Hsd17b4 Cas9-KO Strategy

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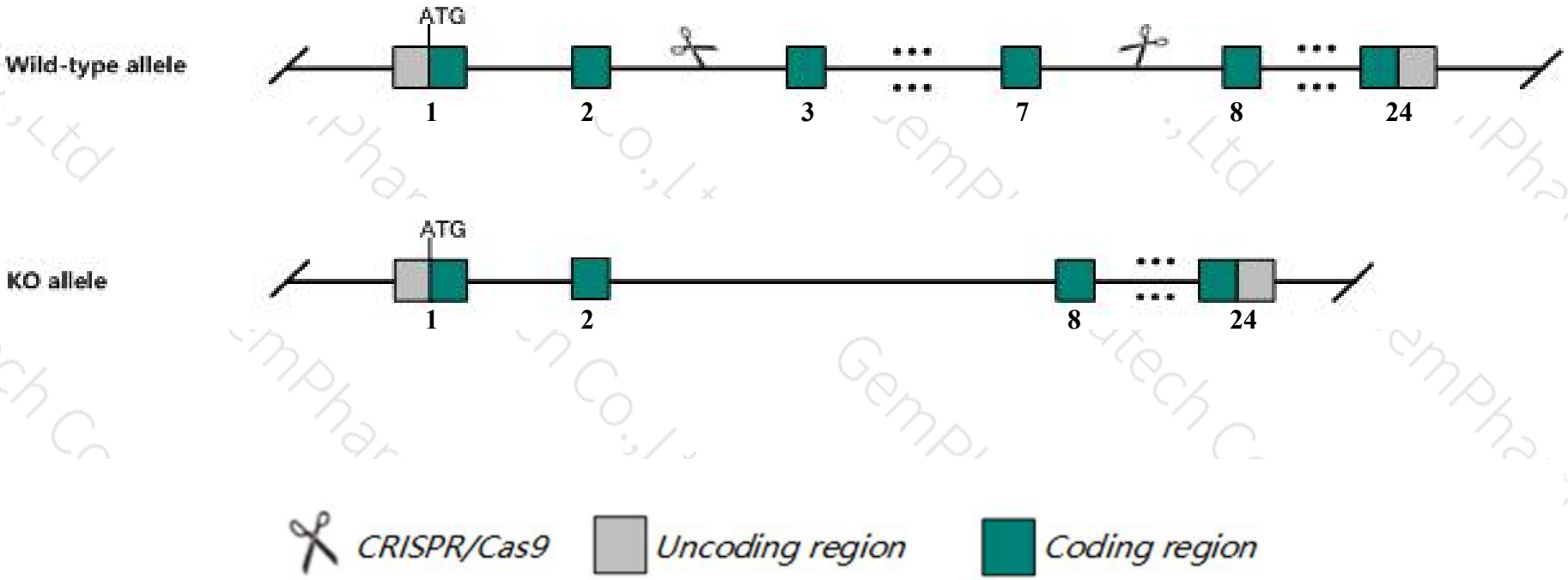
Design Date: 2019-10-23

Project Overview

Project Name	***Hsd17b4***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Hsd17b4* gene. The schematic diagram is as follows:



Technical routes

➢ The *Hsd17b4* gene has 4 transcripts. According to the structure of *Hsd17b4* gene, exon3-exon7 of *Hsd17b4-201* (ENSMUST00000025385.6) transcript is recommended as the knockout region.The region contains 322bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Hsd17b4* gene. The brief process is as follows: CRISPR/Cas9 syst

Notice

➢ According to the existing MGI data,Mice homozygous for disruptions in this gene have abnormalities in fatty acid metabolism, retarded growth, abnormal bile salt composition, impaired coordination, demyelination and premature death.

