

Cpb2 Cas9-KO Strategy

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Overview

Target Gene Name

- Cpb2

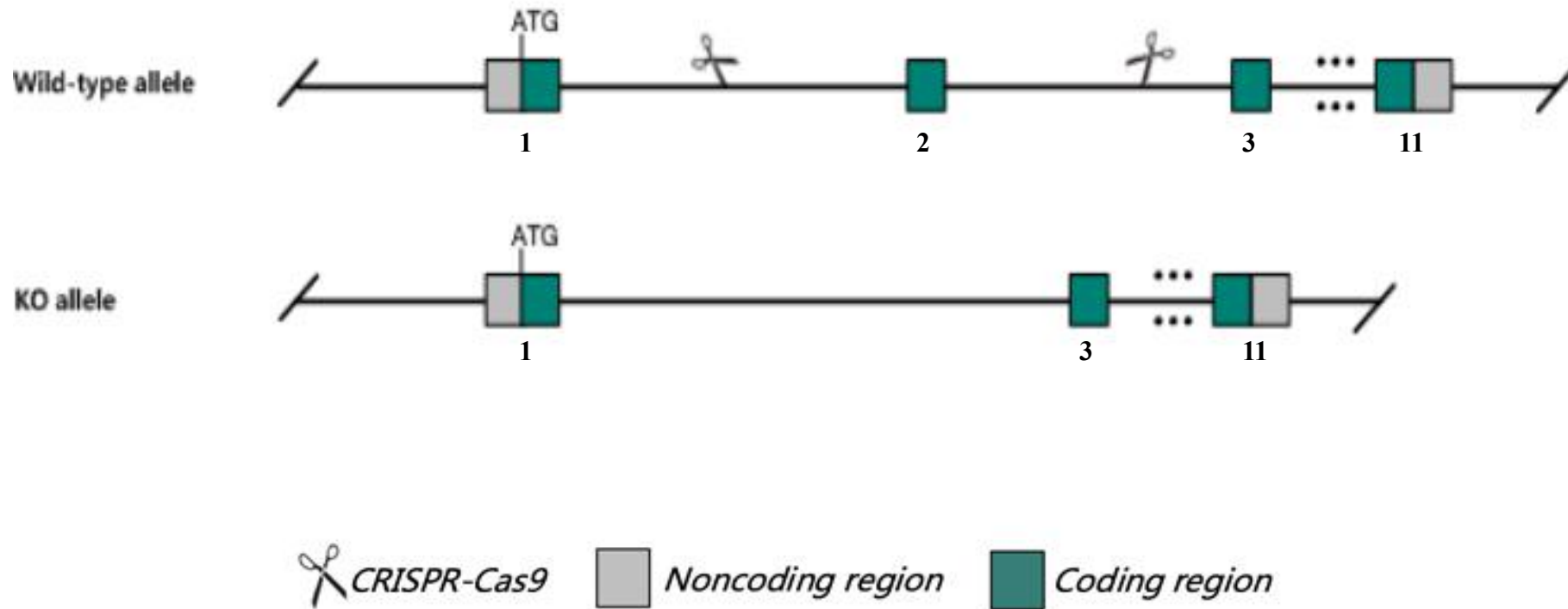
Project Type

- Cas9-KO

Genetic Background

- C57BL/6JGpt

Strain Strategy



Technical Information

- The *Cpb2* gene has 2 transcripts. According to the structure of *Cpb2* gene, exon2 of *Cpb2*-201 (ENSMUST00000022576.10) transcript is recommended as the knockout region. The region contains 76bp coding sequence. Knocking out the region will result in disruption of protein function.
- In this project we use CRISPR-Cas9 technology to modify *Cpb2* gene. The brief process is as follows: gRNAs were transcribed in vitro. Cas9 and gRNAs 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 on-target amplicon sequencing. A stable F1-generation mouse strain was obtained by mating positive F0-generation mice with C57BL/6JGpt mice and confirmation of the desired mutant allele was carried out by PCR and on-target amplicon sequencing.

