Celf1 Cas9-CKO Strategy

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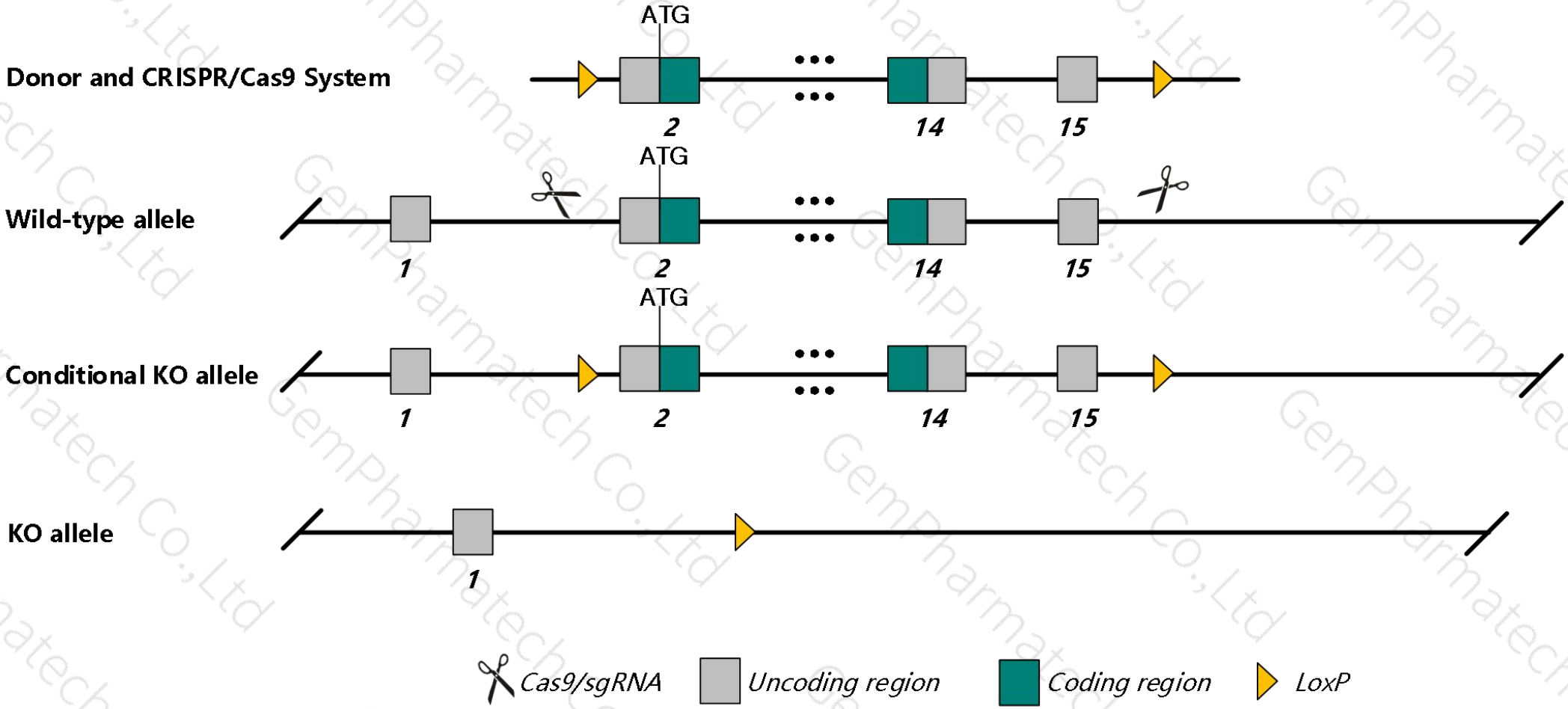
Project Overview

Project Name	***Celf1***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Celf1* gene. The schematic diagram is as follows:



Technical routes

- The *Celf1* gene has 14 transcripts. According to the structure of *Celf1* gene, exon2-exon15 of *Celf1-201* (ENSMUST00000005643.13) transcript is recommended as the knockout region.The region contains all of the coding sequence.Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Celf1* 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.