➢ The *Hsd17b4* gene is located on the Chr18. 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）

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Hsd17b4 hydroxysteroid (17-beta) dehydrogenase 4 [Mus musculus (house mouse)]

Gene ID: 15488, updated on 7-Apr-2019

Summary

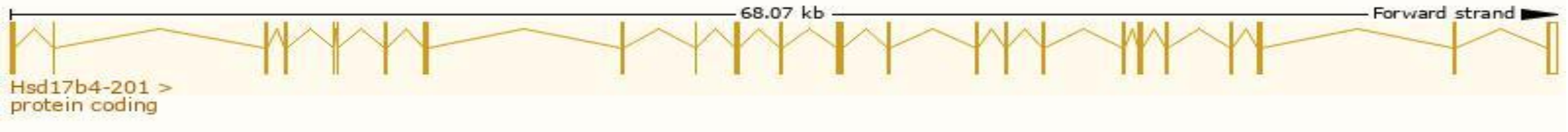
Official Symbol	Hsd17b4 provided by MGI
Official Full Name	hydroxysteroid (17-beta) dehydrogenase 4 provided by MGI
Primary source	MGI:MGI:105089
See related	Ensembl:ENSMUSG00000024507
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	17-beta-HSD, 17[b]-HSD, DBP, MFE-2, MFP2, MPF-2, Mfp-2, perMFE-2
Expression	Ubiquitous expression in liver adult (RPKM 28.9), placenta adult (RPKM 27.7) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

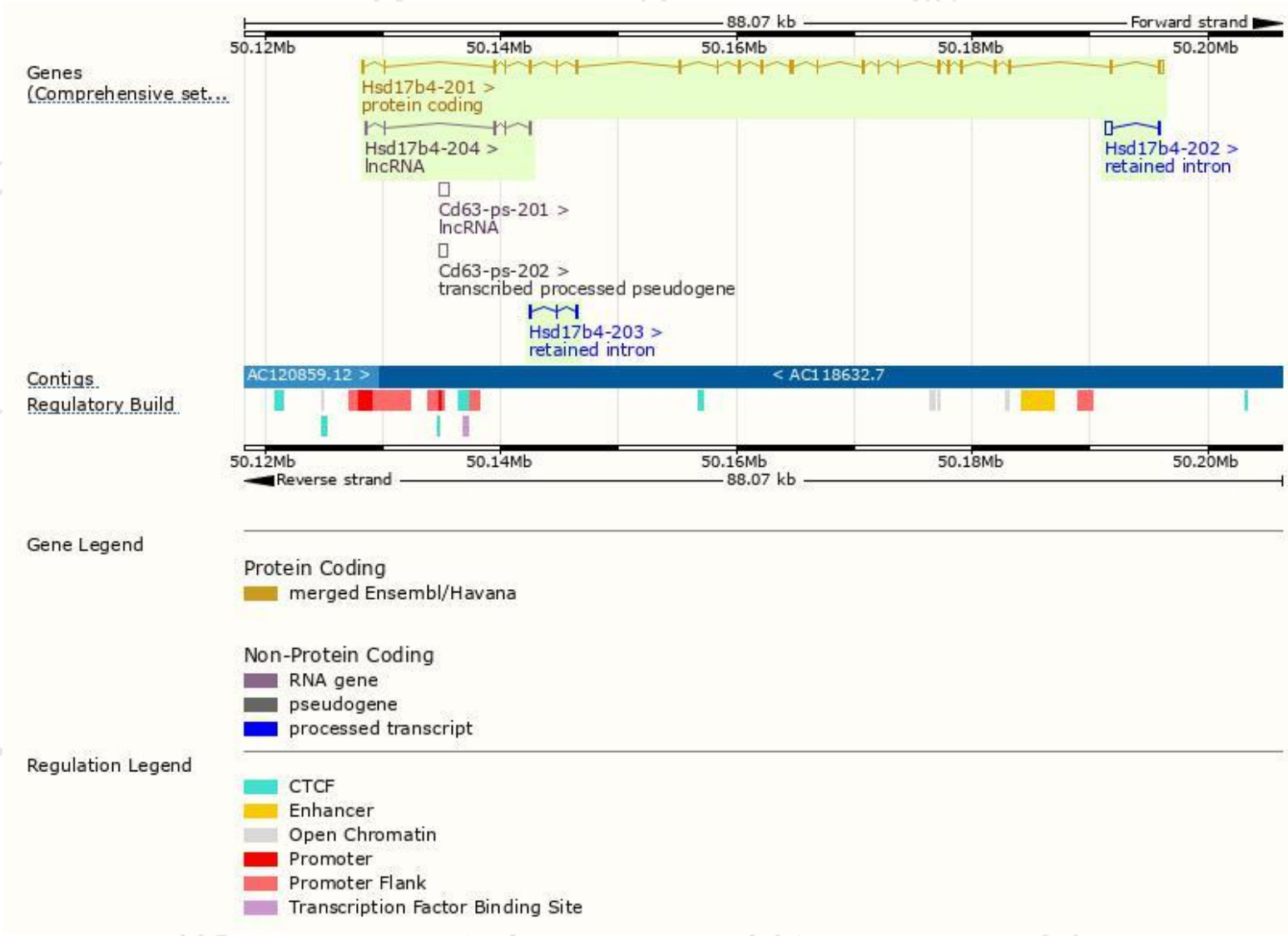
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Hsd17b4-201	ENSMUST00000025385.6	2684	735aa	Protein coding	CCDS29242	P51660	TSL:1 GENCODE basic APPRIS P1
Hsd17b4-202	ENSMUST00000127325.1	634	No protein	Retained intron	-	-	TSL:1
Hsd17b4-203	ENSMUST00000139502.1	536	No protein	Retained intron	-	-	TSL:2
Hsd17b4-204	ENSMUST00000152388.1	394	No protein	lncRNA	-	-	TSL:3

