

Ctps Cas9-CKO Strategy

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Project Overview

Project Name

Ctps

Project type

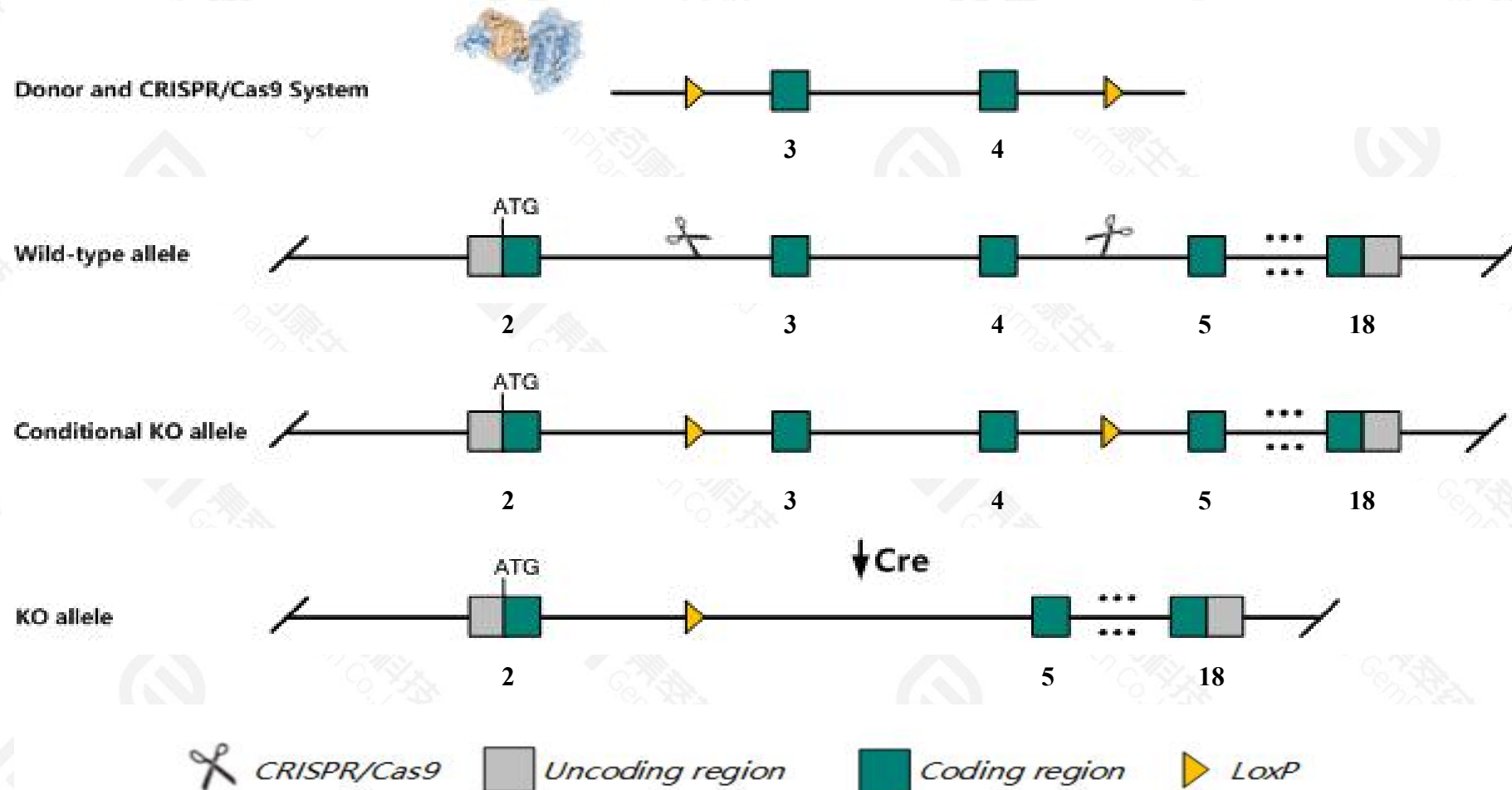
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



- The *Ctps* gene has 3 transcripts. According to the structure of *Ctps* gene, exon3-exon4 of *Ctps*-201(ENSMUST00000030381.8) transcript is recommended as the knockout region. The region contains 272bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ctps* 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.