Notice

- According to the existing MGI data,Homozygous disruption of this gene results in significant postnatal lethality, growth retardation, and impaired fertility in both sexes. Male infertility is caused by a blockage of spermiogenesis at stage 7 and increased germ cell apoptosis but is not fully penetrant.

- The *Celf1* gene is located on the Chr2. 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）

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Celf1 CUGBP, Elav-like family member 1 [Mus musculus (house mouse)]

Gene ID: 13046, updated on 5-Mar-2019

Summary

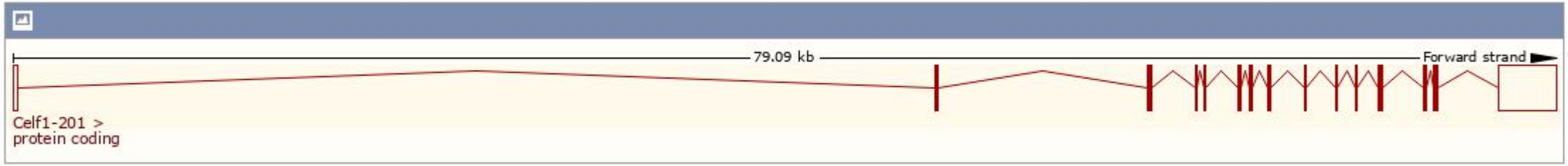
Official Symbol	Celf1 provided by MGI
Official Full Name	CUGBP, Elav-like family member 1 provided by MGI
Primary source	MGI:MGI:1342295
See related	Ensembl:ENSMUSG00000005506
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1600010O03Rik, AA407467, Brunol2, CUG-BP, CUG-BP1, CUGBP, Cugbp1, D2Wsu101e, HNAB50, NAB50
Expression	Ubiquitous expression in CNS E18 (RPKM 28.2), whole brain E14.5 (RPKM 28.2) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

