Las1l Cas9-KO Strategy

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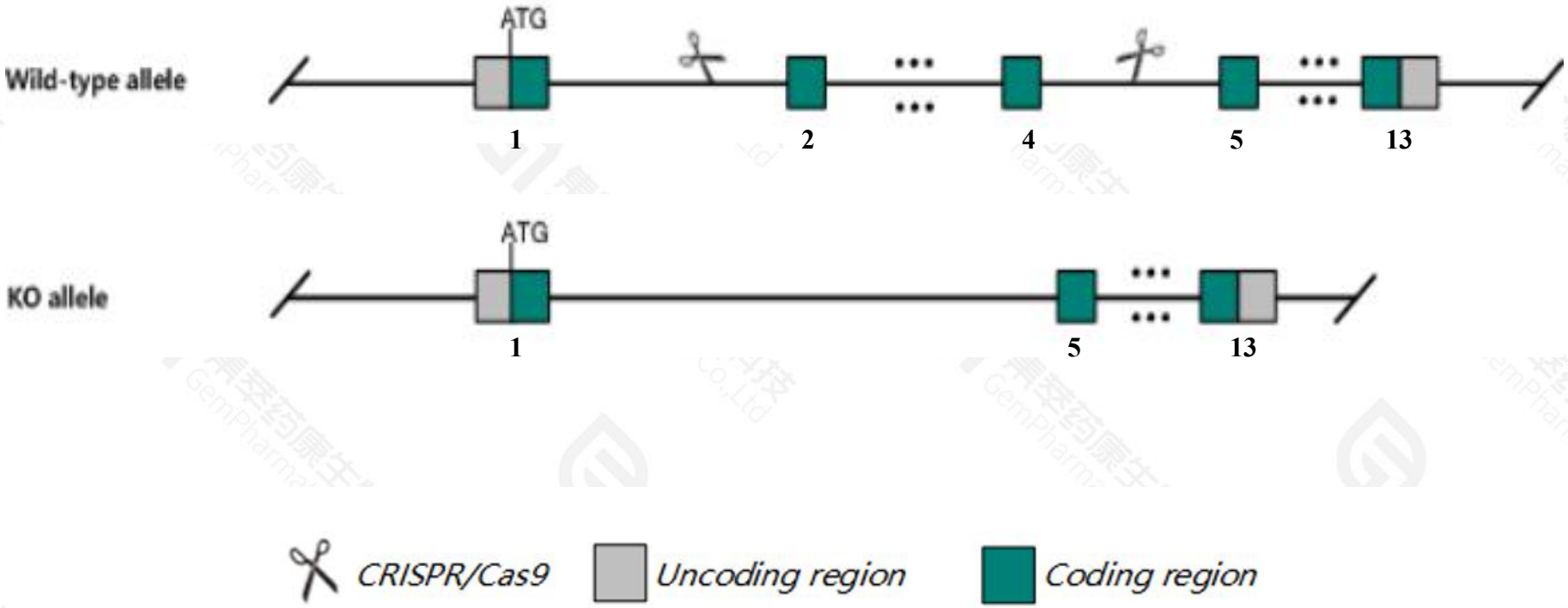
Project Overview

Project Name	***Las1l***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Las1l* gene. The schematic diagram is as follows:



Technical routes

➢ The *Las1l* gene has 7 transcripts. According to the structure of *Las1l* gene, exon2-exon4 of *Las1l-201*(ENSMUST00000079987.12) transcript is recommended as the knockout region.The region contains 278bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Las1l* 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 *Las1l* 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.

