

Cpa1 Cas9-KO Strategy

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Project Overview

Project Name

Cpa1

Project type

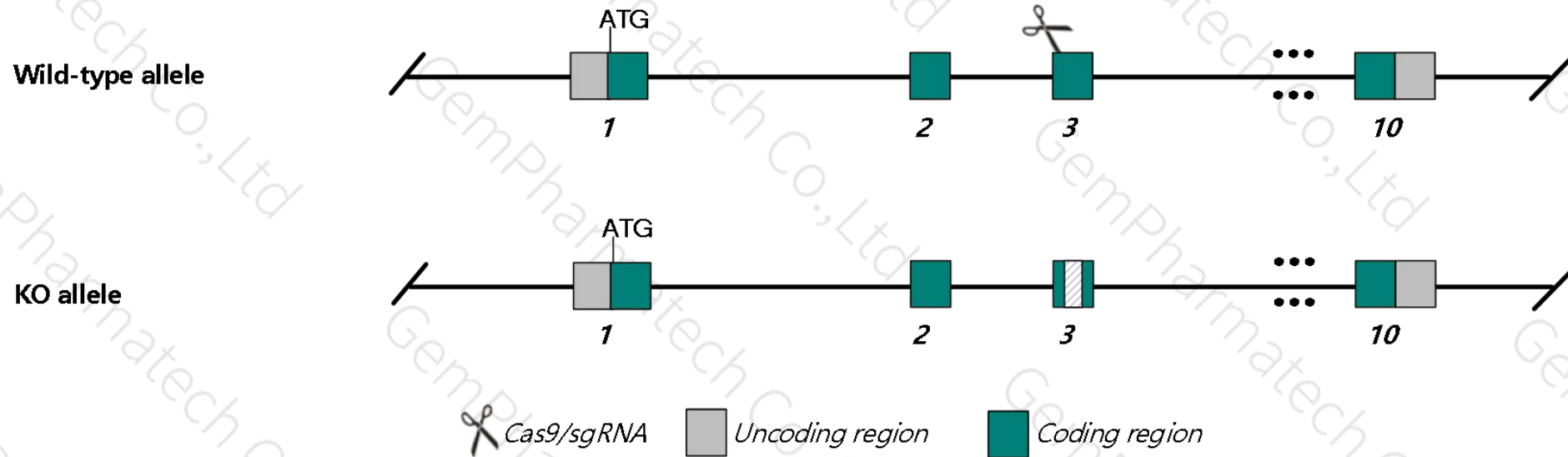
Cas9-KO

Strain background

C57BL/6N

Knockout strategy

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



- In this project we use CRISPR/Cas9 technology to modify *Cpal* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6N 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/6N mice.

- According to the MGI date, Mice homozygous for a knock-in allele are viable and fertile.
- The *Cpal* gene is located on the Chr6. 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)

Cpa1 carboxypeptidase A1, pancreatic [*Mus musculus* (house mouse)]

Gene ID: 109697, updated on 12-Aug-2019

Summary

Official Symbol Cpa1 provided by [MGI](#)

Official Full Name carboxypeptidase A1, pancreatic provided by [MGI](#)

Primary source [MGI:MGI:88478](#)

See related [Ensembl:ENSMUSG00000054446](#)

Gene type protein coding

RefSeq status REVIEWED

Organism [Mus musculus](#)

Lineage Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus

Also known as Cpa; 0910001L12Rik

Summary This gene encodes carboxypeptidase A, a zinc-dependent metalloprotease that cleaves peptide bonds at the C-terminus of protein substrates. The encoded preproprotein undergoes proteolytic activation to generate a mature, functional enzyme. This gene is expressed in pancreas, the encoded protein is a major component of digestive enzymes secreted by pancreas and plays an important role in the process of digestion. This gene is located in a cluster of related carboxypeptidase genes on chromosome 6. [provided by RefSeq, Jan 2016]

Expression Biased expression in small intestine adult (RPKM 1152.1), spleen adult (RPKM 853.6) and 2 other tissues [See more](#)