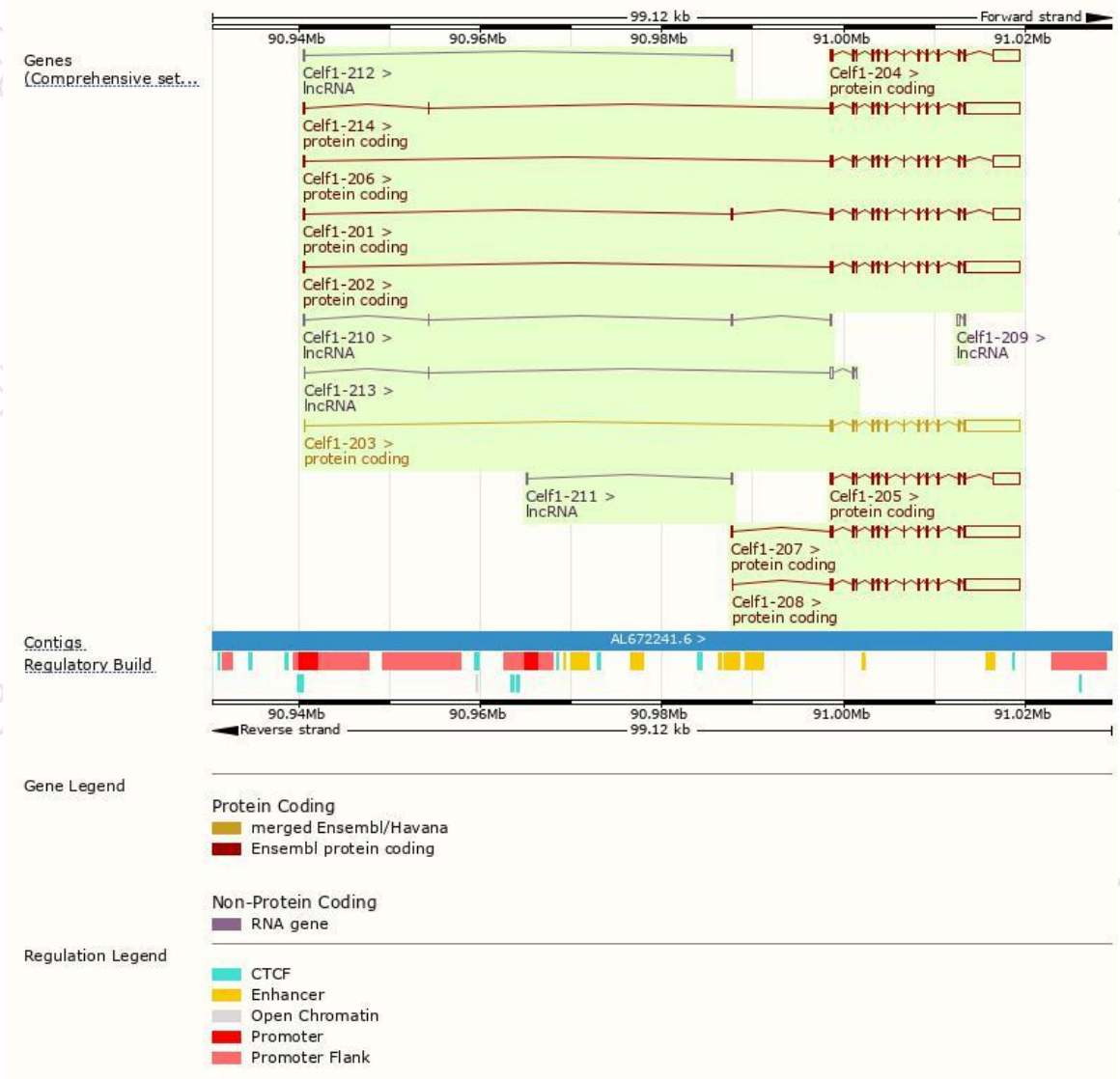
The gene has 14 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Celf1-214	ENSMUST00000177642.7	7806	486aa	Protein coding	CCDS16421	P28659	TSL:1 GENCODE basic
Celf1-207	ENSMUST00000111452.7	7800	513aa	Protein coding	CCDS16420	P28659	TSL:5 GENCODE basic APPRIS P1
Celf1-203	ENSMUST00000068747.13	7614	486aa	Protein coding	CCDS16421	P28659	TSL:1 GENCODE basic
Celf1-208	ENSMUST00000111455.8	7579	513aa	Protein coding	CCDS16420	P28659	TSL:5 GENCODE basic APPRIS P1
Celf1-201	ENSMUST00000005643.13	4830	513aa	Protein coding	CCDS16420	P28659	TSL:5 GENCODE basic APPRIS P1
Celf1-206	ENSMUST00000111451.9	4678	486aa	Protein coding	CCDS16421	P28659	TSL:5 GENCODE basic
Celf1-205	ENSMUST00000111449.7	4441	486aa	Protein coding	CCDS16421	P28659	TSL:1 GENCODE basic
Celf1-202	ENSMUST00000068726.12	7851	487aa	Protein coding	-	A0A0R4J0T5	TSL:1 GENCODE basic
Celf1-204	ENSMUST00000111448.1	4432	483aa	Protein coding	-	P28659	TSL:5 GENCODE basic
Celf1-209	ENSMUST00000127385.1	489	No protein	lncRNA	-	-	TSL:1
Celf1-213	ENSMUST00000154442.1	478	No protein	lncRNA	-	-	TSL:2
Celf1-210	ENSMUST00000127580.7	426	No protein	lncRNA	-	-	TSL:5
Celf1-212	ENSMUST00000150546.1	350	No protein	lncRNA	-	-	TSL:2
Celf1-211	ENSMUST00000133657.1	271	No protein	lncRNA	-	-	TSL:5