➢ 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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Las1l LAS1-like (S. cerevisiae) [Mus musculus (house mouse)]

Gene ID: 76130, updated on 13-Mar-2020

Summary

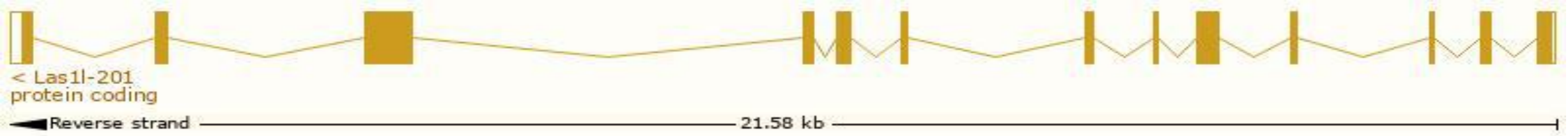
Official Symbol	Las1l provided by MGI
Official Full Name	LAS1-like (S. cerevisiae) provided by MGI
Primary source	MGI:MGI:1923380
See related	Ensembl:ENSMUSG00000057421
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1810030A06Rik, 5830482G23Rik
Expression	Ubiquitous expression in placenta adult (RPKM 15.5), CNS E14 (RPKM 8.8) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

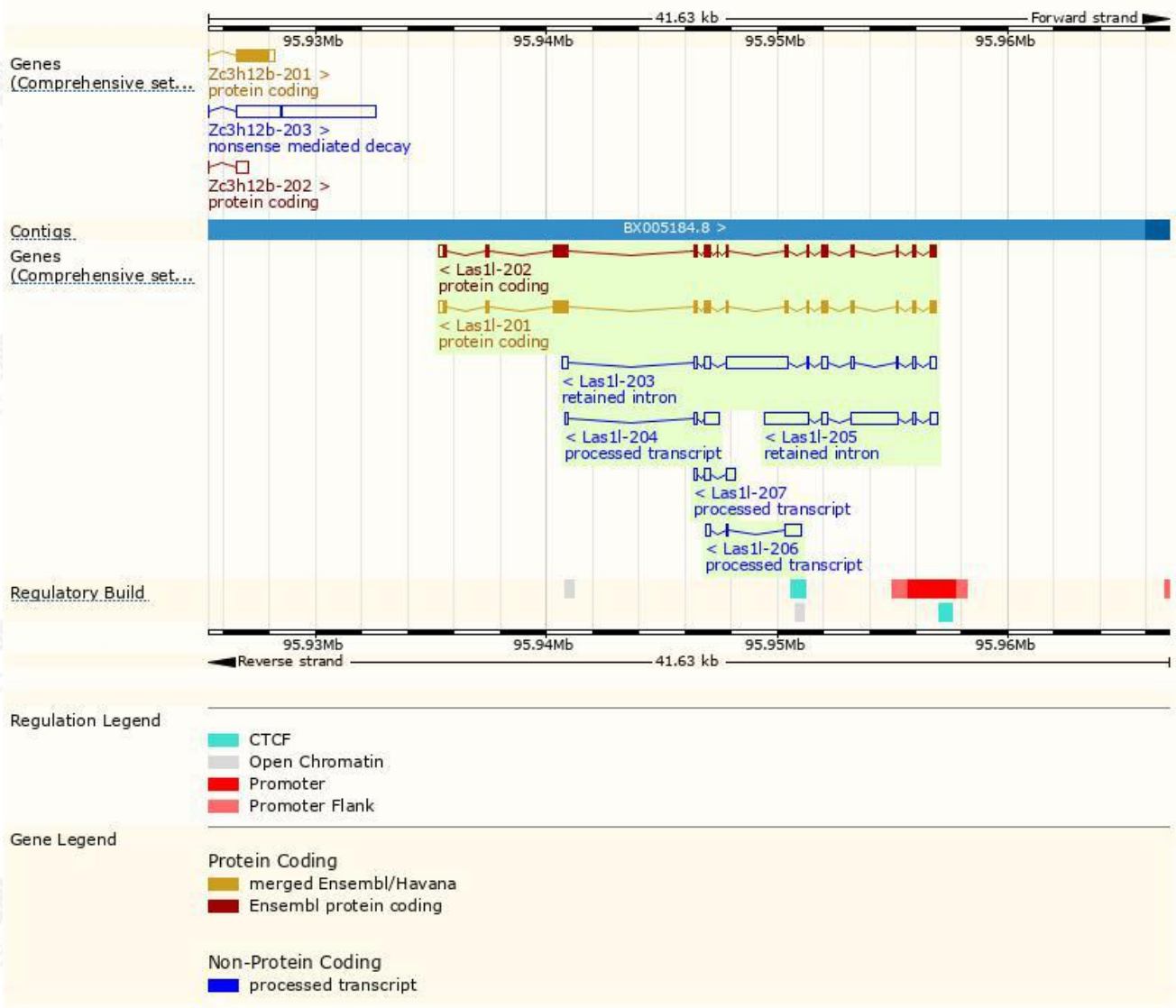
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Las1l-201	ENSMUST00000079987.12	2530	759aa	Protein coding	CCDS30287	A2BE28	TSL:1 GENCODE basic APPRIS P2
Las1l-202	ENSMUST00000113864.2	2581	776aa	Protein coding	-	A2BE28	TSL:5 GENCODE basic APPRIS ALT2
Las1l-206	ENSMUST00000147994.1	945	No protein	Processed transcript	-	-	TSL:5
Las1l-204	ENSMUST00000137659.1	862	No protein	Processed transcript	-	-	TSL:2
Las1l-207	ENSMUST00000152181.1	778	No protein	Processed transcript	-	-	TSL:2
Las1l-205	ENSMUST00000139717.1	4625	No protein	Retained intron	-	-	TSL:2
Las1l-203	ENSMUST00000126605.7	4126	No protein	Retained intron	-	-	TSL:1

