

Cel Cas9-KO Strategy

Designer:

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Project Overview

Project Name

Cel

Project type

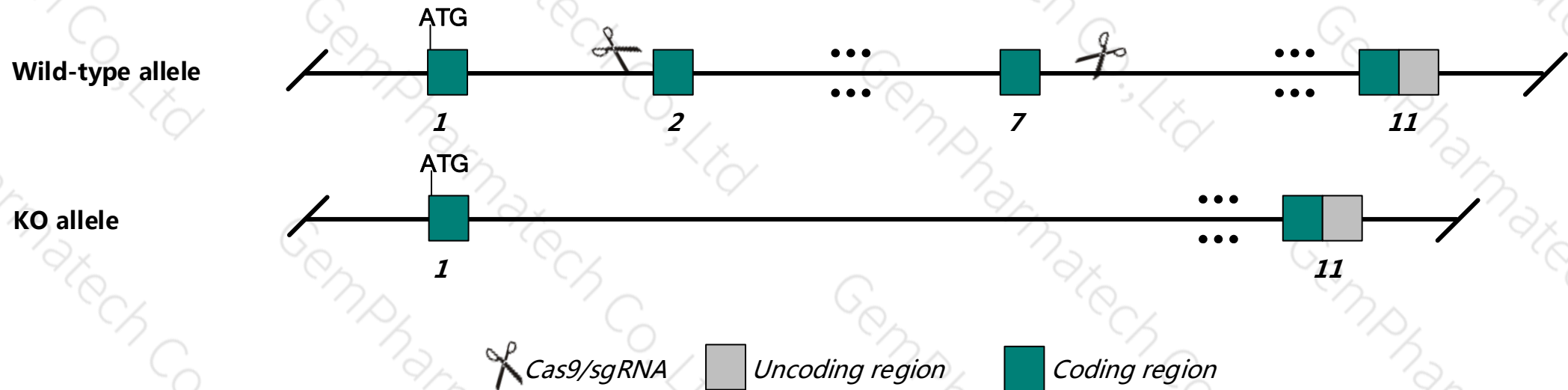
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



Technical routes

- The *Cel* gene has 2 transcripts. According to the structure of *Cel* gene, exon2-exon7 of *Cel*-201 transcript is recommended as the knockout region. The region contains 829bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Cel* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA 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 KO region contains the functional region of the *Gm13381* gene. Knockout the region may affect its function of *Gm13381* gene.
- The *Cel* 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 gene transcription and translation processes, all risks cannot be predicted under existing information.

Gene information (NCBI)

Cel carboxyl ester lipase [*Mus musculus* (house mouse)]

Gene ID: 12613, updated on 14-May-2019

Summary

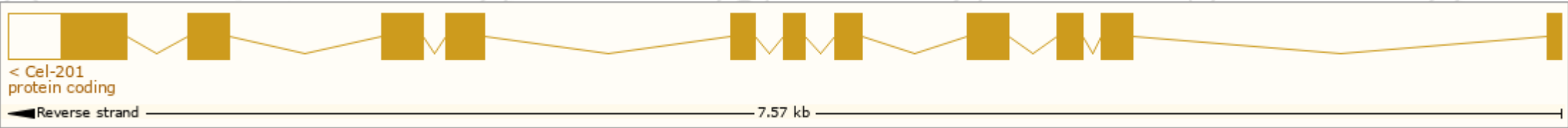
Official Symbol	Cel provided by MGI
Official Full Name	carboxyl ester lipase provided by MGI
Primary source	MGI:MGI:88374
See related	Ensembl:ENSMUSG00000026818
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	BAL; 1810036E18Rik
Expression	Biased expression in small intestine adult (RPKM 1159.1), spleen adult (RPKM 615.2) and 2 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