Gene Information

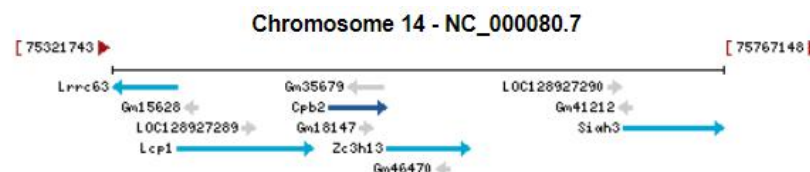
Cpb2 carboxypeptidase B2 [*Mus musculus* (house mouse)]

Gene ID: 56373, updated on 22-Jan-2024

[Download Datasets](#)

Summary

Official Symbol	Cpb2 provided by MGI
Official Full Name	carboxypeptidase B2 provided by MGI
Primary source	MGI:MGI:1891837
See related	Ensembl:ENSMUSG000000021999 AllianceGenome:MGI:1891837
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	CPR; Cpu; TAFI; 1110032P04Rik; 4930405E17Rik
Summary	This gene encodes carboxypeptidase B, 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, and secreted into plasma. [provided by RefSeq, Jan 2016]
Expression	Biased expression in liver E18 (RPKM 213.1), liver adult (RPKM 49.9) and 2 other tissues See more
Orthologs	human all



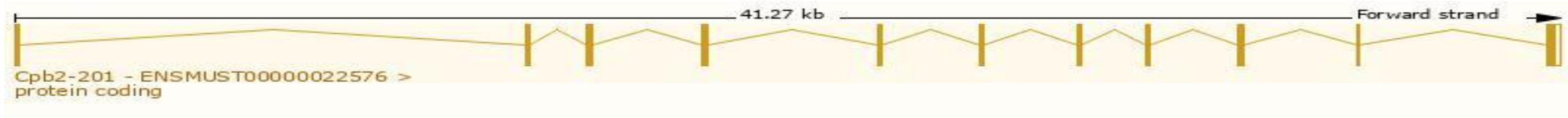
Source: <https://www.ncbi.nlm.nih.gov/>

Transcript Information

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

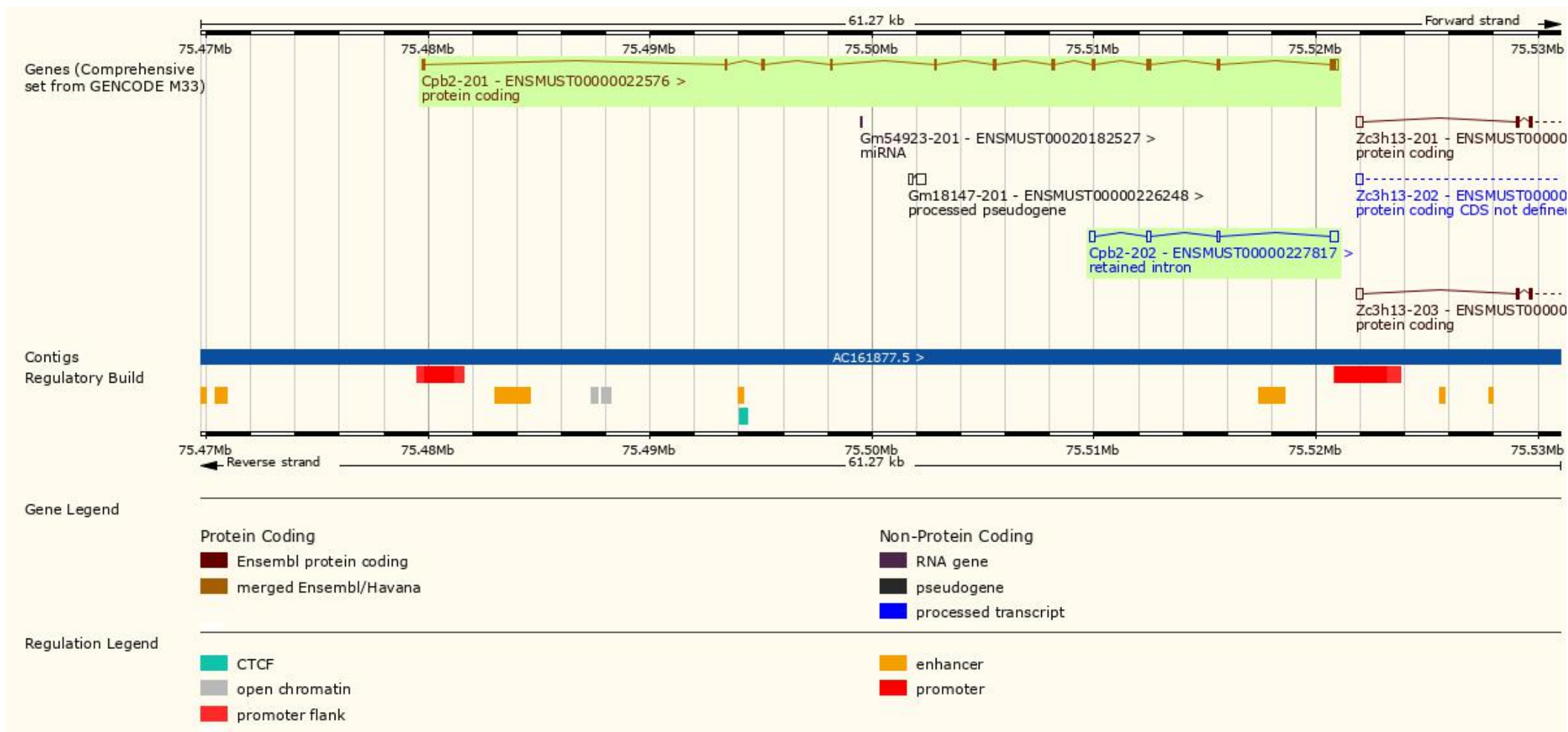
Transcript ID	Name	bp	Protein	Biotype	CCDS	UniProt Match	Flags
ENSMUST00000022576.10	Cpb2-201	1477	422aa	Protein coding	CCDS27277	Q9JHH6	Ensembl Canonical Gencode basic APPRIS P1 TSL:1
ENSMUST000000227817.2	Cpb2-202	853	No protein	Retained intron		-	-

