

# ***Cel Cas9-CKO Strategy***

**Designer:**

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# Project Overview

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**Project Name**

*Cel*

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**Project type**

**Cas9-CKO**

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**Strain background**

**C57BL/6JGpt**

# Conditional Knockout strategy

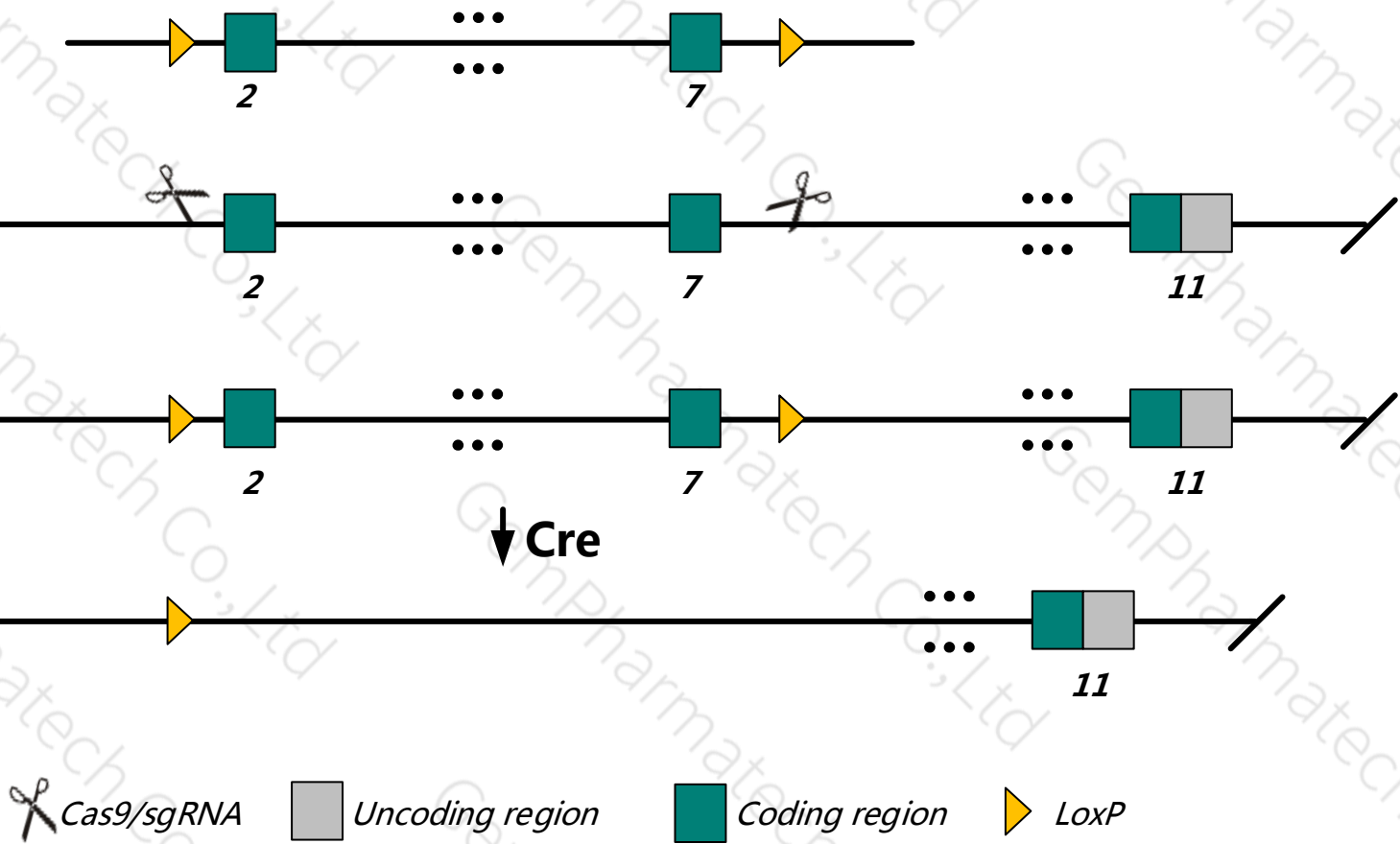
This model will use CRISPR/Cas9 technology to edit the *Cel* gene. The schematic diagram is as follows:

Donor and CRISPR/Cas9 System

Wild-type allele

Conditional KO allele

KO allele



- 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, donor vector was constructed. Cas9, sgRNA 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 was knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues or cell types.