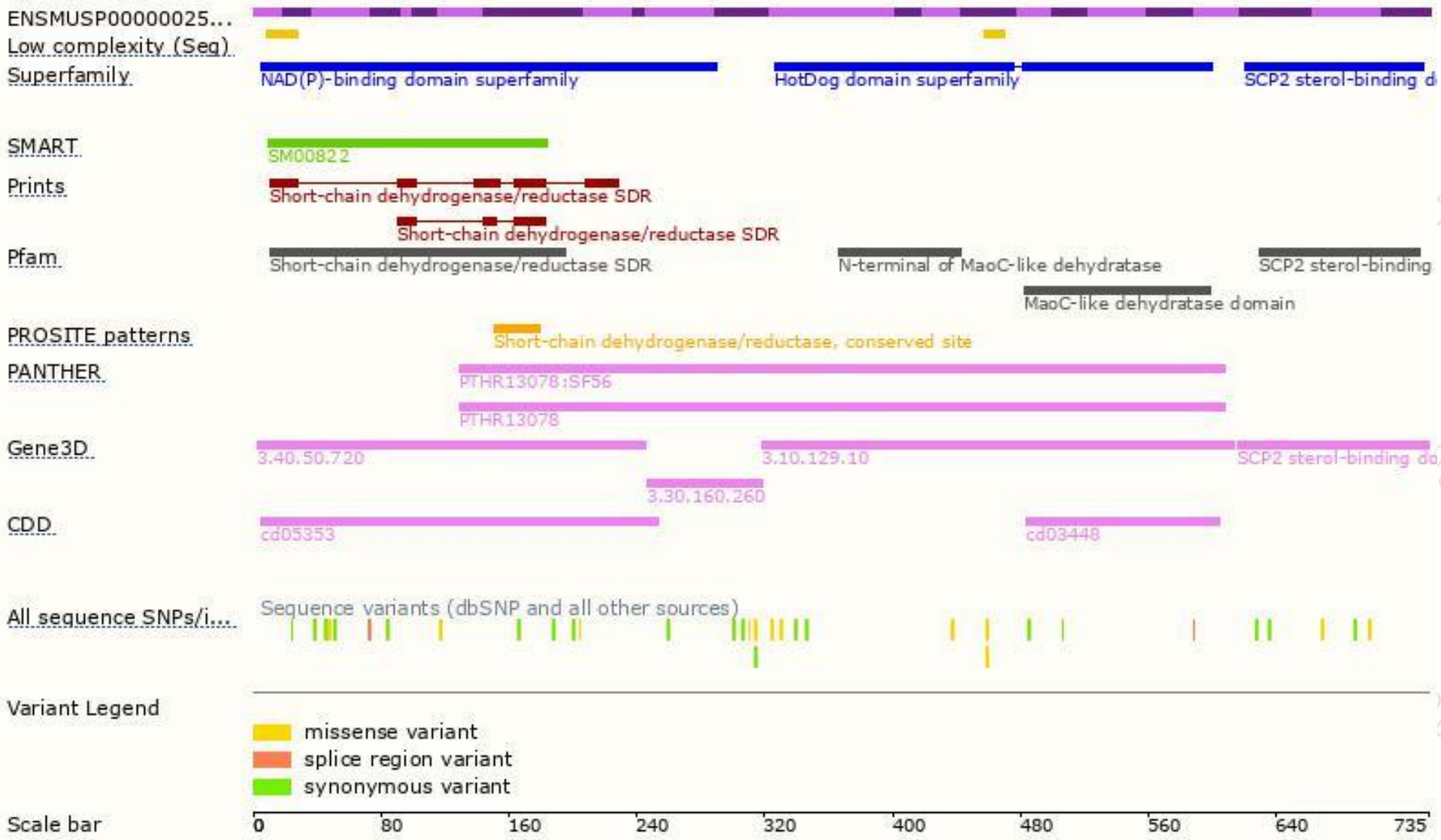
The strategy is based on the design of *Hsd17b4-201* transcript,The transcription is shown below