- The *Ctps* gene is located on the Chr4. 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)

Ctps cytidine 5'-triphosphate synthase [Mus musculus (house mouse)]

Gene ID: 51797, updated on 12-Feb-2021

Summary



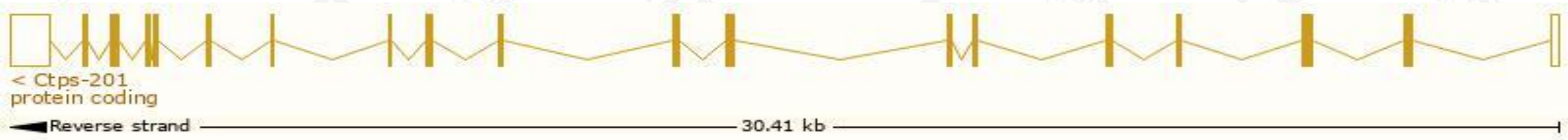
Official Symbol	Ctps provided by MGI
Official Full Name	cytidine 5'-triphosphate synthase provided by MGI
Primary source	MGI:MGI:1858304
See related	Ensembl:ENSMUSG00000028633
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Ctps1
Expression	Broad expression in CNS E11.5 (RPKM 19.6), bladder adult (RPKM 15.5) and 24 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

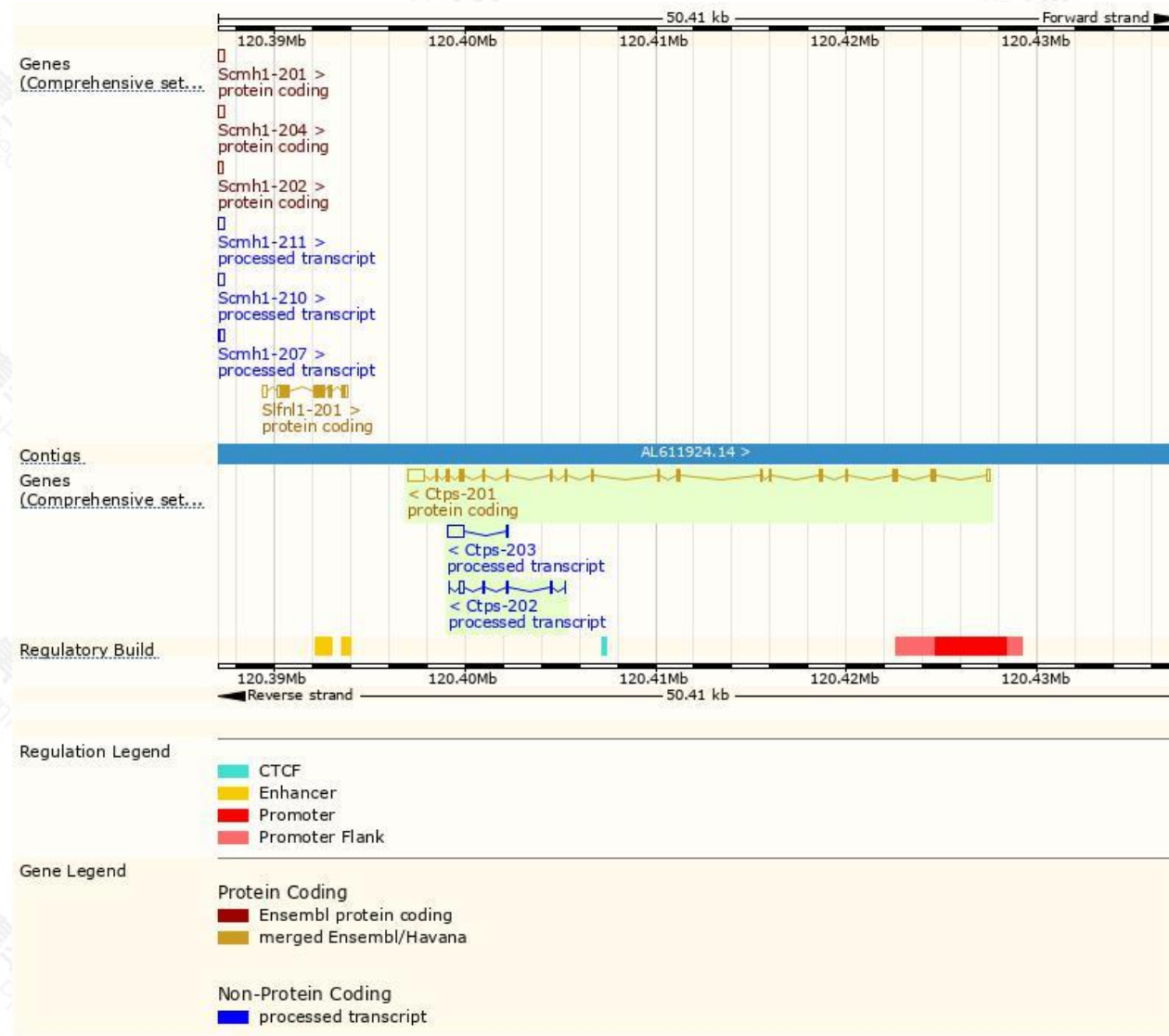
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ctps-201	ENSMUST00000030381.8	2705	591aa	Protein coding	CCDS18591		TSL:1 , GENCODE basic , APPRIS P1 ,
Ctps-203	ENSMUST00000147980.2	905	No protein	Processed transcript	-		TSL:3 ,
Ctps-202	ENSMUST00000140891.2	525	No protein	Processed transcript	-		TSL:3 ,