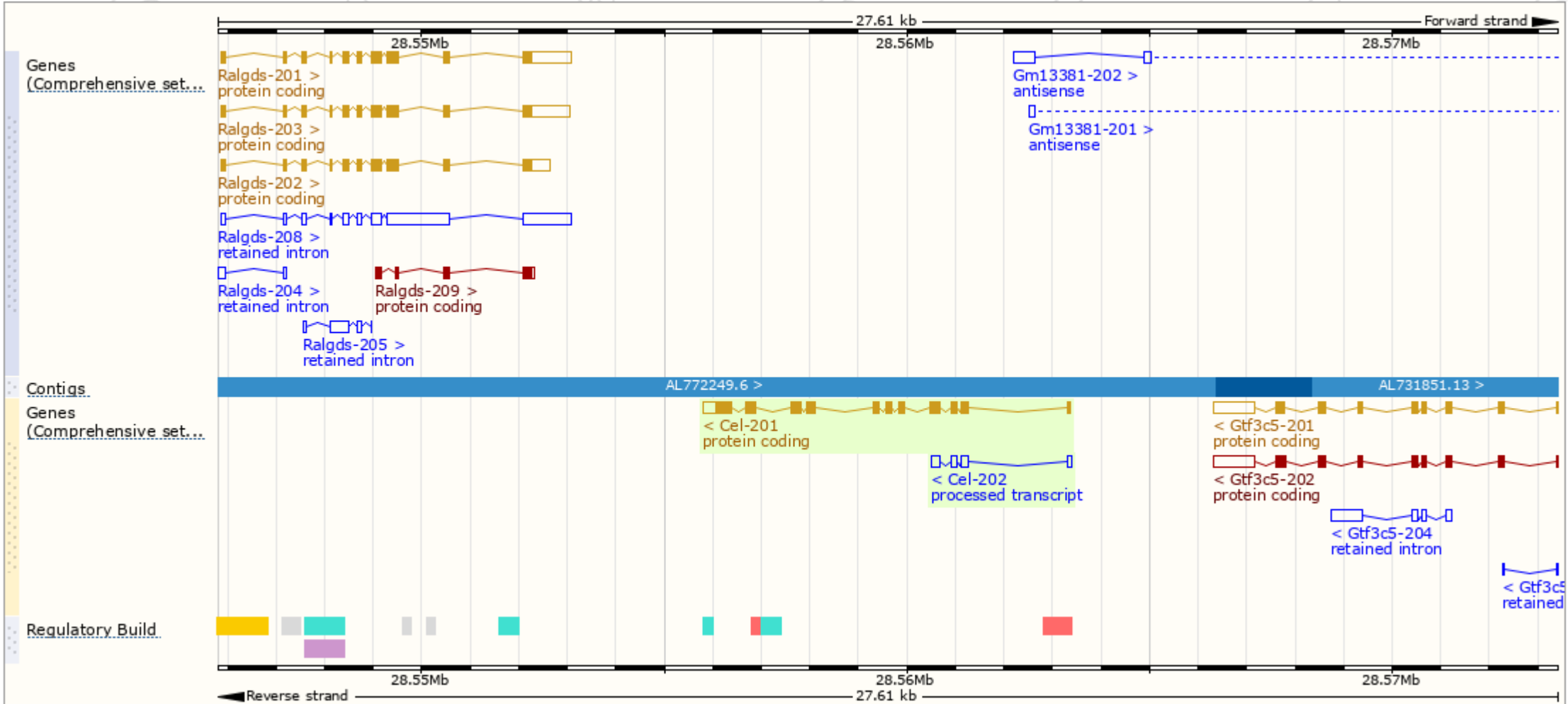
The gene has 2 transcripts, and all transcripts are shown below :

Show/hide columns (1 hidden)							Filter	
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags	
Cel-201	ENSMUST00000028161.5	2063	599aa	Protein coding	CCDS15841	Q3V2H7 Q64285	TSL:1	GENCODE basic APPRIS P1
Cel-202	ENSMUST00000124756.1	536	No protein	Processed transcript	-	-	TSL:2	

