

Cpxm2 Cas9-CKO Strategy

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Overview

Target Gene Name

- *Cpxm2*

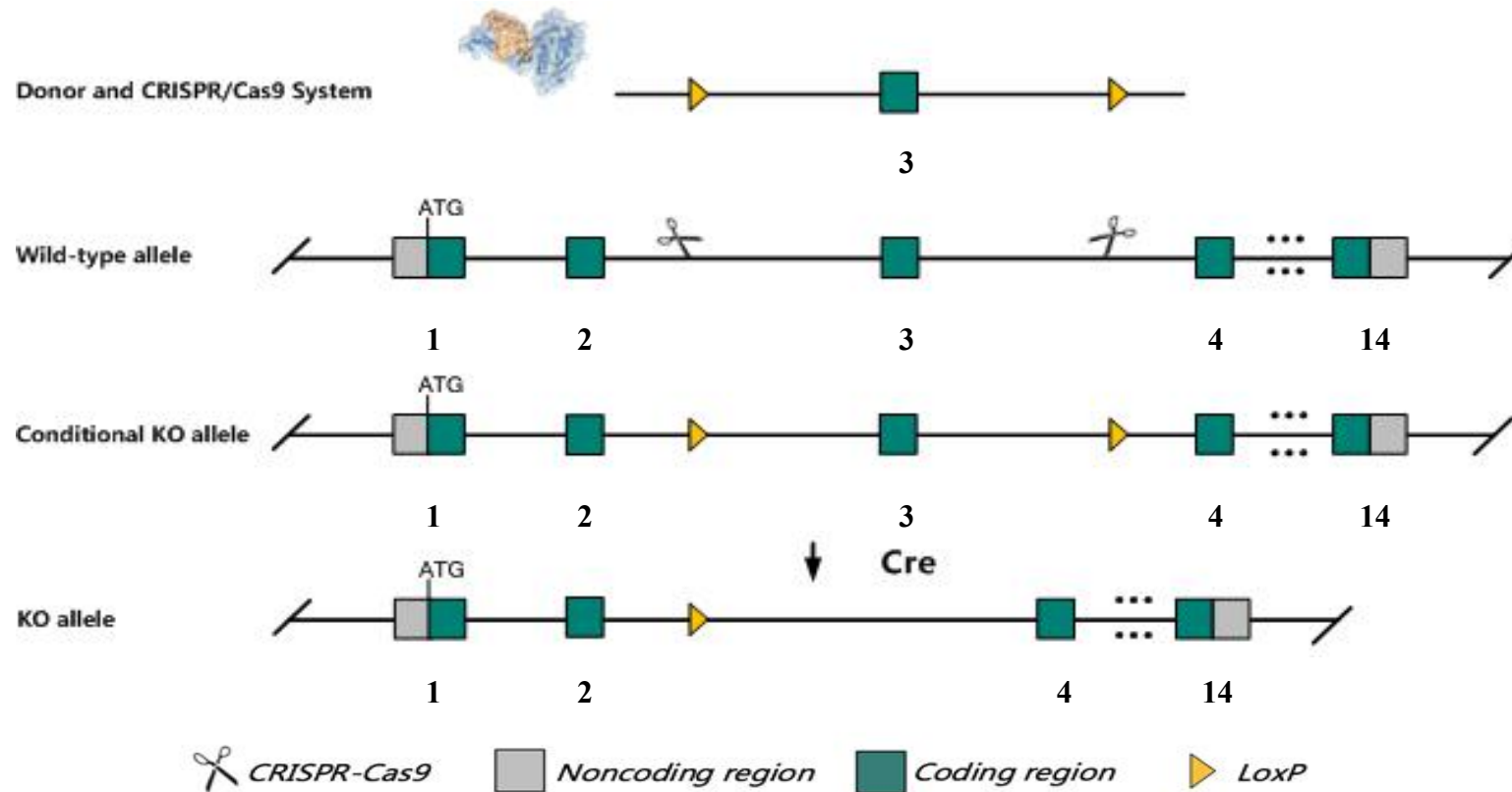
Project Type

- Cas9-CKO

Genetic Background

- C57BL/6JGpt

Strain Strategy



Schematic representation of CRISPR-Cas9 engineering used to edit the *Cpxm2* gene.

