

***Entpd1* Cas9-KO Strategy**

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Project Overview

Project Name

Entpd1

Project type

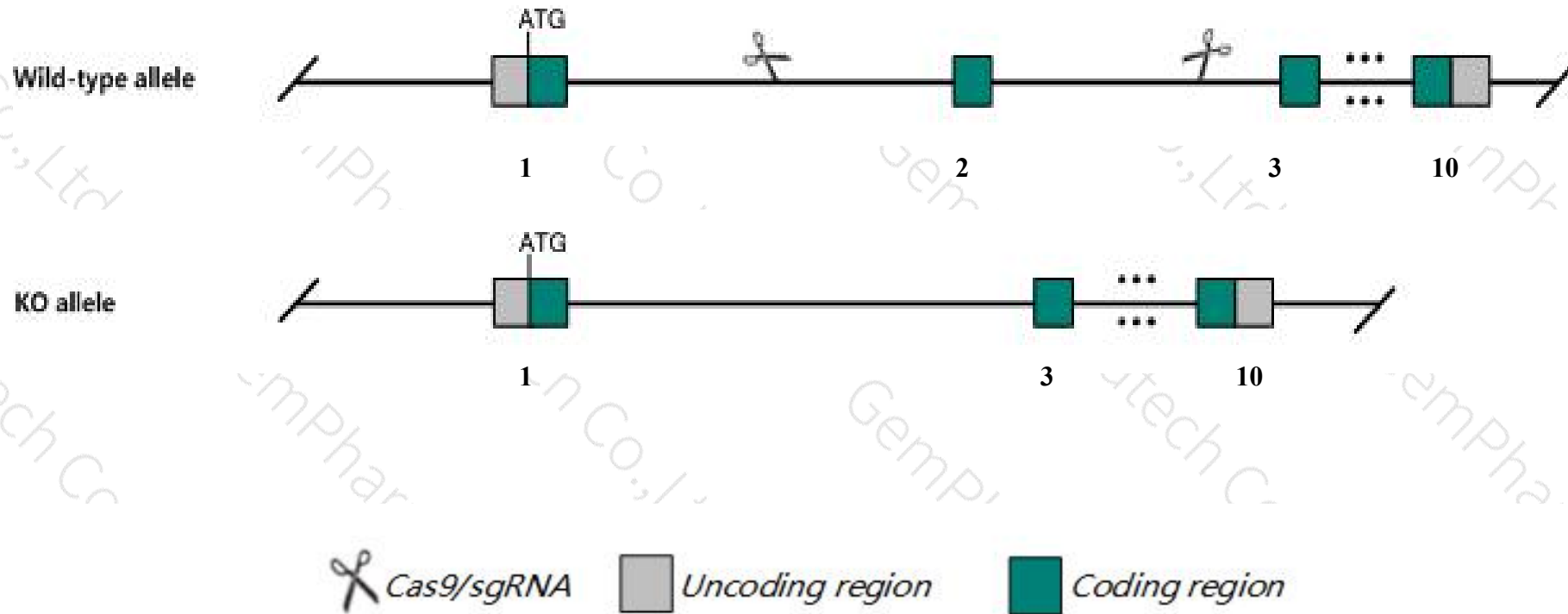
Cas9-KO

Strain background

C57BL/6J

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Entpd1* gene. The schematic diagram is as follows:



- The *Entpd1* gene has 11 transcripts. According to the structure of *Entpd1* gene, exon2 of *Entpd1*-204 (ENSMUST00000134063.7) transcript is recommended as the knockout region. The region contains 128bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Entpd1* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6J 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/6J mice.

- According to the existing MGI data, Mice homozygous for disruptions in this gene display abnormalities in muscle contraction, synaptic transmitter release and blood coagulation.
- The *Entpd1* 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 gene transcription and translation processes, all risks cannot be predicted under existing information.

