

Cct6a Cas9-KO Strategy

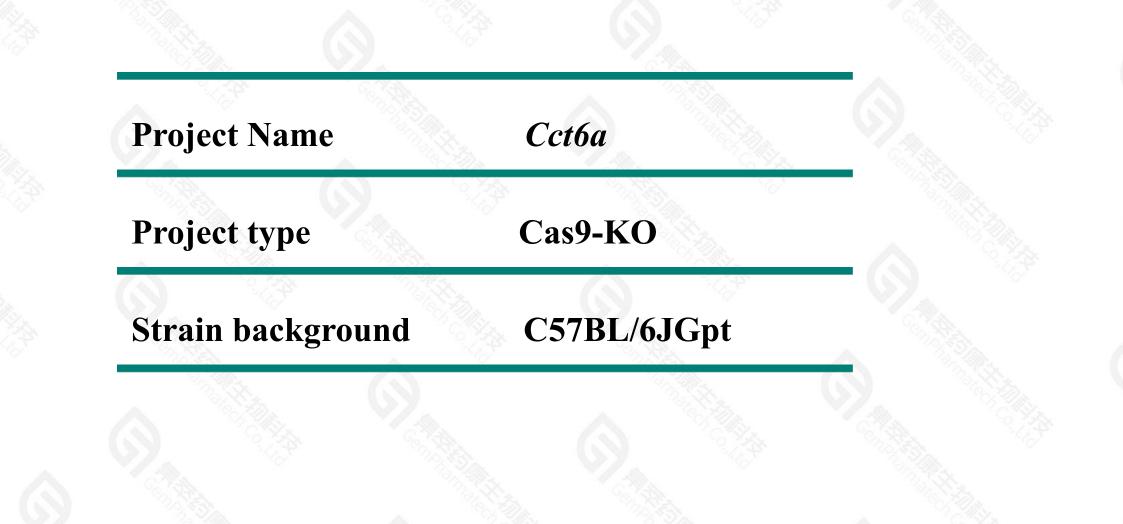
Designer: Daohua Xu

Reviewer: Xueting Zhang

Design Date: 2021-3-30

Project Overview





江苏集萃药康生物科技股份有限公司

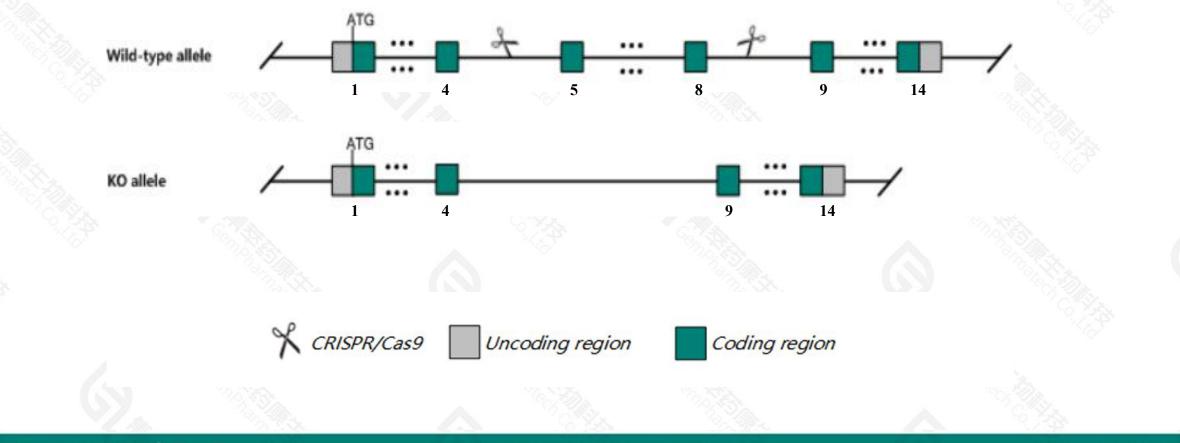
GemPharmatech Co., Ltd.

Knockout strategy



400-9660890

This model will use CRISPR/Cas9 technology to edit the Cct6a gene. The schematic diagram is as follows:



江苏集萃药康生物科技股份有限公司

GemPharmatech Co., Ltd.



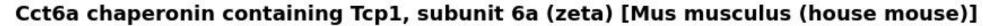
> The *Cct6a* gene has 4 transcripts. According to the structure of *Cct6a* gene, exon5-exon8 of *Cct6a*-201(ENSMUST00000201414.5) transcript is recommended as the knockout region. The region contains 458bp coding sequence. Knock out the region will result in disruption of protein function.

In this project we use CRISPR/Cas9 technology to modify *Cct6a* gene. The brief process is as follows: CRISPR/Cas9 system 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 KO region contains functional region of the Psph, Gm23245 and Snora15 gene. Knockout the region may affect the function of Psph, Gm23245 and Snora15 gene.
- > The *Cct6a* gene is located on the Chr5. 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)



Gene ID: 12466, updated on 17-Feb-2021

Summary

Official Symbol	Cct6a provided by MGI
Official Full Name	chaperonin containing Tcp1, subunit 6a (zeta) provided byMGI
Primary source	MGI:MGI:107943
See related	Ensembl:ENSMUSG0000029447
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	CCT-zeta, CCT-zeta-1, Cct6, Cctz-1, TCP-1-zeta
Expression	Annotation category: suggests misassemblySee more
Orthologs	human all

江苏集萃药康生物科技股份有限公司

GemPharmatech Co., Ltd.

