

Cpa5 Cas9-CKO Strategy

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Project Overview

Project Name

Cpa5

Project type

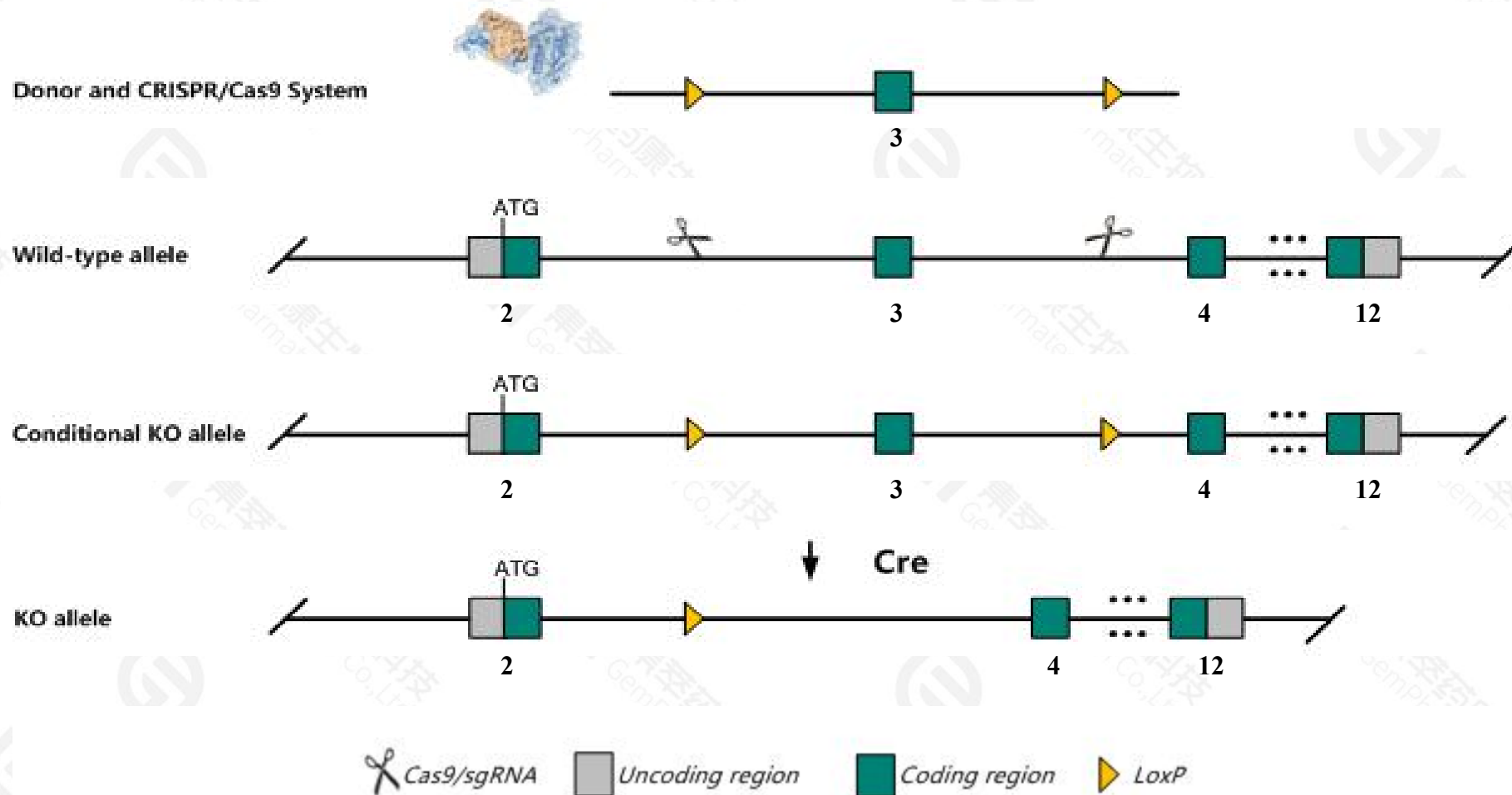
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cpa5* gene. The schematic diagram is as follows:



Technical routes

- The *Cpa5* gene has 4 transcripts. According to the structure of *Cpa5* gene, exon3 of *Cpa5-201*(ENSMUST00000062758.11) transcript is recommended as the knockout region. The region contains 82bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Cpa5* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor was constructed. Cas9, sgRNA 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 was 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.

- The *Cpa5* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Cpa5 carboxypeptidase A5 [Mus musculus (house mouse)]

Gene ID: 74649, updated on 10-Oct-2020

Summary



Official Symbol Cpa5 provided by [MGI](#)

Official Full Name carboxypeptidase A5 provided by [MGI](#)

Primary source [MGI:MGI:1921899](#)

See related [Ensembl:ENSMUSG00000029788](#)

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 4930430M09Rik

Summary This gene encodes a member of the carboxypeptidase A family of zinc metalloproteases. The encoded preproprotein undergoes proteolytic processing that removes the N-terminal activation peptide to generate a functional enzyme. This gene is expressed in mouse testes where the encoded protein is localized to the germ cells. This gene is located in a cluster of carboxypeptidase genes on chromosome 6. [provided by RefSeq, Jul 2016]

Expression Restricted expression toward testis adult (RPKM 29.3)[See more](#)

