Lpcat4 Cas9-KO Strategy

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Design Date: 2021-3-12

Project Overview

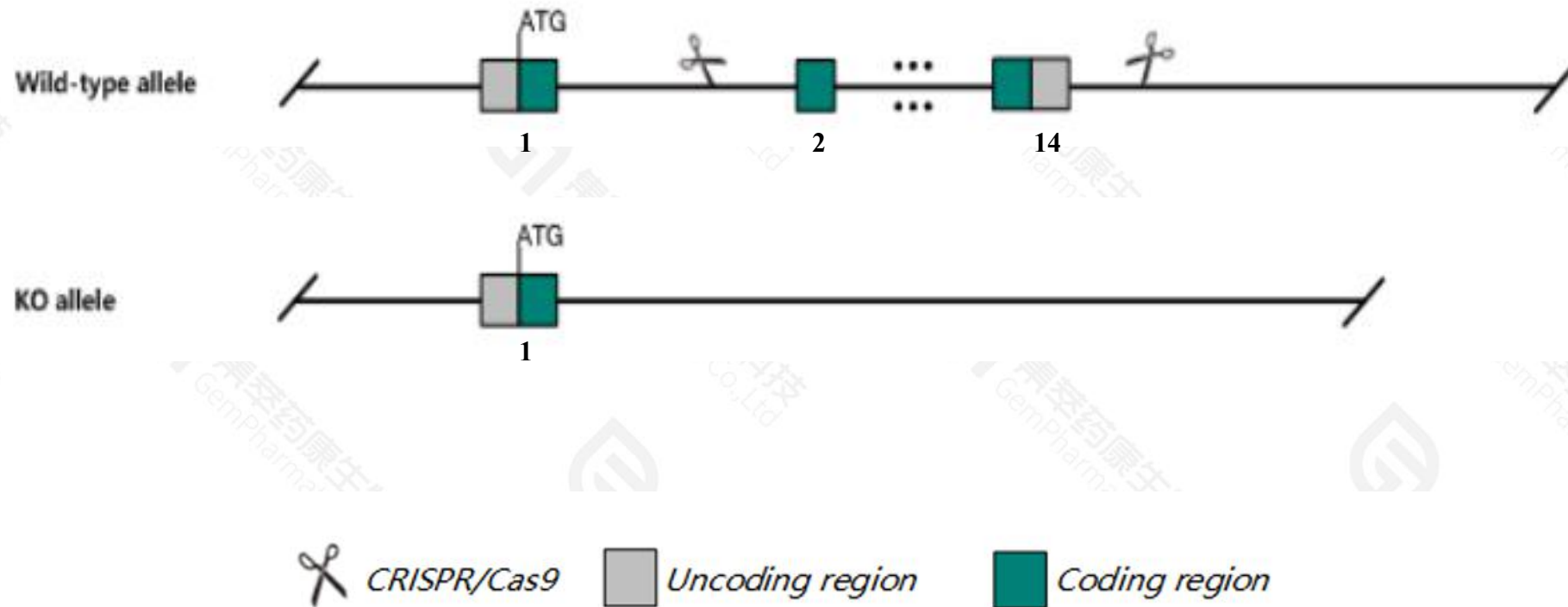|	
Project Name	*Lpcat4*
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Lpcat4* gene. The schematic diagram is as follows:

Technical routes

➤ The *Lpcat4* gene has 4 transcripts. According to the structure of *Lpcat4* gene, exon2-exon14 of *Lpcat4-201*(ENSMUST00000028554.3) transcript is recommended as the knockout region.The region contains most of the coding sequence.Knock out the region will result in disruption of protein function.

➤ In this project we use CRISPR/Cas9 technology to modify *Lpcat4* 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.