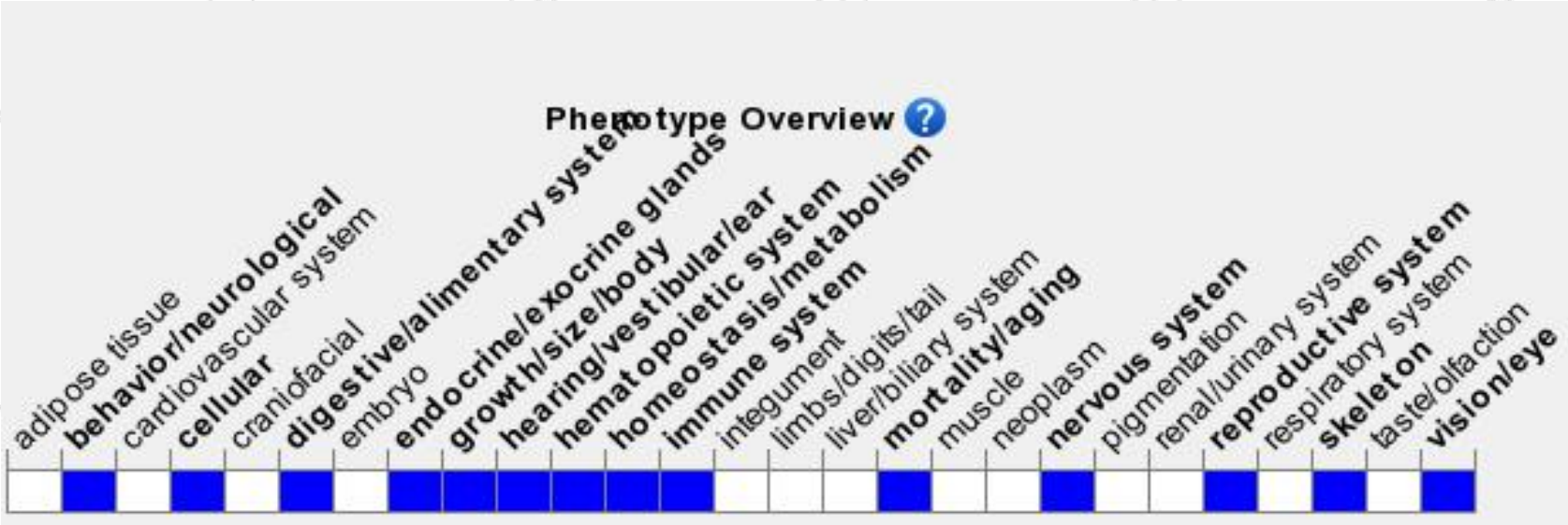
Genomic location distribution



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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