☆ ?

う 康 atech

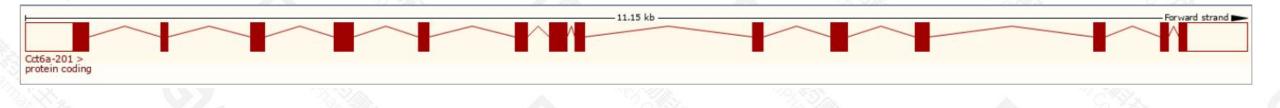
Transcript information (Ensembl)



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

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cct6a-201	ENSMUST00000201414.5	2588	<u>531aa</u>	Protein coding	-		TSL:5 , GENCODE basic , APPRIS P1 ,
Cct6a-204	ENSMUST00000202854.5	800	No protein	Retained intron	-		TSL:2,
Cct6a-203	ENSMUST00000202262.2	701	No protein	Retained intron	- 2		TSL:2,
Cct6a-202	ENSMUST00000201653.3	459	No protein	Retained intron	-		TSL:3,

The strategy is based on the design of Cct6a-201 transcript, the transcription is shown below:

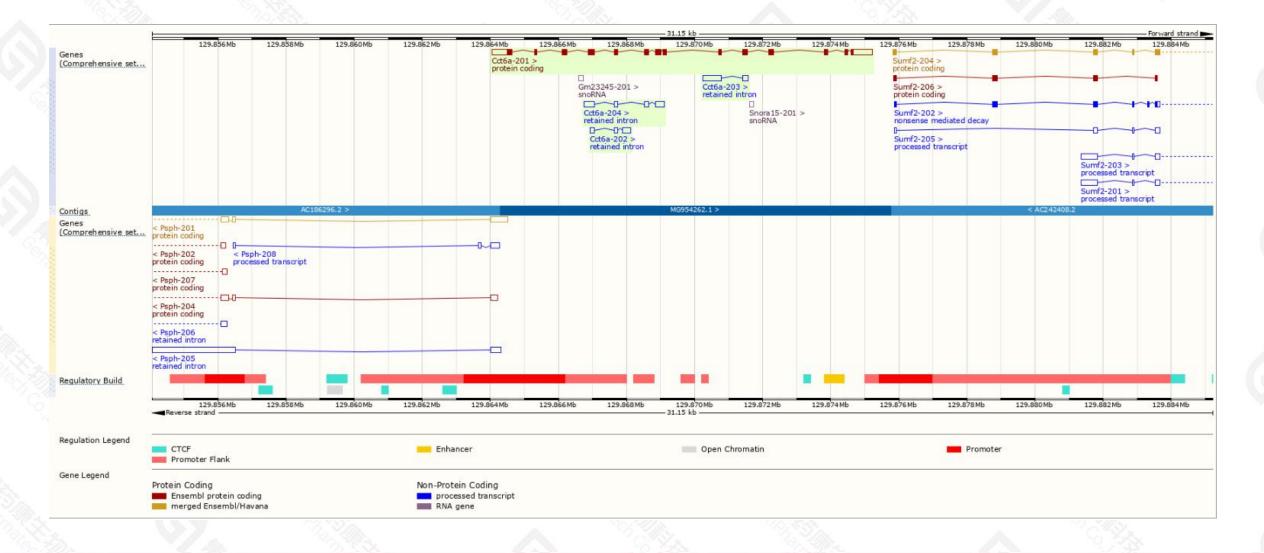


江苏集萃药康生物科技股份有限公司

GemPharmatech Co., Ltd.

Genomic location distribution





江苏集萃药康生物科技股份有限公司

GemPharmatech Co., Ltd.

Protein domain



	10 10 10 10 10 10 10 10 10 10 10 10 10 1		9				175 D
ENSMUSP00000159 Low complexity (Seg) Coiled-coils (Ncoils) TIGRFAM						_	
	T-complex protein 1, zeta subunit						
Superfamily	GroEL-like equatorial domain superfamily			- 10			0
			GroEL-like a	pical domain superfamily			
Prints			in intermediate domain supe	rfamily			
Pfam	Chaperone tailless complex polypeptide 1 (TCP-	4)					
PROSITE patterns	Chaperonin Cpn60/TCP-1 family						
PROSTIC patterns	Chaperonin TCP-1, conserved site						
	Chaperonin TCP-1, conserved site						
PANTHER	PTHR11353:SF54	1, conserved site					
	PTHR11353						
Gene3D	GroEL-like equatorial domain superfamily						
			Grafi	like apical domain superfami			
CDD	T-complex protein 1, zeta subunit				r		
All sequence SNPs/i	Sequence variants (dbSNP and all other sources)	12 21	0.12	12	1.22	20 620	100 100
	<u>I I I I I I I I I I I I I I I I I I I </u>				11 11 1	<u> </u>	
Variant Legend	missense variant	synonymous var	iant				
Scale bar	0 60	120	180	240	300	360 42	0 531
		1019403		- Litter			

江苏集萃药康生物科技股份有限公司

GemPharmatech Co., Ltd.



If you have any questions, you are welcome to inquire. Tel: 400-9660890



