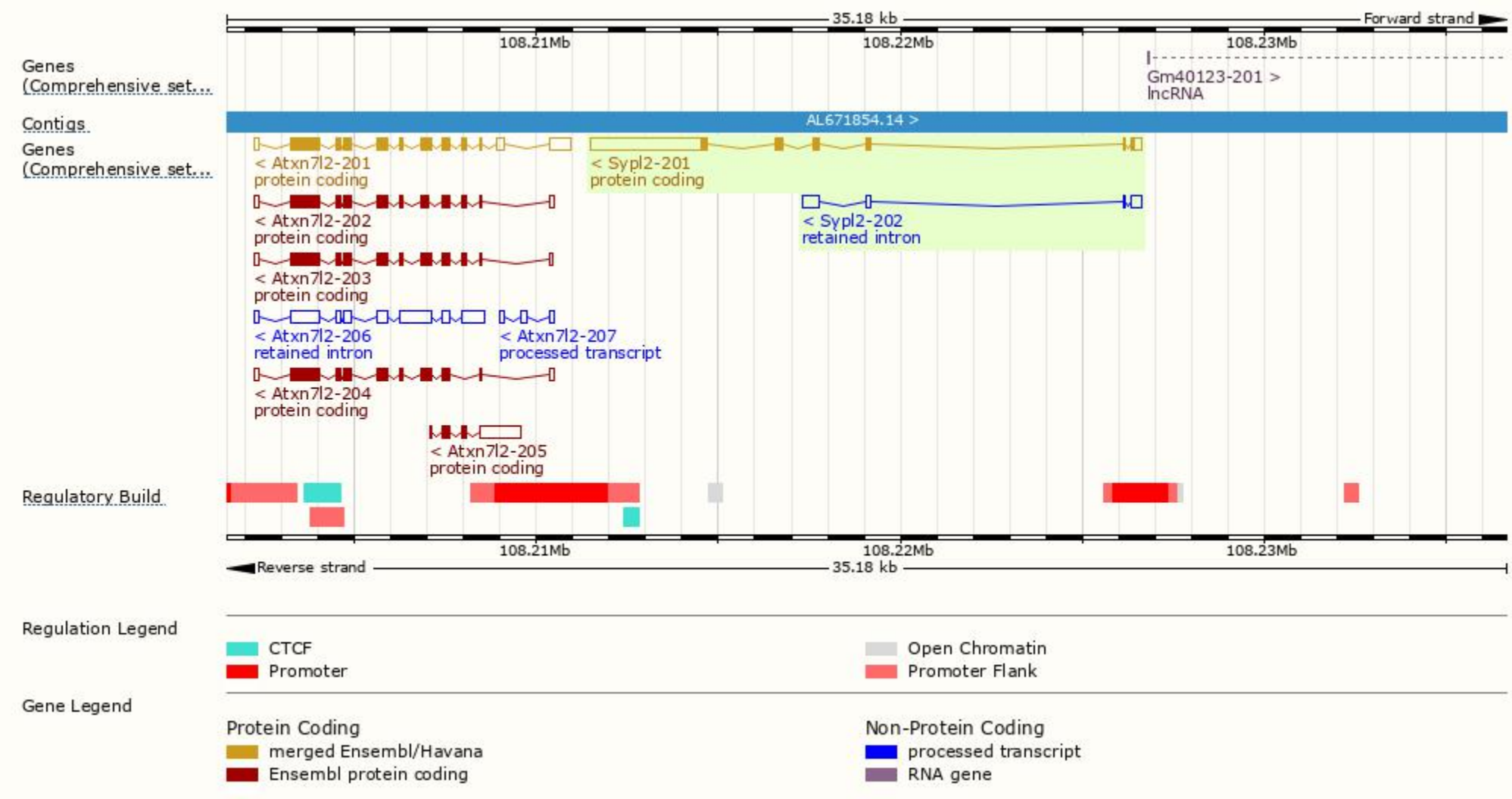
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Sypl2-201	ENSMUST00000141387.3	4090	264aa	Protein coding	CCDS57253	O89104	TSL:1 GENCODE basic APPRIS P1
Sypl2-202	ENSMUST00000156371.2	969	No protein	Retained intron	-	-	TSL:1