- 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](#)

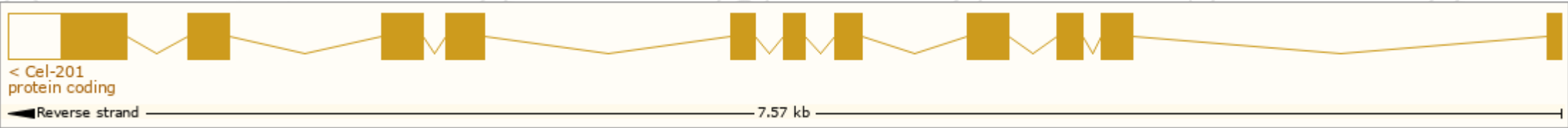


# Transcript information ( Ensembl )

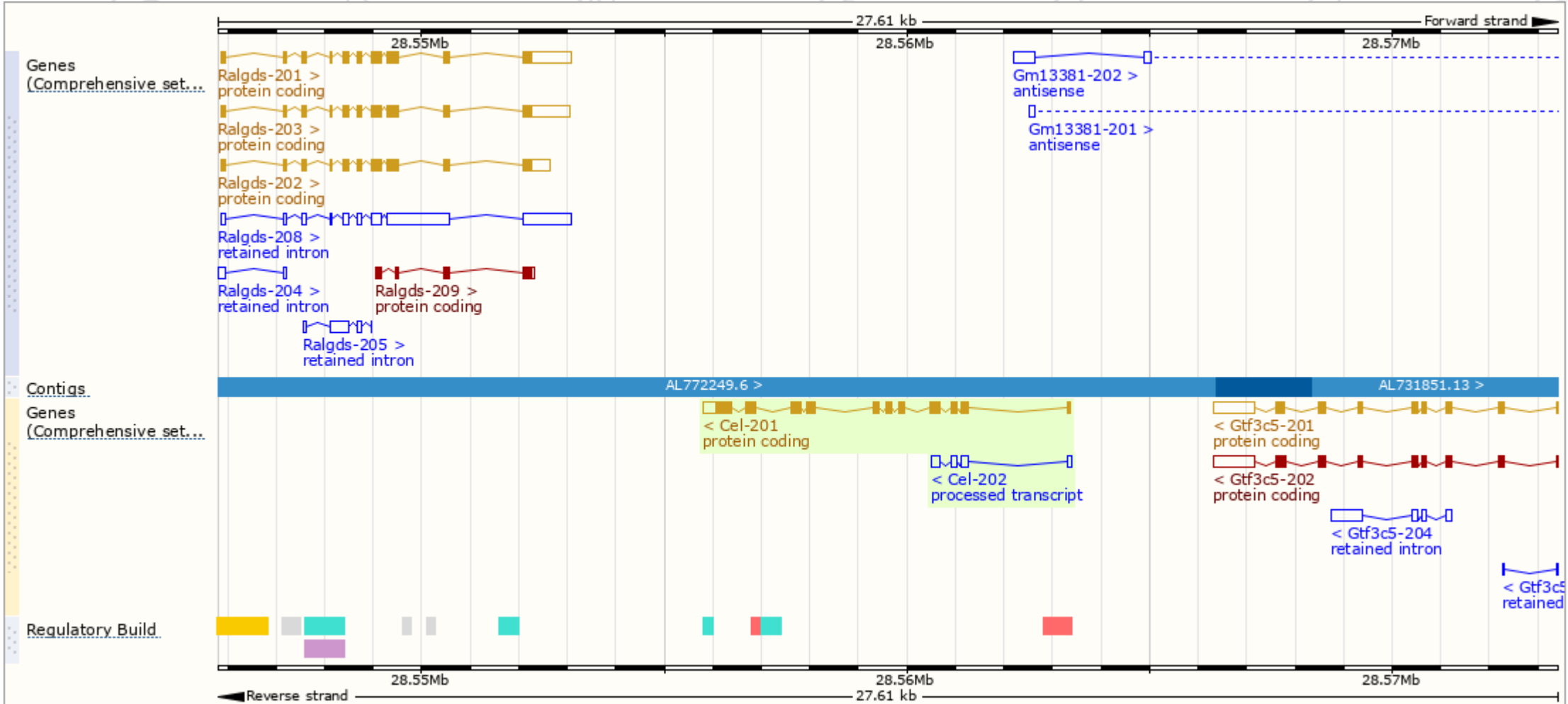
The gene has 2 transcripts, and all transcripts are shown below :