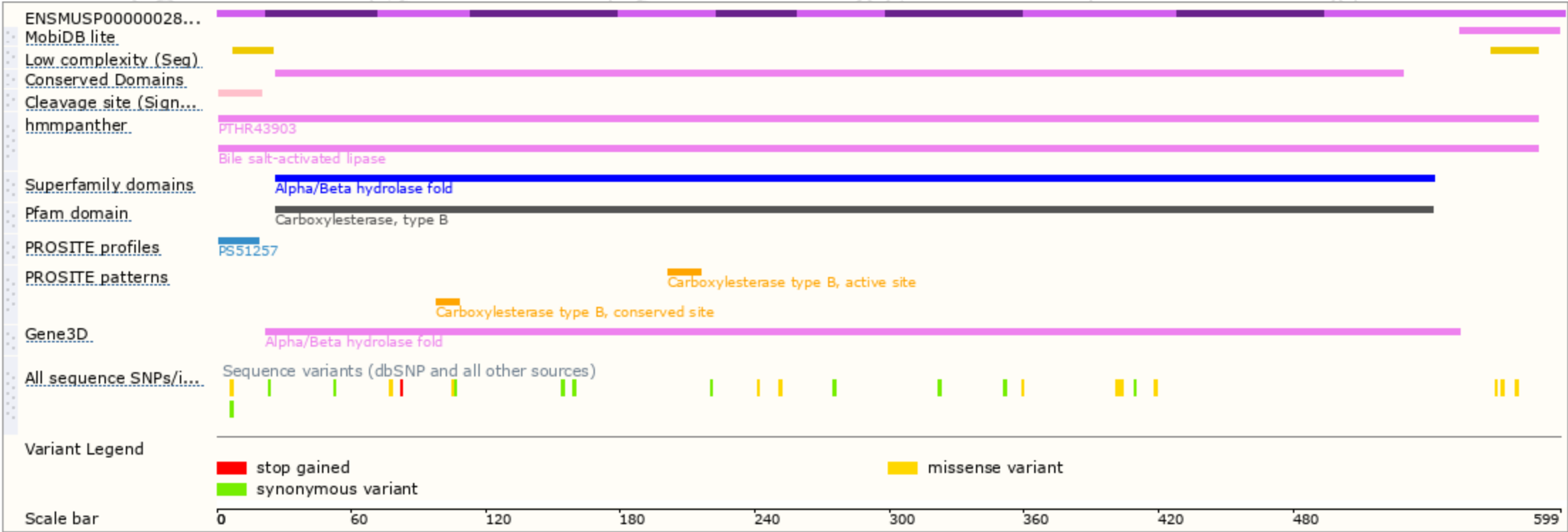
The strategy is based on the design of *Cel-201* transcript, The transcription is shown below



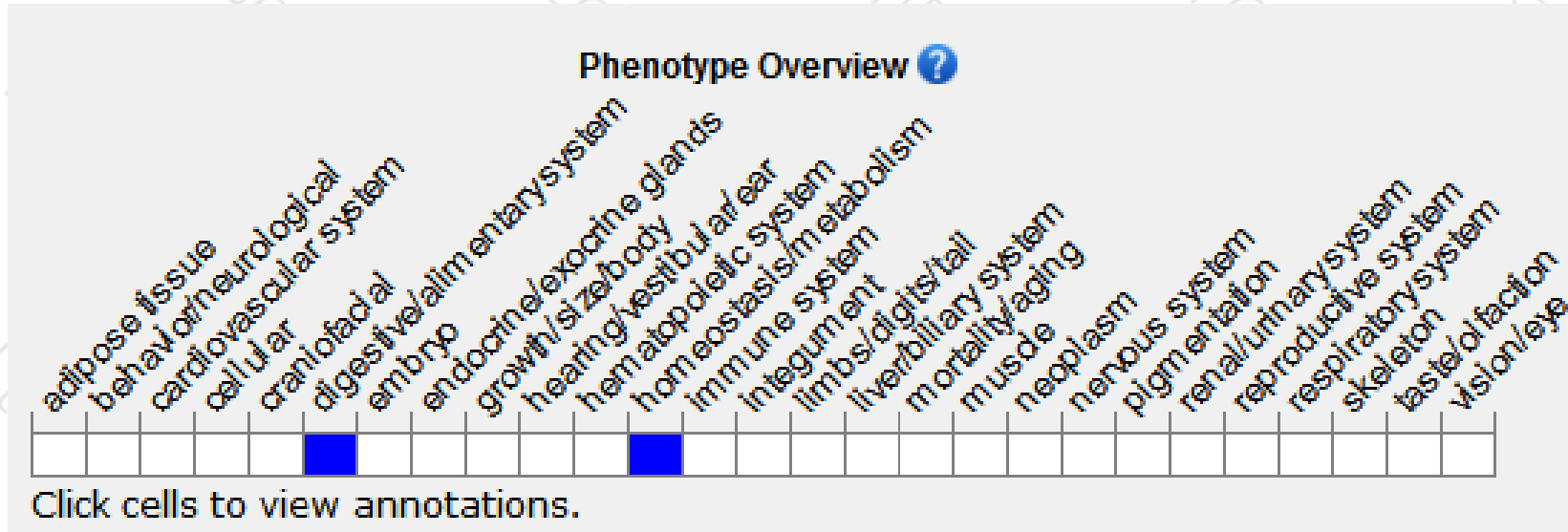
Genomic location distribution



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/>).

According to the existing MGI data, Mice homozygous for a null allele exhibit reduced cholesteryl ester absorption.

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