The strategy is based on the design of *Cpb2-201* transcript, the transcription is shown below:

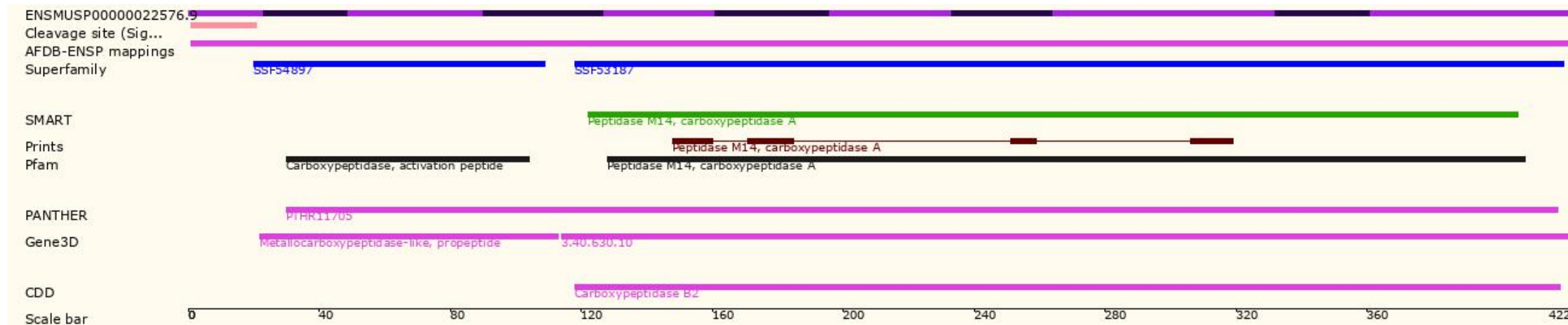


Source: <https://www.ensembl.org>

Genomic Information



Protein Information



Mouse Phenotype Information (MGI)



- Homozygous null mice exhibit altered plasma clot lysis and may show reduced bleomycin-induced lung fibrosis, impaired healing of cutaneous wounds and colonic anastomoses, altered glomerular structure, or complement-mediated lethal inflammation after LPS sensitization.

Important Information

- Based the data of MGI, knock out mice deleting Exons 4 and 5 showed prenatal lethality, considerably reduced numbers of homozygotes are born from matings of heterozygotes.
- *Cpb2* is located on Chr14. If the knockout mice are crossed with other mouse strains to obtain double homozygous mutant offspring, please avoid the situation that the second gene is on the same chromosome.
- This Strategy is designed based on genetic information in existing databases. Due to the complexity of biological processes, all risks of the mutation on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.