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

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

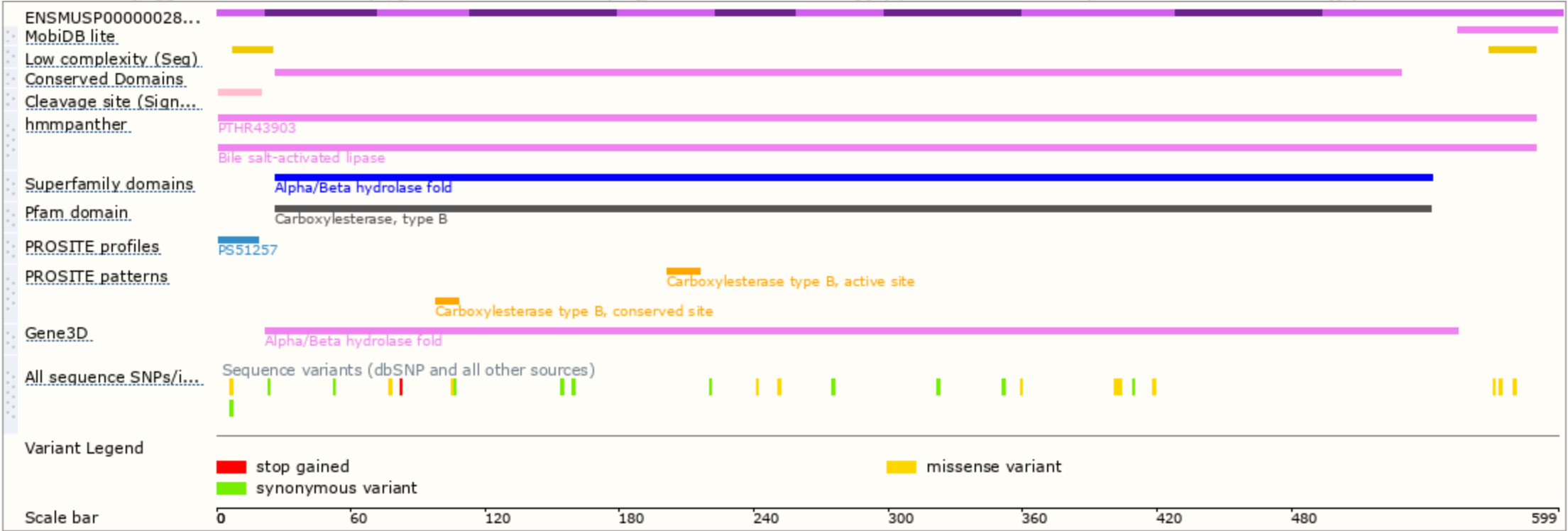


# Genomic location distribution

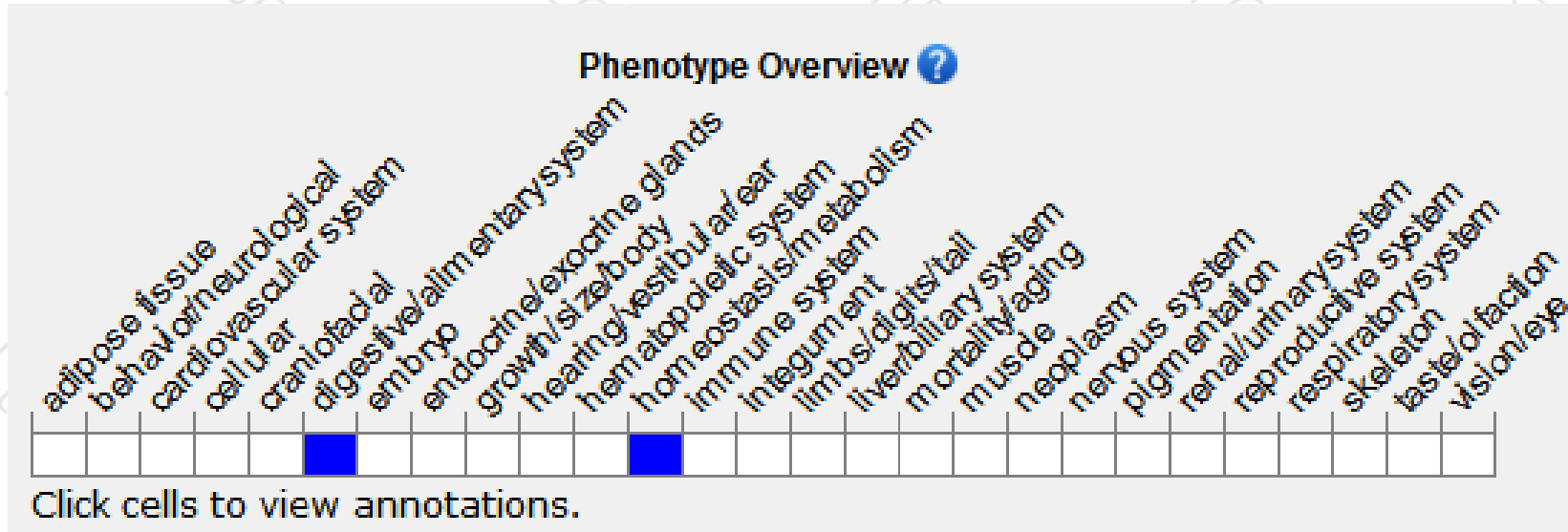




# Protein domain



# 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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