

Csmd3 Cas9-CKO Strategy

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Project Overview

Project Name

Csmd3

Project type

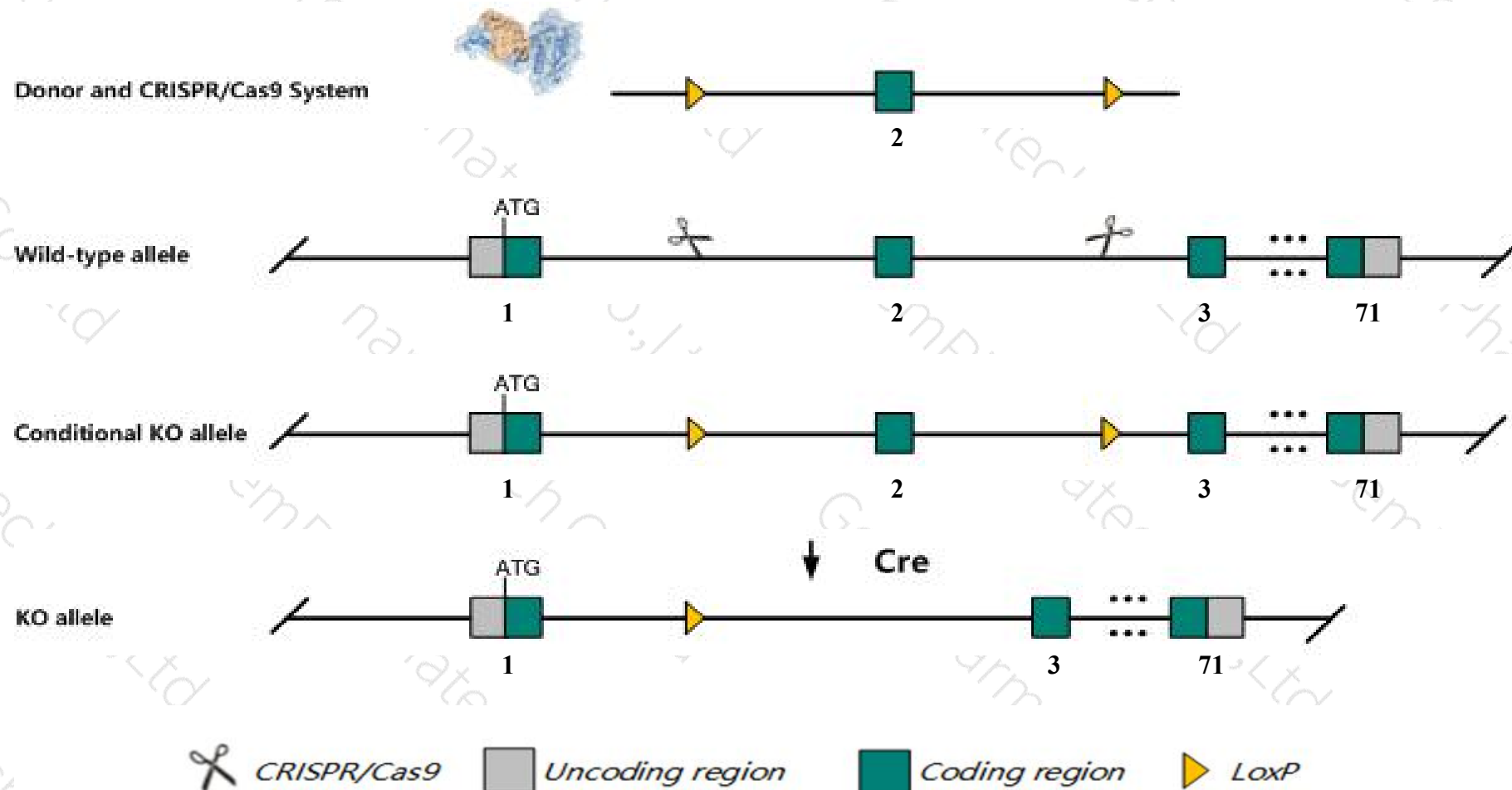
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Csmd3* gene. The schematic diagram is as follows:



- The *Csmd3* gene has 9 transcripts. According to the structure of *Csmd3* gene, exon2 of *Csmd3-201* (ENSMUST00000100670.9) transcript is recommended as the knockout region. The region contains 223bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Csmd3* 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 *Csmd3* gene is located on the Chr15. 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 *Csmd3*-202&206&208 may not be affected.
- The effect on transcript *Csmd3*-207 is unknown.
- 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)

Csmd3 CUB and Sushi multiple domains 3 [Mus musculus (house mouse)]

Gene ID: 239420, updated on 13-Mar-2020

Summary



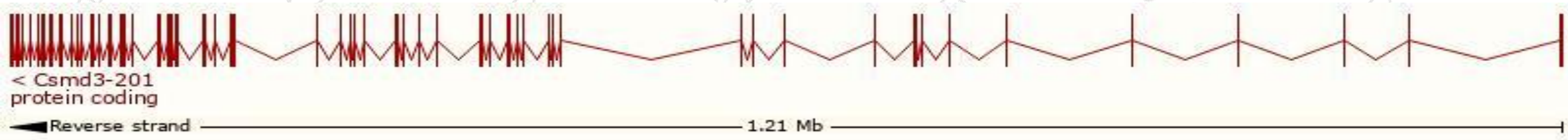
Official Symbol	Csmd3 provided by MGI
Official Full Name	CUB and Sushi multiple domains 3 provided by MGI
Primary source	MGI:MGI:2386403
See related	Ensembl:ENSMUSG00000022311
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	4930500N14Rik, mKIAA1894
Expression	Biased expression in CNS E18 (RPKM 1.5), frontal lobe adult (RPKM 1.2) and 6 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

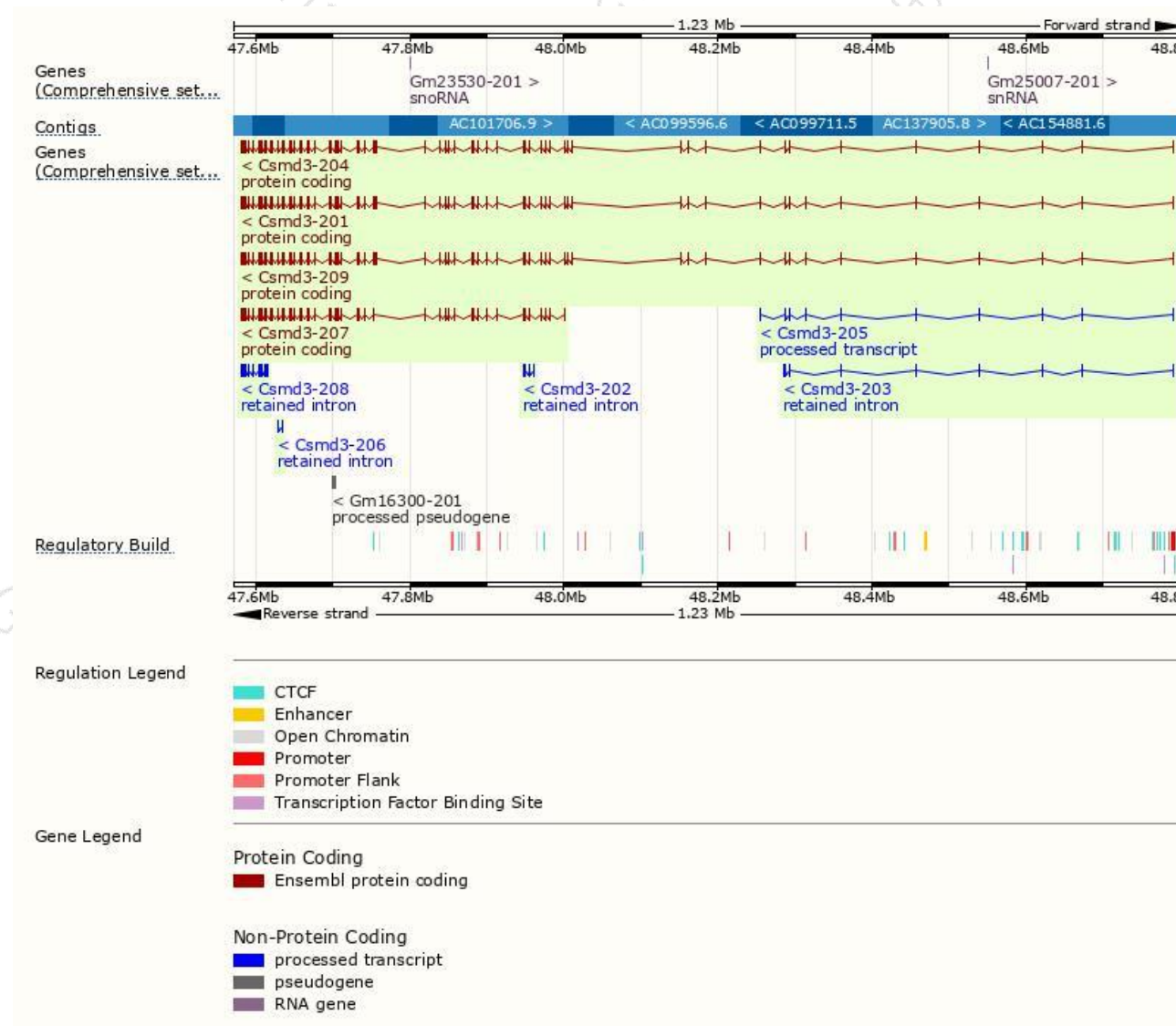
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Csmd3-201	ENSMUST00000100670.9	13022	3707aa	Protein coding	CCDS49602	Q80T79	TSL:5 GENCODE basic APPRIS P1
Csmd3-209	ENSMUST00000162830.7	13012	3707aa	Protein coding	-	Q80T79	TSL:5 GENCODE basic APPRIS P1
Csmd3-204	ENSMUST00000160658.7	12460	3538aa	Protein coding	-	E9PWJ0	TSL:5 GENCODE basic
Csmd3-207	ENSMUST00000161653.1	9120	2797aa	Protein coding	-	F6TRD7	CDS 5' incomplete TSL:1
Csmd3-205	ENSMUST00000160716.7	1876	No protein	Processed transcript	-	-	TSL:5
Csmd3-203	ENSMUST00000160655.1	3155	No protein	Retained intron	-	-	TSL:1
Csmd3-208	ENSMUST00000162006.1	2951	No protein	Retained intron	-	-	TSL:5
Csmd3-202	ENSMUST00000110261.1	865	No protein	Retained intron	-	-	TSL:1
Csmd3-206	ENSMUST00000161173.1	801	No protein	Retained intron	-	-	TSL:3