Technical Information

- The *Cpxm2* gene has 5 transcripts. According to the structure of *Cpxm2* gene, exon3 of *Cpxm2-201*(ENSMUST00000033149.5) transcript is recommended as the knockout region. The region contains 110bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR-Cas9 technology to modify *Cpxm2* gene. The brief process is as follows: CRISPR-Cas9 system 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 will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

Gene Information

Cpxm2 carboxypeptidase X 2 (M14 family) [*Mus musculus* (house mouse)]

Gene ID: 55987, updated on 26-Sep-2022

Summary

Official Symbol	Cpxm2 provided by MGI
Official Full Name	carboxypeptidase X 2 (M14 family) provided by MGI
Primary source	MGI:MGI:1926006
See related	Ensembl:ENSMUSG00000030862 AllianceGenome:MGI:1926006
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	Cpx2; CPX-2; 4632435C11Rik
Summary	Predicted to enable metallocarboxypeptidase activity. Predicted to be involved in peptide metabolic process and protein processing. Predicted to be located in extracellular region. Is expressed in blood vessel; nasal cavity epithelium; and skin. Orthologous to human CPXM2 (carboxypeptidase X, M14 family member 2). [provided by Alliance of Genome Resources, Apr 2022]
Expression	Broad expression in bladder adult (RPKM 11.7), genital fat pad adult (RPKM 8.2) and 16 other tissues See more
Orthologs	human all

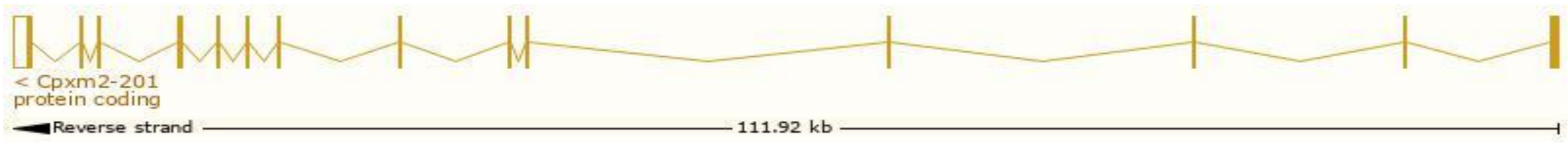
Source: <https://www.ncbi.nlm.nih.gov/>

Transcript Information

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

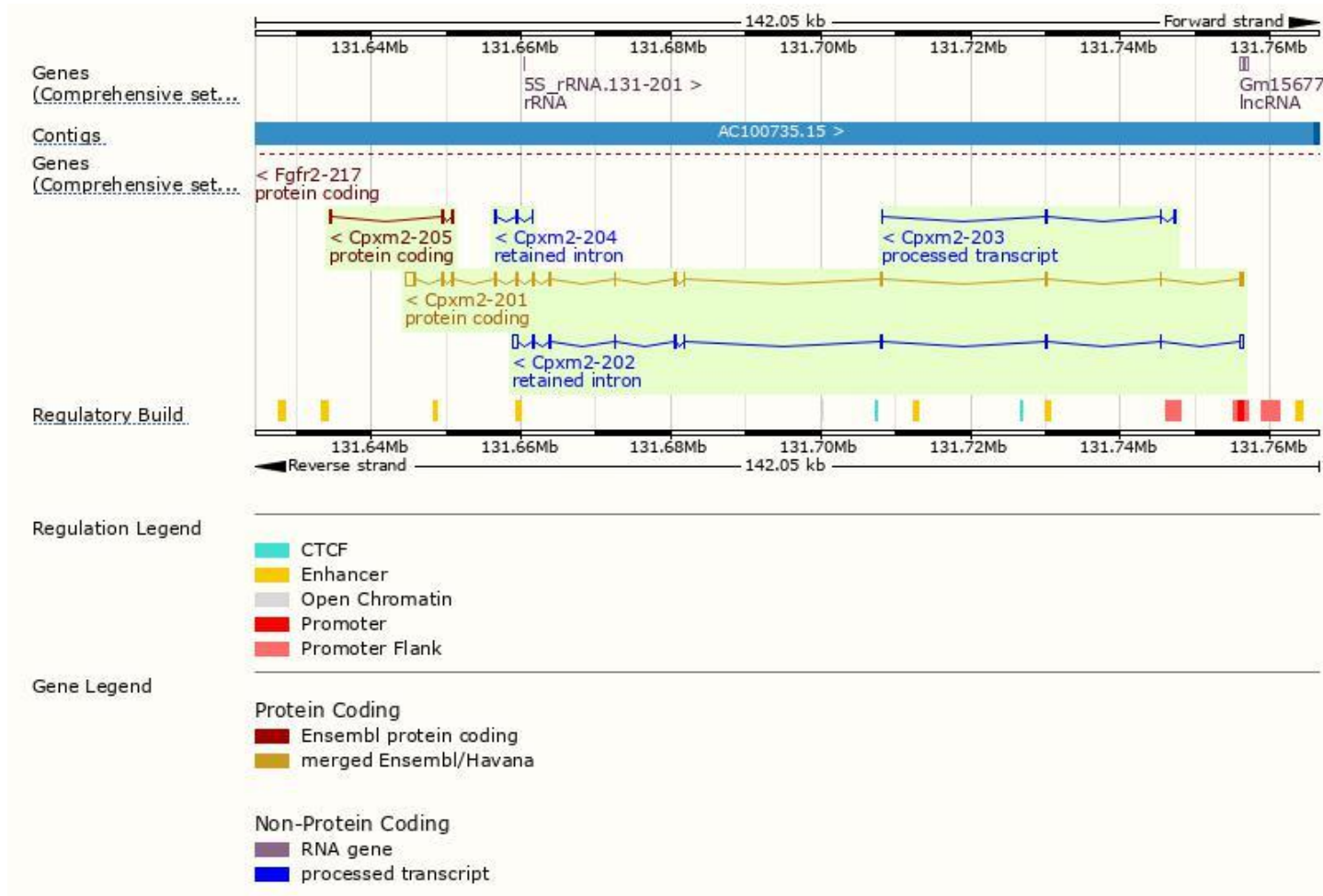
Transcript ID	Name	bp	Protein	Biotype	CCDS	UniProt Match	Flags
ENSMUST00000033149.5	Cpxm2-201	3498	764aa	Protein coding	CCDS21921	A0A0R4J0C4	Ensembl Canonical Gencode basic APPRIS P1 TSL:1
ENSMUST000000209155.2	Cpxm2-205	402	78aa	Protein coding		A0A140LHE5	TSL:3 CDS 5' incomplete
ENSMUST000000136188.3	Cpxm2-203	450	No protein	Protein coding CDS not defined		-	TSL:5
ENSMUST000000127039.8	Cpxm2-202	2128	No protein	Retained intron		-	TSL:1
ENSMUST000000150405.2	Cpxm2-204	707	No protein	Retained intron		-	TSL:2