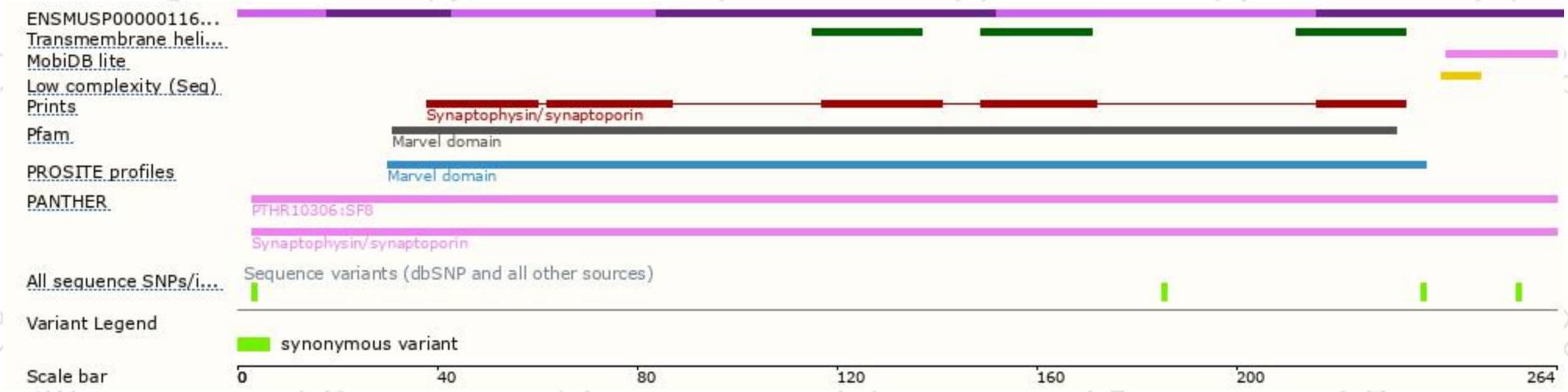
The strategy is based on the design of *Sypl2-201* transcript,The transcription is shown below



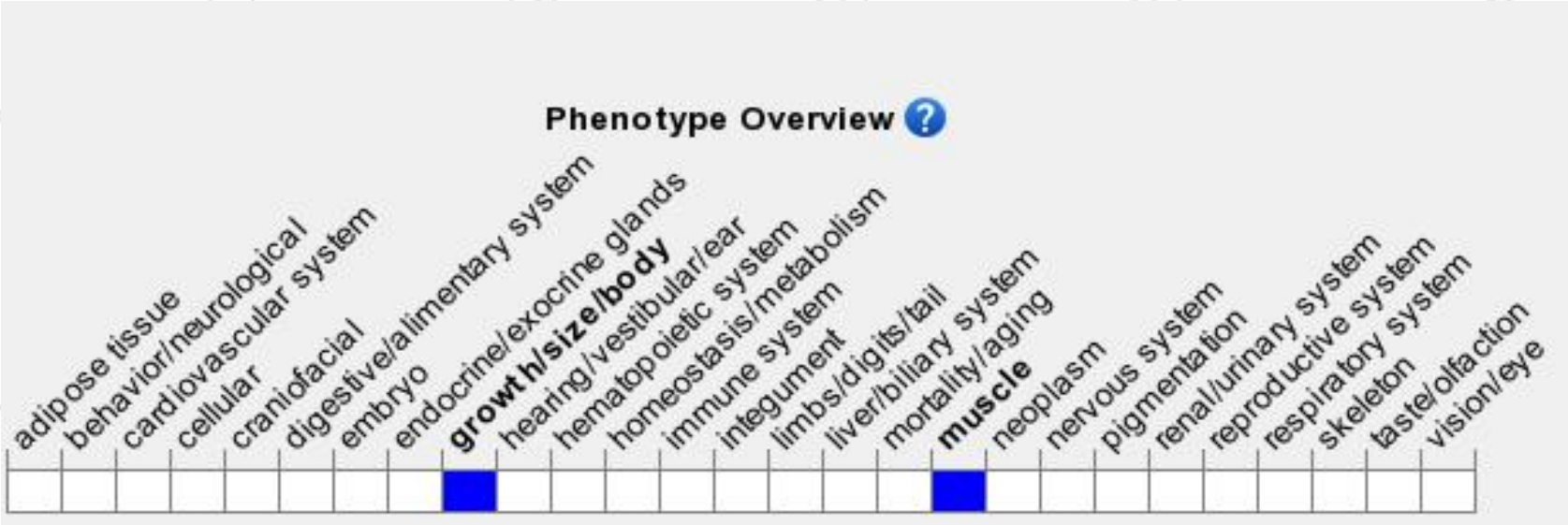
Genomic location distribution



Protein domain



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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