➢ The *Lpcat4* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information （NCBI）

Lpcat4 lysophosphatidylcholine acyltransferase 4 [Mus musculus (house mouse)]

Gene ID: 99010, updated on 13-Mar-2020

▲ Summary

|	
Official Symbol	Lpcat4 provided by MGI
Official Full Name	lysophosphatidylcholine acyltransferase 4 provided by MGI
Primary source	MGI:MGI:2138993
See related	Ensembl:ENSMUSG00000027134
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	AI505034, Agp, Agpat7, Ayt, Aytl3, LPE, LPEAT2
Expression	Broad expression in stomach adult (RPKM 59.3), cortex adult (RPKM 45.0) and 22 other tissuesSee 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
Lpcat4-201	ENSMUST00000028554.3	2275	524aa	Protein coding	CCDS16548	Q6NVG1	TSL:1 GENCODE basic APPRIS P1
Lpcat4-204	ENSMUST00000136219.1	865	No protein	Processed transcript	-	-	TSL:5
Lpcat4-202	ENSMUST00000129503.1	732	No protein	Processed transcript	-	-	TSL:2
Lpcat4-203	ENSMUST00000132314.1	678	No protein	Processed transcript	-	-	TSL:3

The strategy is based on the design of *Lpcat4-201* transcript,the transcription is shown below:
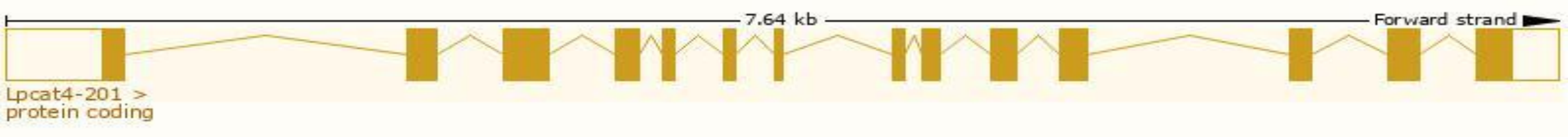
Genomic location distribution
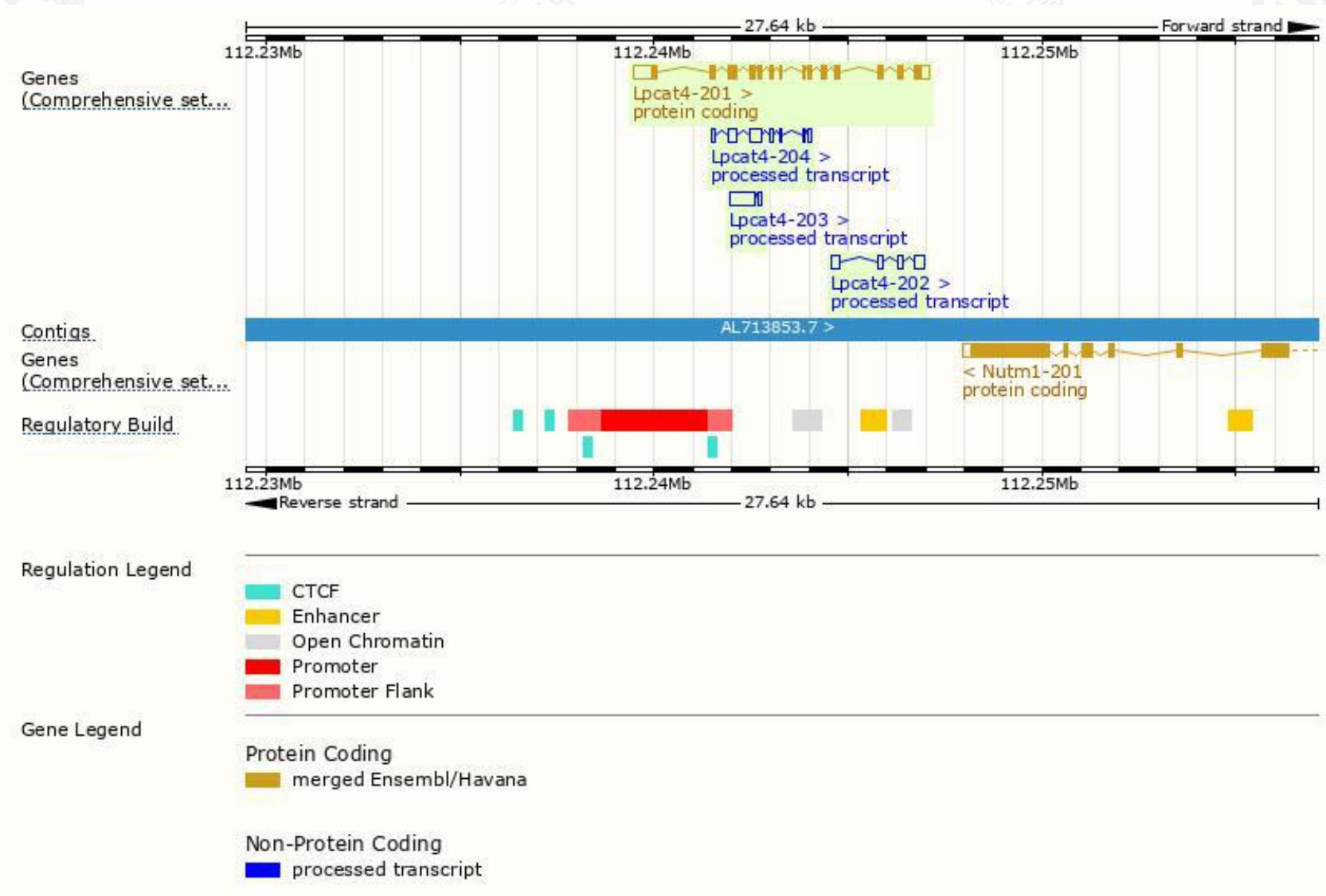
Protein domain
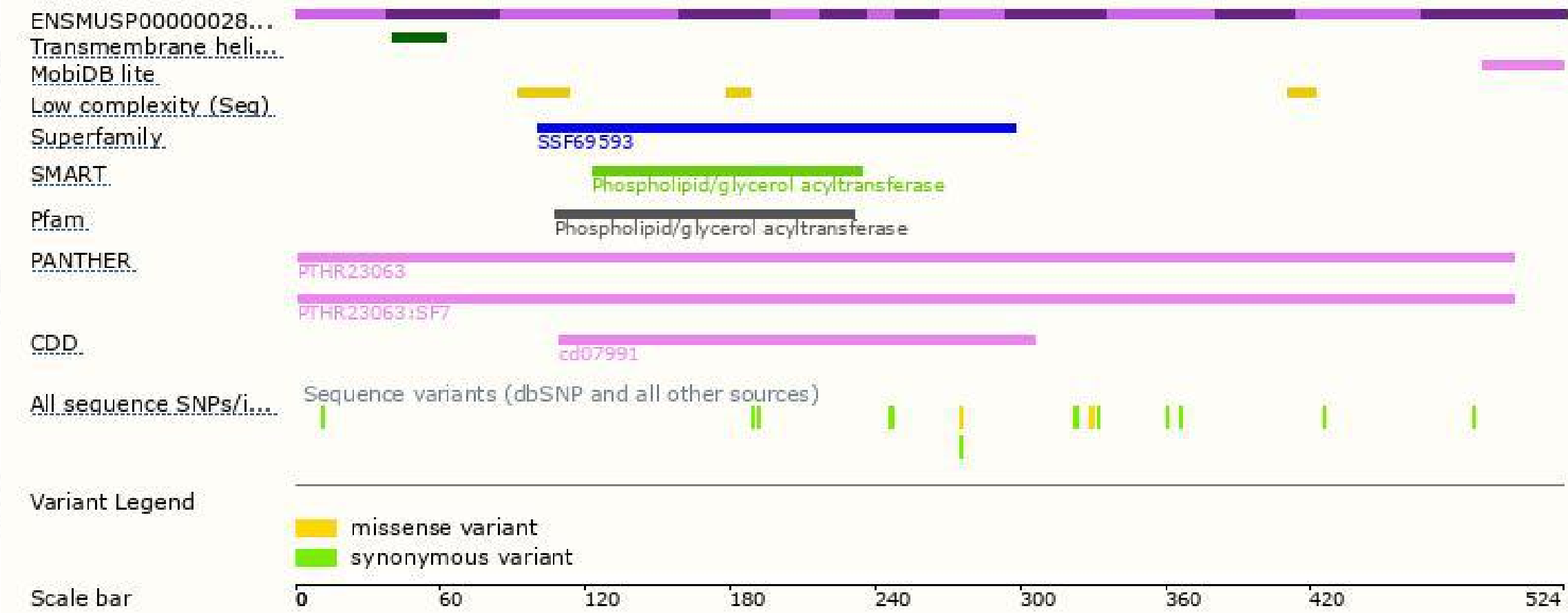
If you have any questions, you are welcome to inquire.
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