Gene information (NCBI)

Entpd1 ectonucleoside triphosphate diphosphohydrolase 1 [Mus musculus (house mouse)]

Gene ID: 12495, updated on 3-Feb-2019

Summary



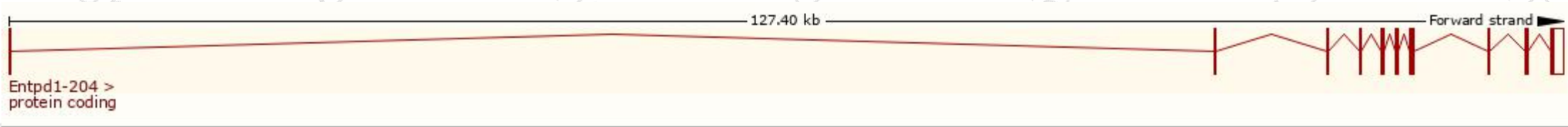
Official Symbol	Entpd1 provided by MGI
Official Full Name	ectonucleoside triphosphate diphosphohydrolase 1 provided by MGI
Primary source	MGI:MGI:102805
See related	Ensembl:ENSMUSG00000048120
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2610206B08Rik, AA408691, Cd39, E130009M23Rik, NTPDase-1
Expression	Broad expression in bladder adult (RPKM 23.6), placenta adult (RPKM 14.5) and 22 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

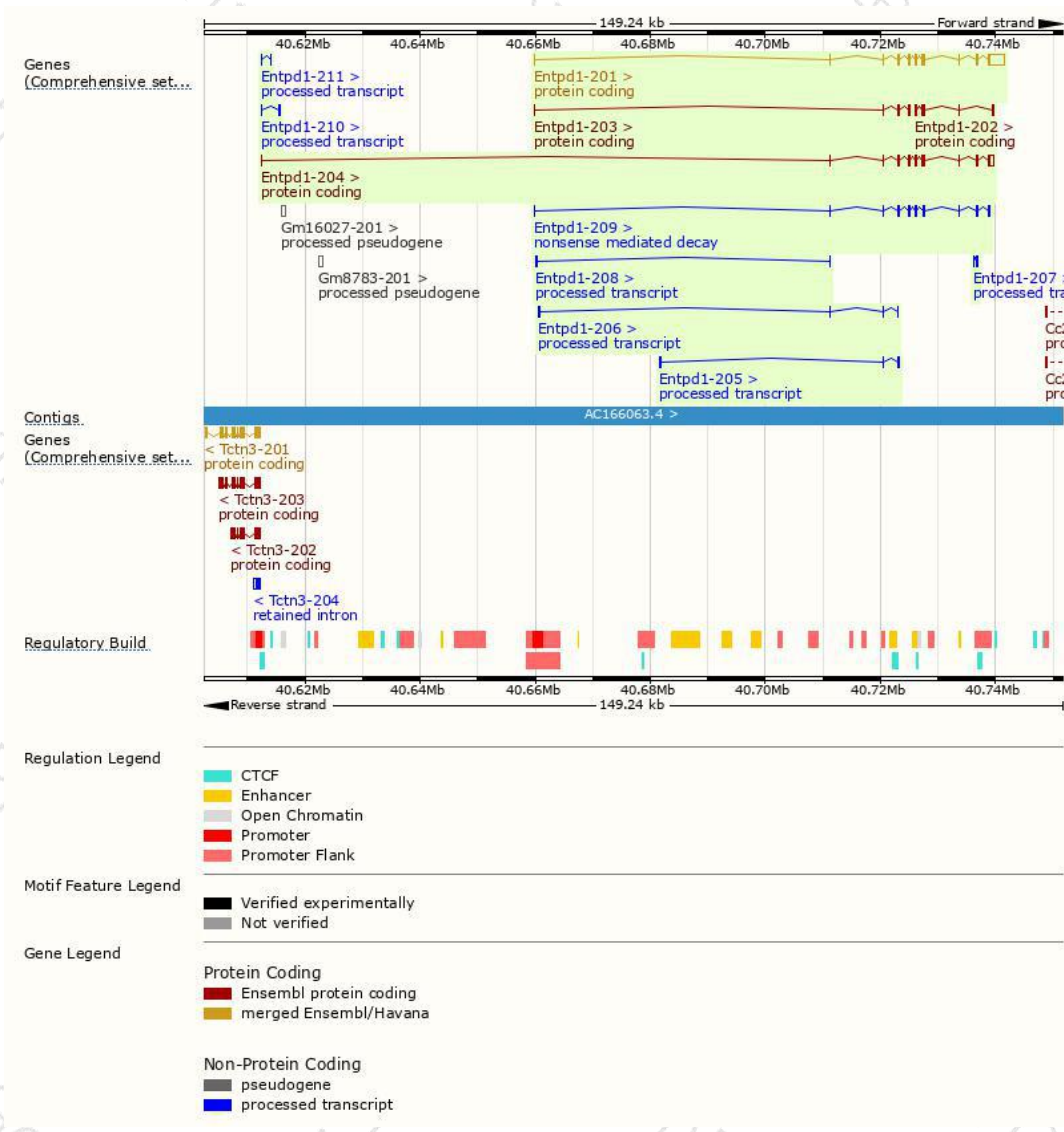
The gene has 11 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Entpd1-201	ENSMUST00000112231.8	4221	510aa	Protein coding	CCDS50434	P55772 Q544U5	TSL:1 GENCODE basic APPRIS P3
Entpd1-204	ENSMUST00000134063.7	2409	539aa	Protein coding	CCDS79708	Q8CDV7	TSL:1 GENCODE basic APPRIS ALT 2
Entpd1-202	ENSMUST00000127268.1	881	235aa	Protein coding	-	F7B9M9	CDS 5' incomplete TSL:3
Entpd1-203	ENSMUST00000127828.7	473	63aa	Protein coding	-	D6RFA9	CDS 3' incomplete TSL:3
Entpd1-209	ENSMUST00000156598.1	1506	288aa	Nonsense mediated decay	-	D6RHQ2	TSL:5
Entpd1-206	ENSMUST00000144080.7	628	No protein	Processed transcript	-	-	TSL:5
Entpd1-205	ENSMUST00000137508.1	387	No protein	Processed transcript	-	-	TSL:3
Entpd1-210	ENSMUST00000160286.1	380	No protein	Processed transcript	-	-	TSL:3
Entpd1-211	ENSMUST00000163023.1	319	No protein	Processed transcript	-	-	TSL:3
Entpd1-207	ENSMUST00000151726.1	245	No protein	Processed transcript	-	-	TSL:5
Entpd1-208	ENSMUST00000155988.1	204	No protein	Processed transcript	-	-	TSL:5