The strategy is based on the design of Cpxm2-201 transcript, the transcription is shown below:

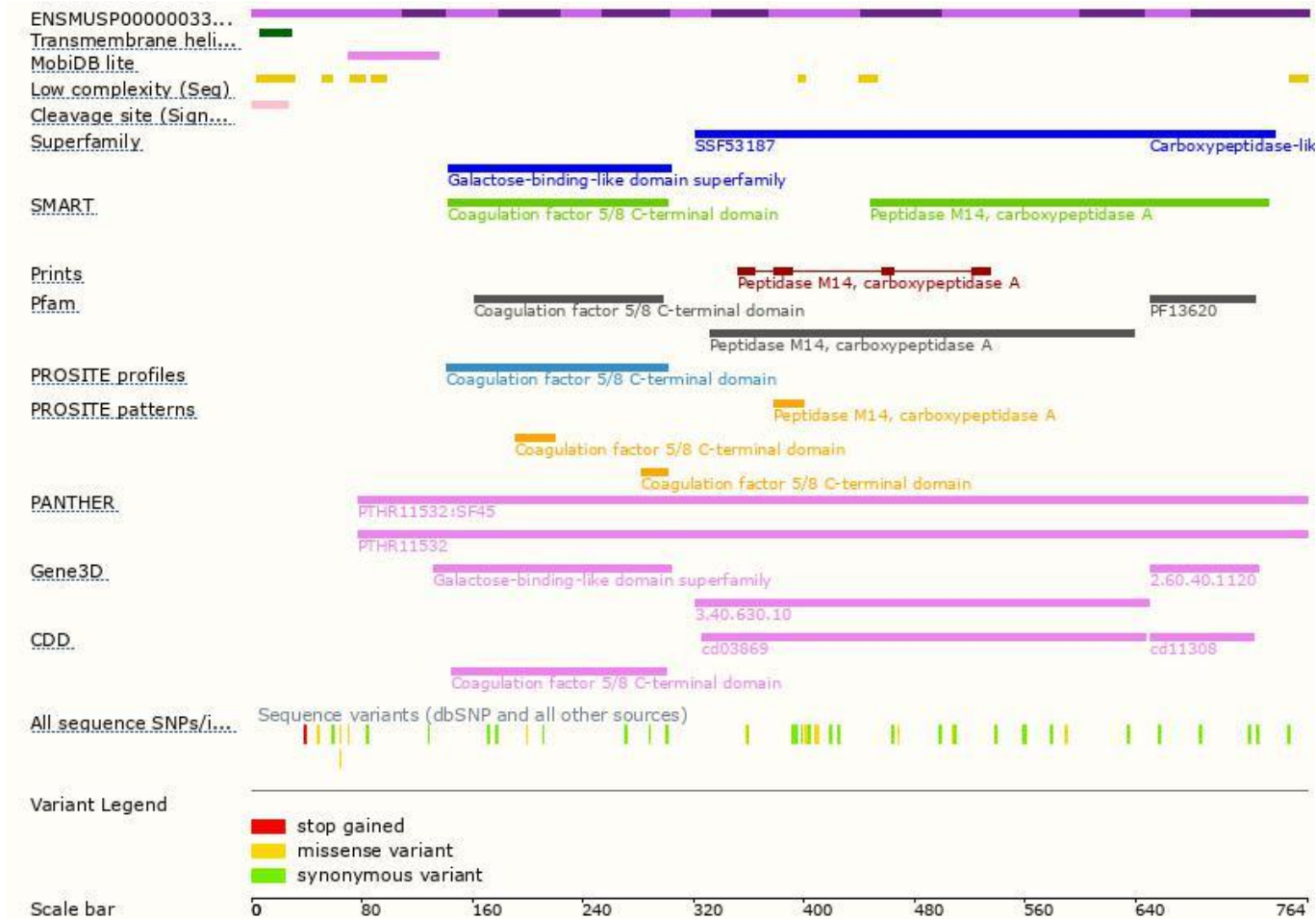


Source: <https://www.ensembl.org>

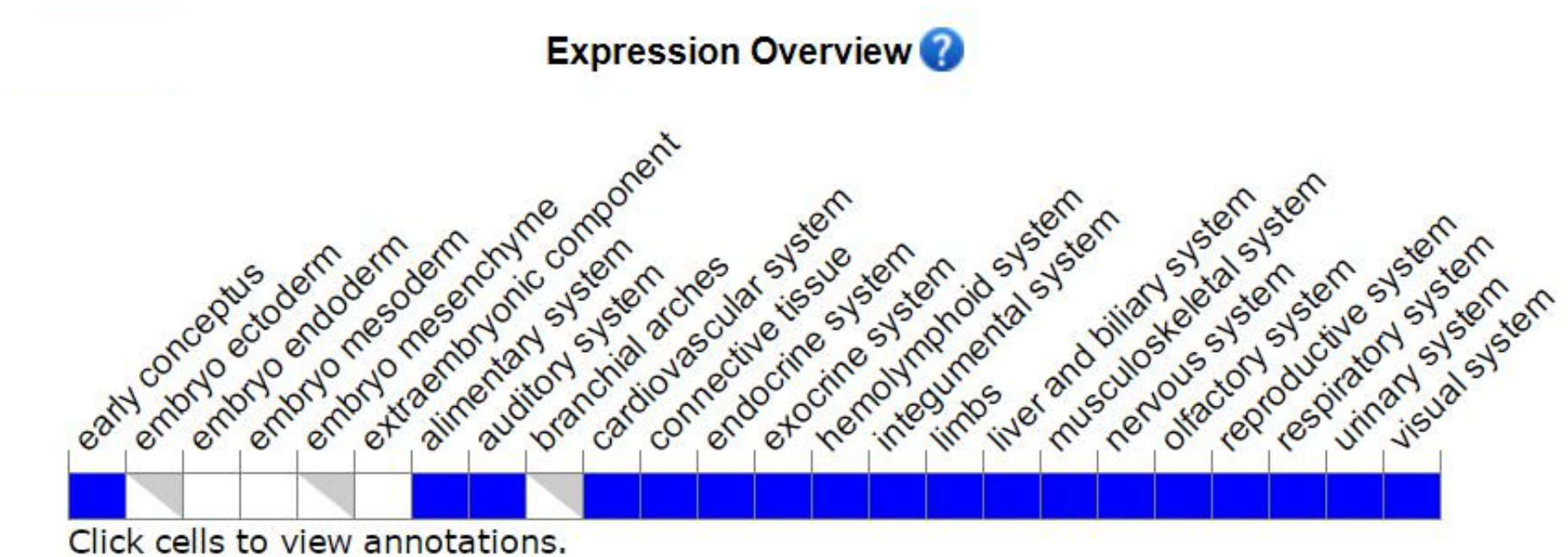
Genomic Information



Protein Information



Mouse Phenotype Information (MGI)



- Phenotypes affected by the mutations of *Cpxm2* gene are marked in blue.

Important Information

- The *Cpxm2* gene is located on the Chr7. 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.
- Transcript *Cpxm2* -205 may not be affected.
- The KO region contains the *Fgfr2* gene. Knockout the region may affect the function of *Fgfr2* gene.
- 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.