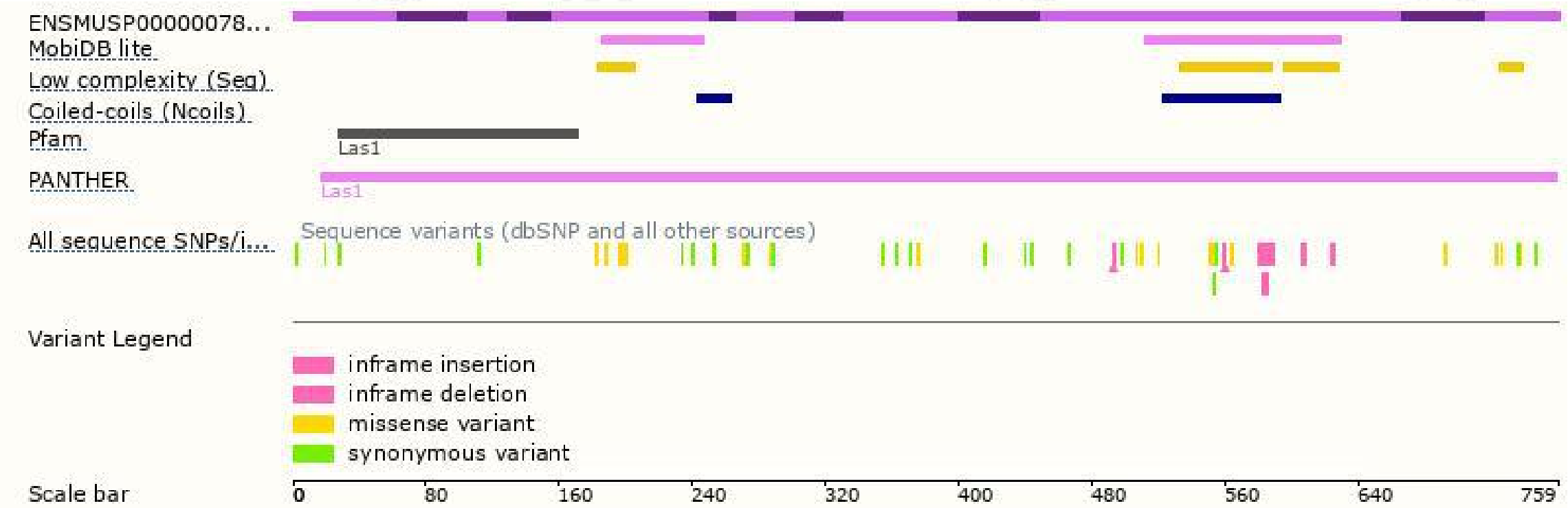
The strategy is based on the design of *Las1l-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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