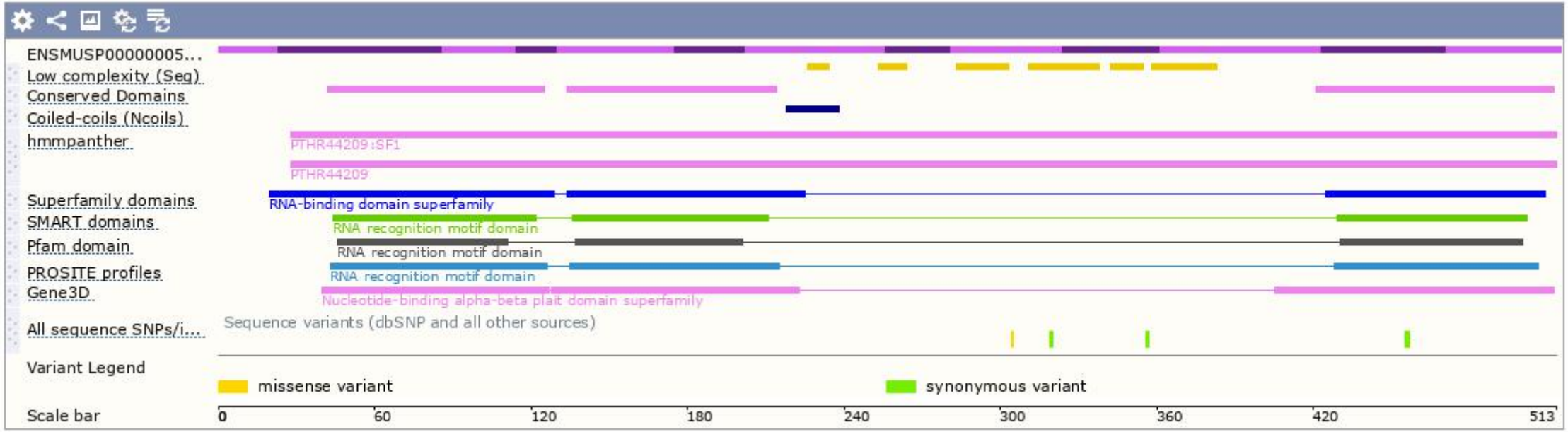
The strategy is based on the design of *Celf1-201* transcript,The transcription is shown below



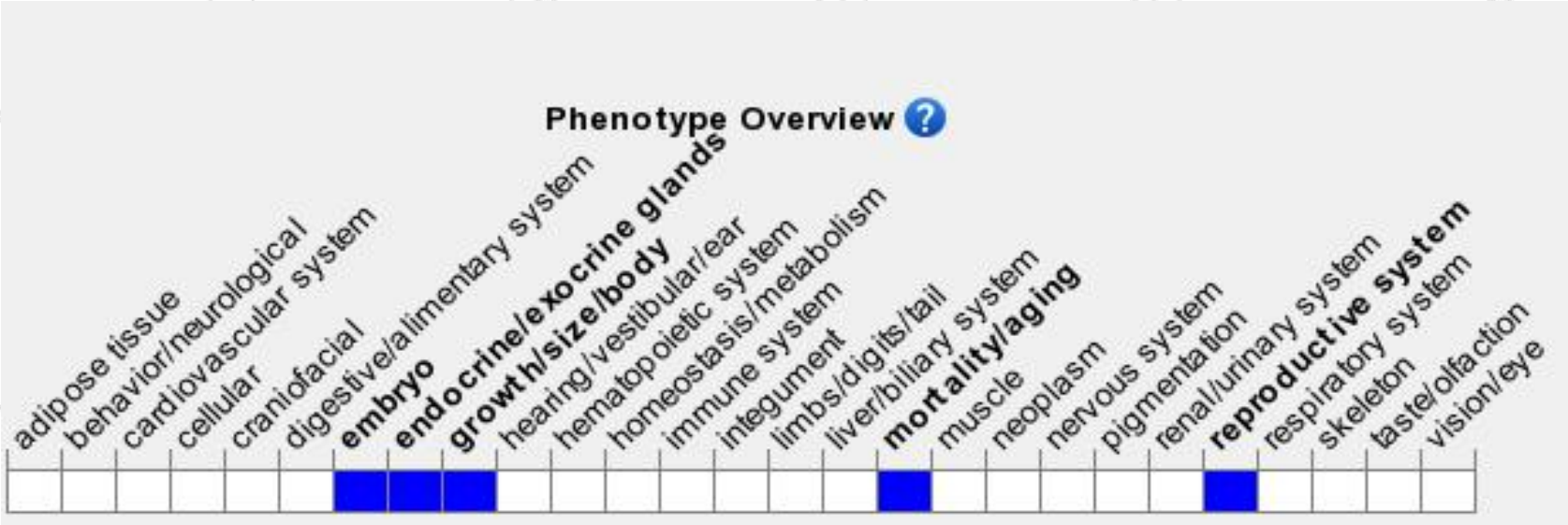
Genomic location distribution



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/).

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

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