

***Entpd7* Cas9-KO Strategy**

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Project Overview

Project Name

Entpd7

Project type

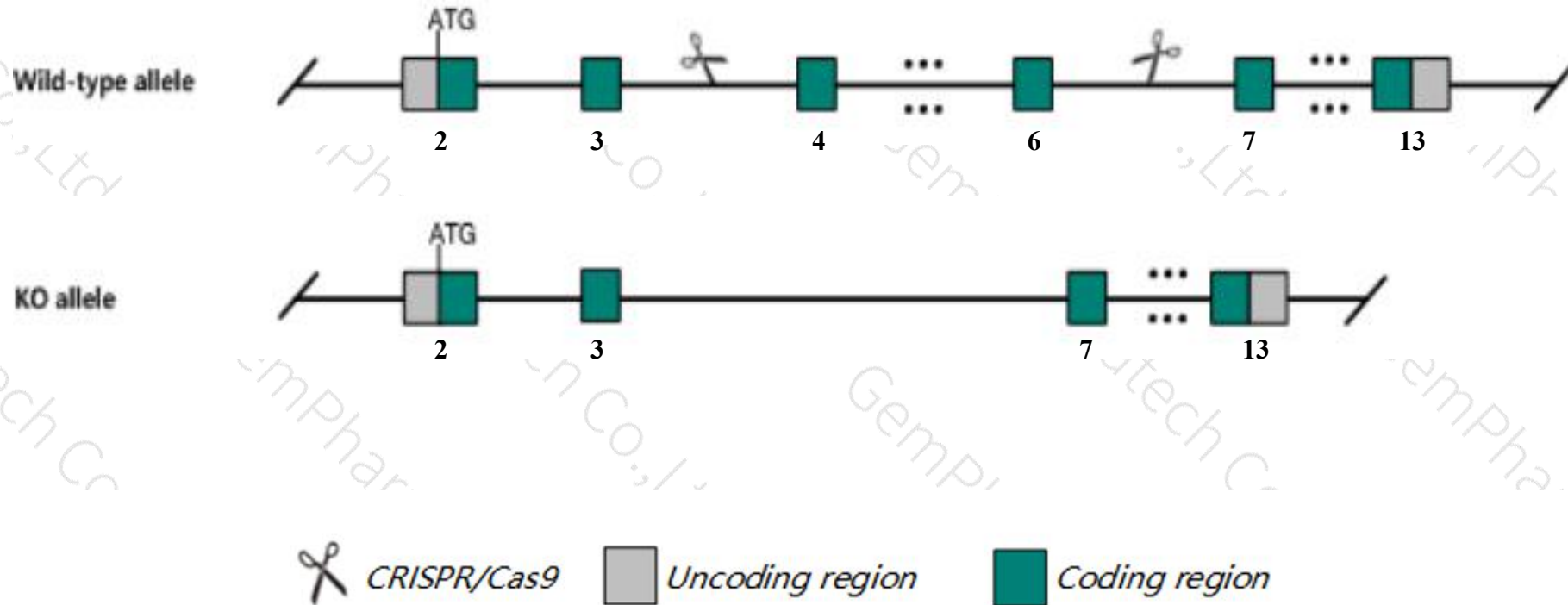
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Entpd7* gene. The schematic diagram is as follows:



- The *Entpd7* gene has 5 transcripts. According to the structure of *Entpd7* gene, exon4-exon6 of *Entpd7-201* (ENSMUST00000081079.5) transcript is recommended as the knockout region. The region contains 461bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Entpd7* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, mice homozygous for deletions in this gene have increased th17 t cell levels in the lamina propria of the small intestine. they show increased resistance to citrobacter rodentium infection and increased susceptibility to experimental autoimmune encephalomyelitis.
- The *Entpd7* gene is located on the Chr19. 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)

Entpd7 ectonucleoside triphosphate diphosphohydrolase 7 [Mus musculus (house mouse)]