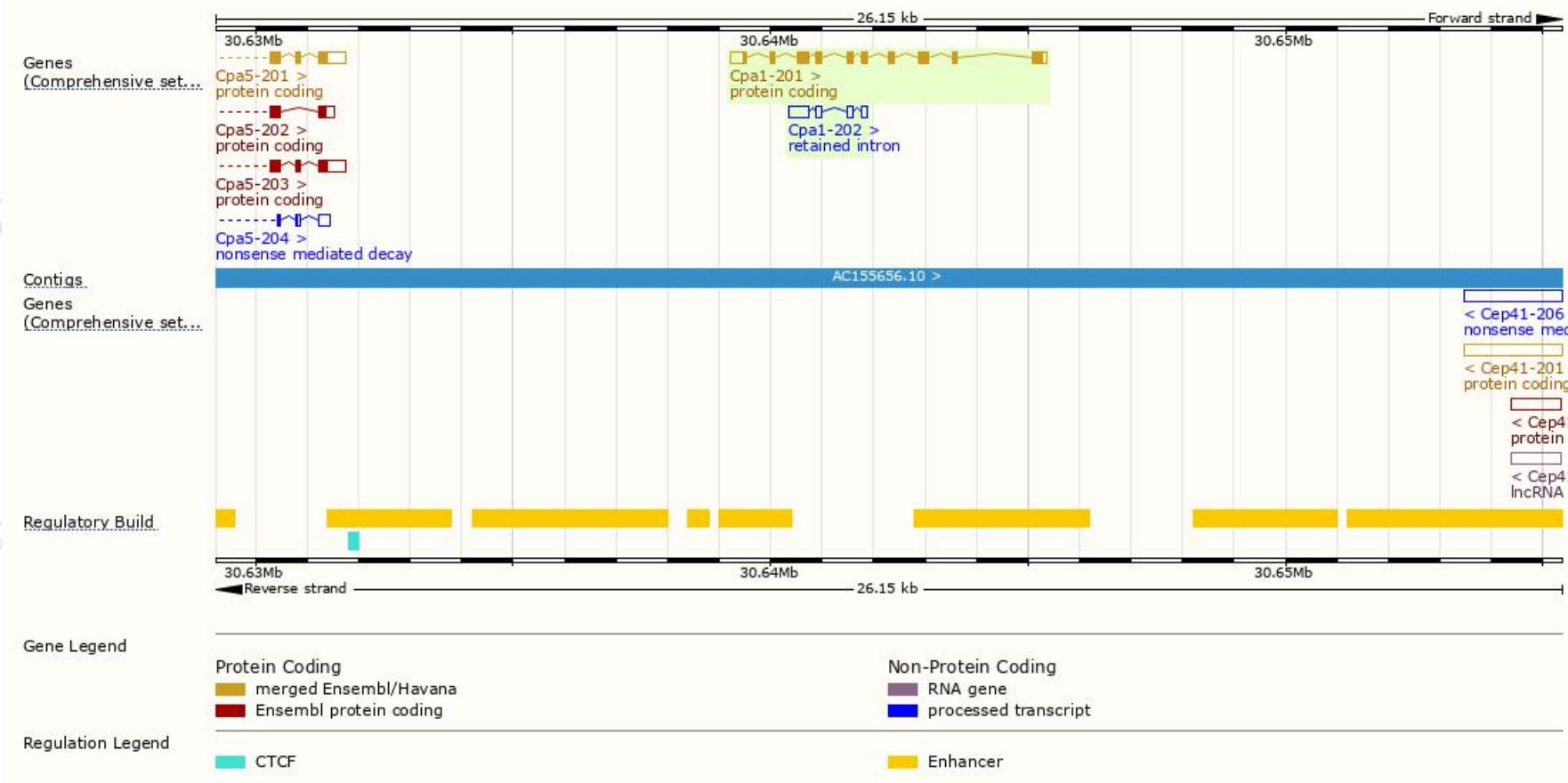
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

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

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cpa1-201	ENSMUST00000031806.9	1583	419aa	Protein coding	CCDS19977	Q7TPZ8	TSL:1 GENCODE basic APPRIS P1
Cpa1-202	ENSMUST00000139004.1	716	No protein	Retained intron	-	-	TSL:2

Genomic location distribution



Mouse phenotype description(MGI)

Mice homozygous for a knock-in allele are viable and fertile.

Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

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

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