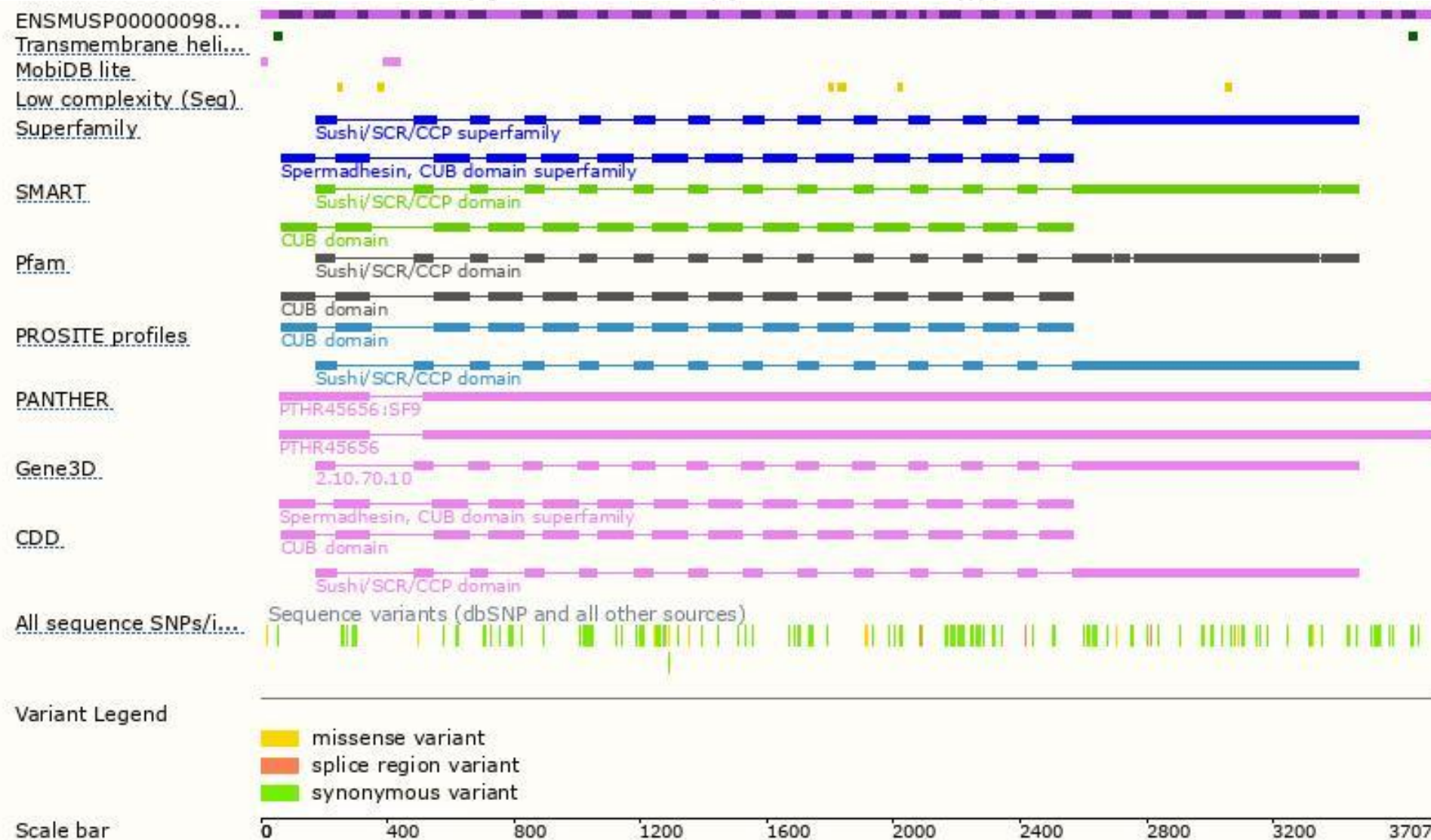
The strategy is based on the design of *Csmd3-201* transcript,the transcription is shown below:



Genomic location distribution

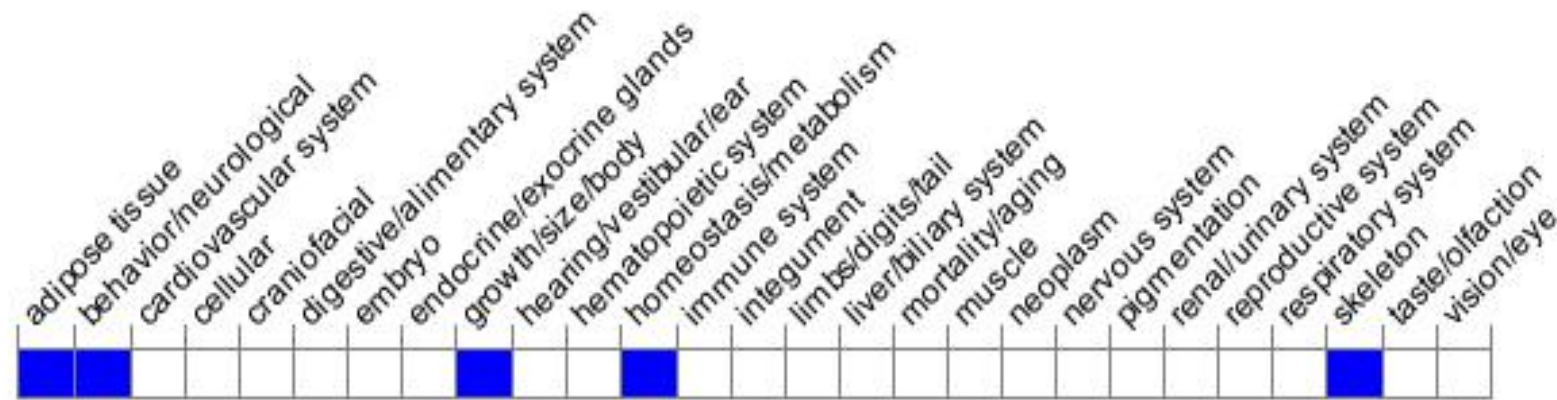


Protein domain



Mouse phenotype description(MGI)

Phenotype Overview



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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