Gene ID: 93685, updated on 13-Mar-2020

Summary



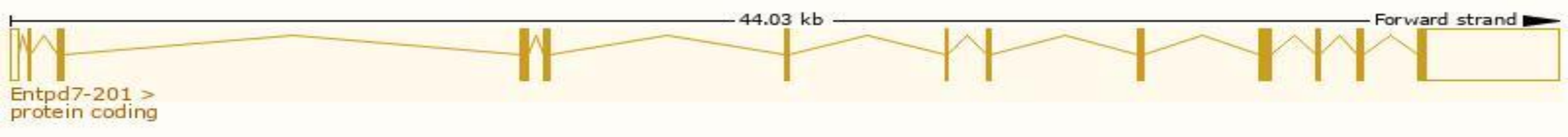
Official Symbol	Entpd7 provided by MGI
Official Full Name	ectonucleoside triphosphate diphosphohydrolase 7 provided by MGI
Primary source	MGI:MGI:2135885
See related	Ensembl:ENSMUSG00000025192
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1810012B13Rik, 1810020C02Rik, 2810003F23Rik, LALP1, Lysal2
Expression	Ubiquitous expression in large intestine adult (RPKM 10.3), duodenum adult (RPKM 9.0) and 27 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

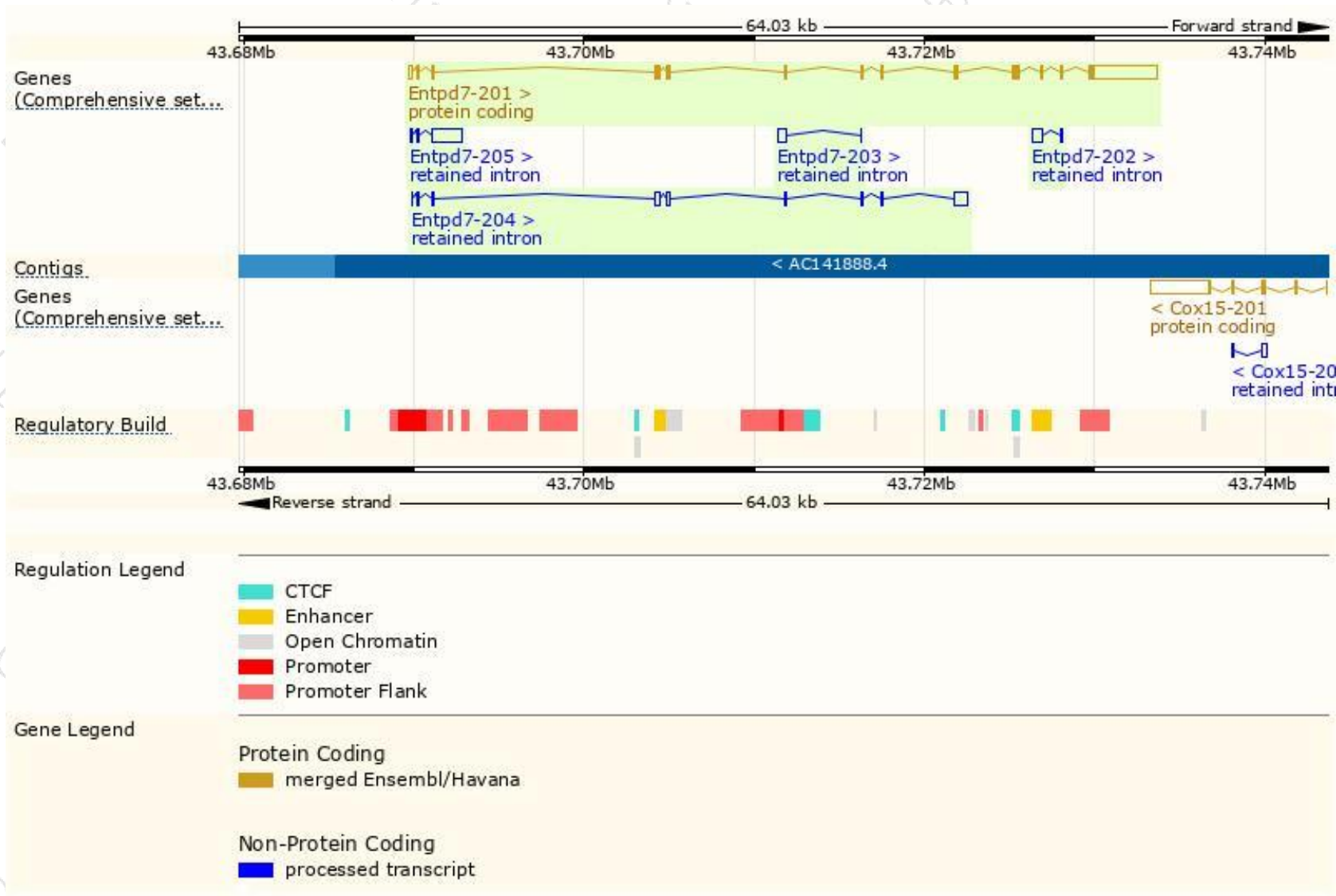
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Entpd7-201	ENSMUST00000081079.5	5911	606aa	Protein coding	CCDS29835	Q3TCT4	TSL:1 GENCODE basic APPRIS P1
Entpd7-205	ENSMUST00000152786.7	1976	No protein	Retained intron	-	-	TSL:1
Entpd7-204	ENSMUST00000144314.1	1829	No protein	Retained intron	-	-	TSL:1
Entpd7-202	ENSMUST00000131293.1	709	No protein	Retained intron	-	-	TSL:3
Entpd7-203	ENSMUST00000134481.1	466	No protein	Retained intron	-	-	TSL:3