The strategy is based on the design of *Entpd1-204* transcript,The transcription is shown below



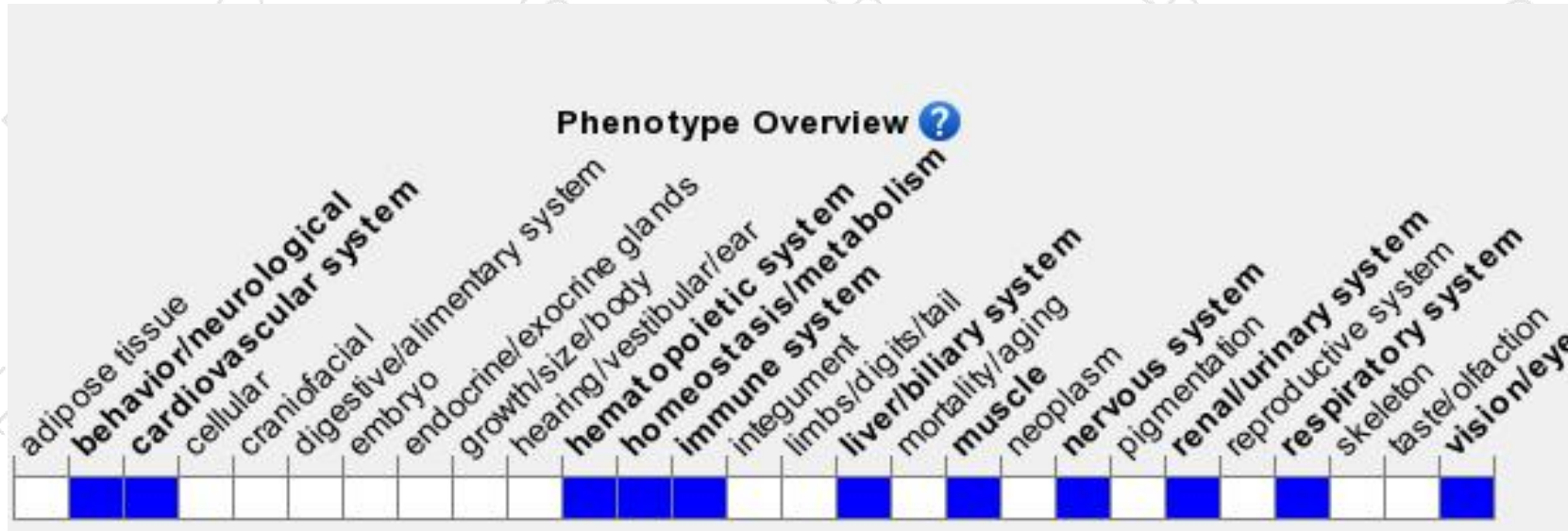
Genomic location distribution



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/>).

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

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