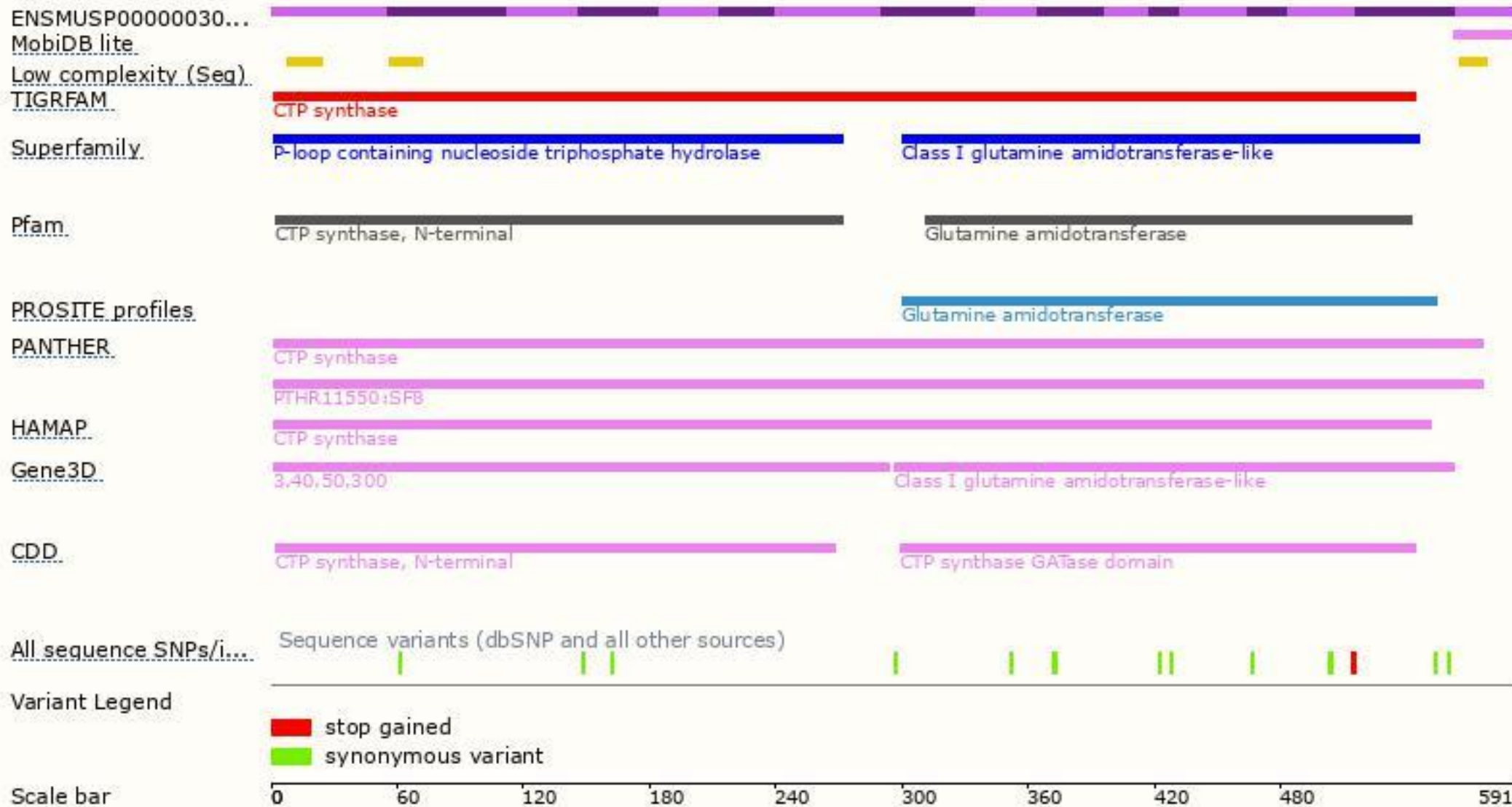
The strategy is based on the design of *Ctps-201* transcript,the transcription is shown below:



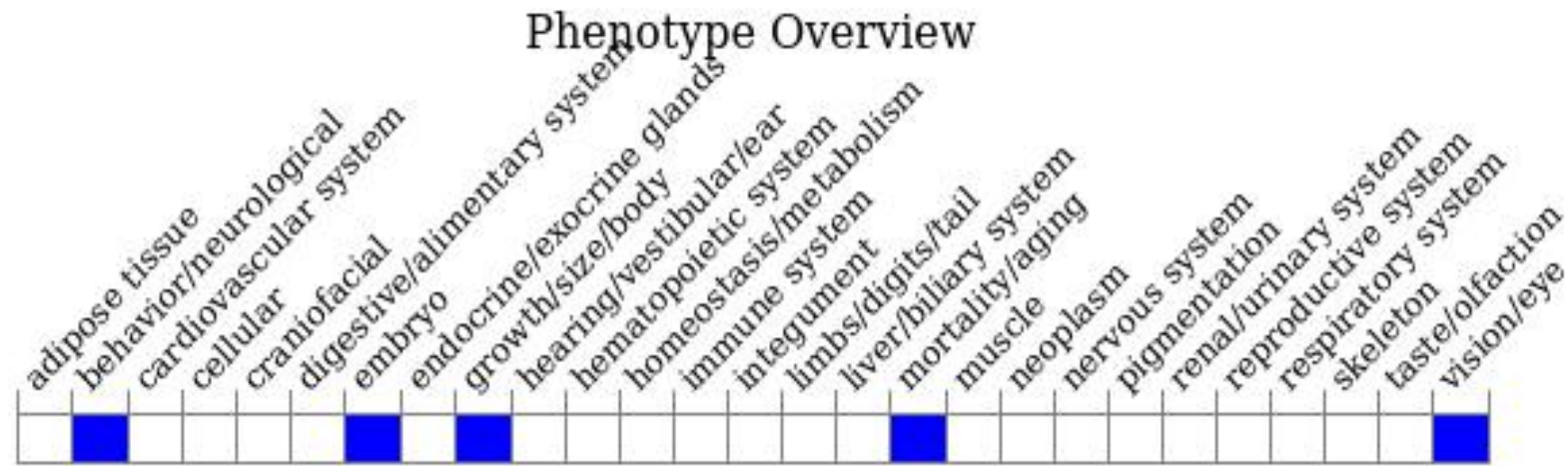
Genomic location distribution



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/>).

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

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