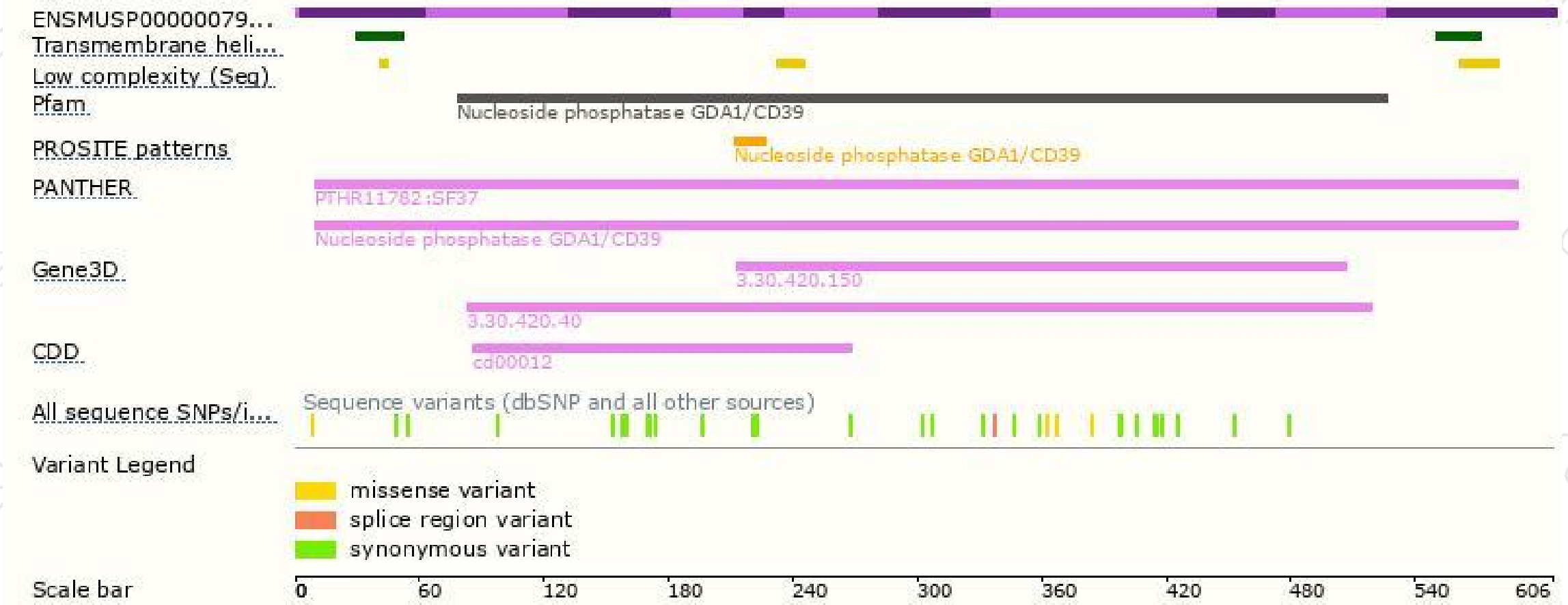
The strategy is based on the design of *Entpd7-201* transcript,the transcription is shown below:



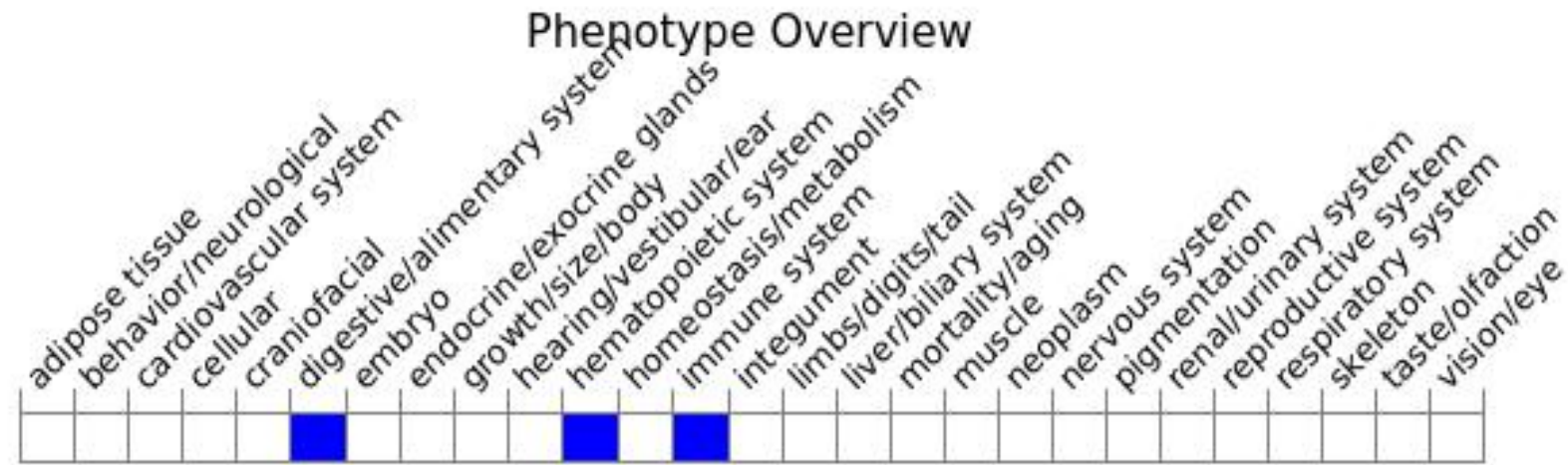
Genomic location distribution



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 deletions in this gene have increased Th17 T cell levels in the lamina propria of the small intestine. They show increased resistance to *Citrobacter rodentium* infection and increased susceptibility to experimental autoimmune encephalomyelitis.

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

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