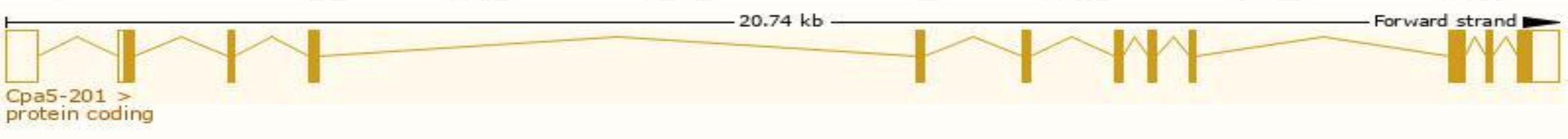
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

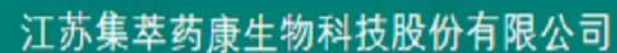
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cpa5-201	ENSMUST00000062758.11	2187	436aa	Protein coding	CCDS19976		TSL:1 , GENCODE basic , APPRIS P1 ,
Cpa5-203	ENSMUST00000115139.8	2070	436aa	Protein coding	CCDS19976		TSL:1 , GENCODE basic , APPRIS P1 ,
Cpa5-202	ENSMUST00000115138.8	1778	399aa	Protein coding	-		TSL:5 , GENCODE basic ,
Cpa5-204	ENSMUST00000165949.2	1263	309aa	Nonsense mediated decay	-		TSL:1 ,

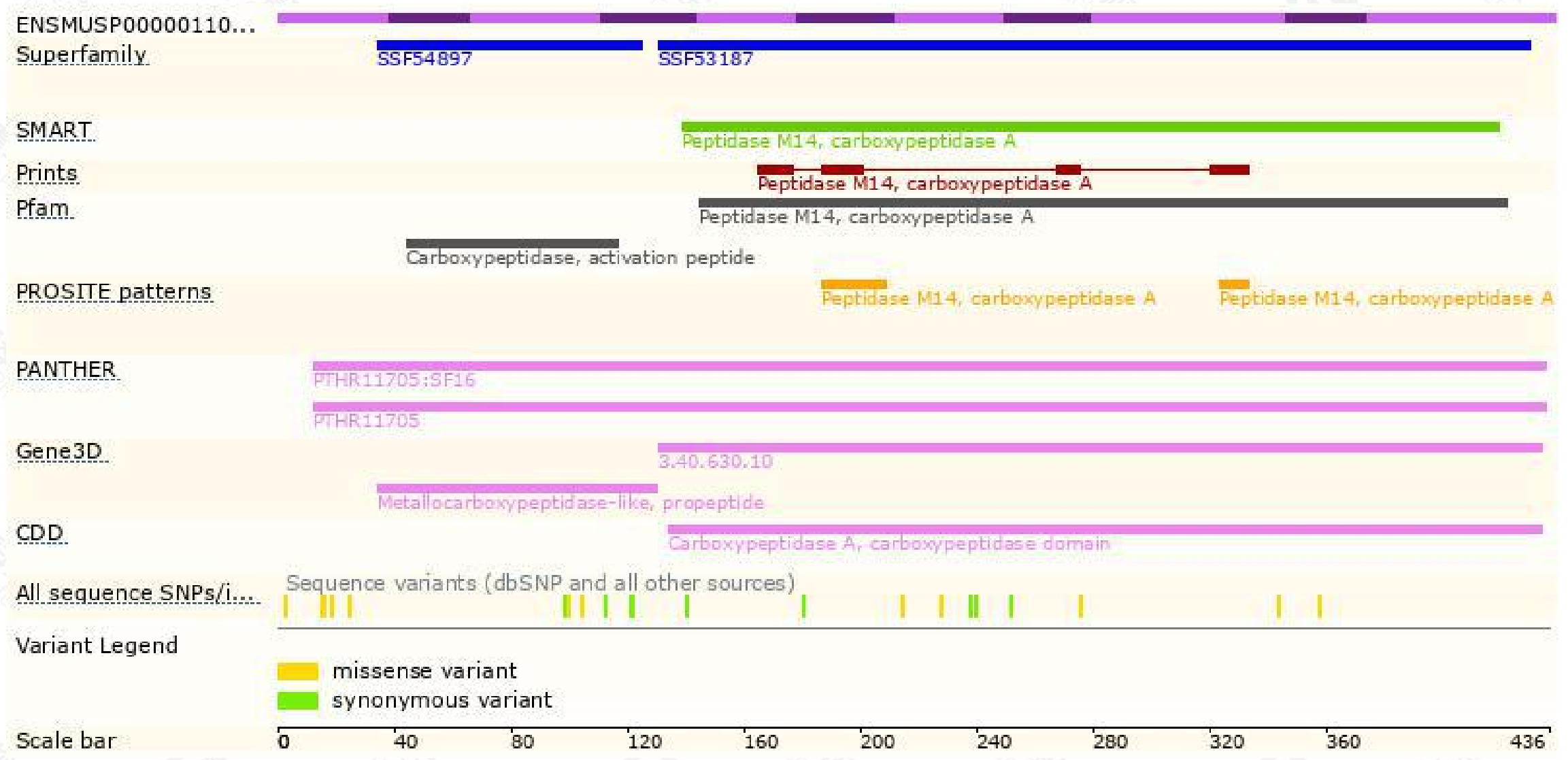
The strategy is based on the design of *Cpa5-201* transcript,the transcription is shown below:



集萃药康
GemPharmatech



Protein domain



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

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