

# *Arel1* Cas9-KO Strategy

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# Project Overview

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**Project Name**

***Arell***

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**Project type**

**Cas9-KO**

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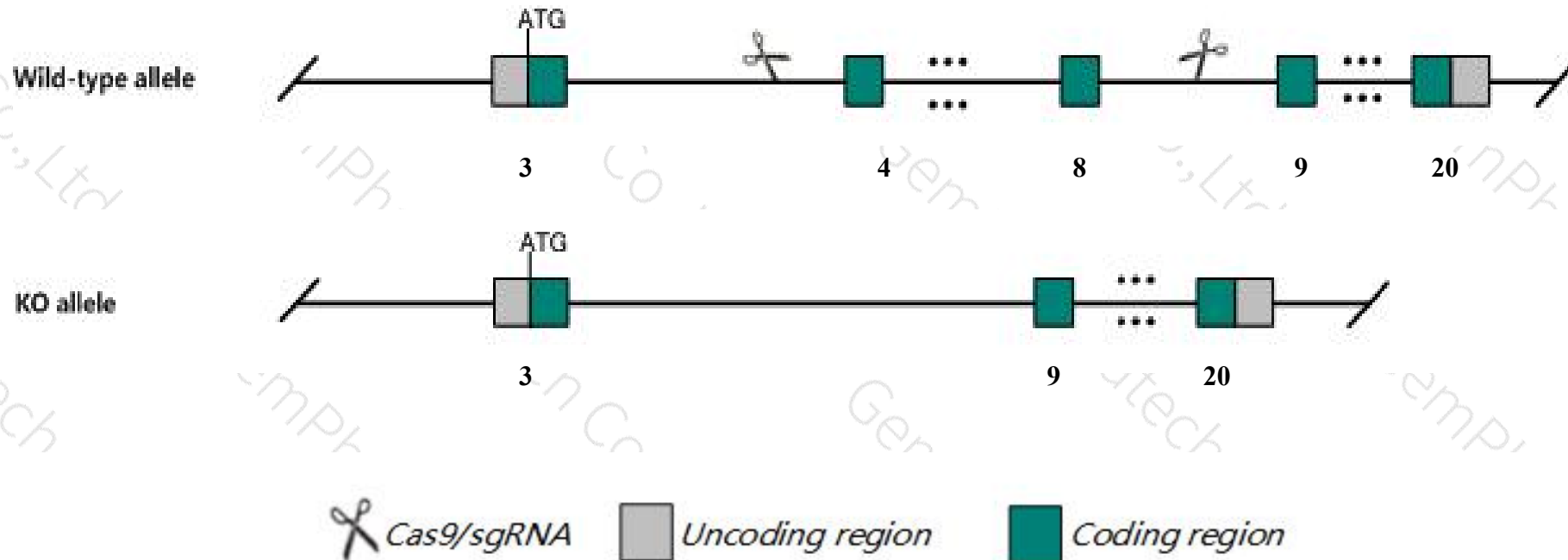
**Strain background**

**C57BL/6J**

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# Knockout strategy

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



- The *Arell* gene has 8 transcripts. According to the structure of *Arell* gene, exon4-exon8 of *Arell-201* (ENSMUST00000043169.13) transcript is recommended as the knockout region. The region contains 1064bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Arell* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6J 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/6J mice.

- The *Arell* gene is located on the Chr12. 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)

## Arel1 apoptosis resistant E3 ubiquitin protein ligase 1 [Mus musculus (house mouse)]

Gene ID: 68497, updated on 31-Jan-2019

### Summary



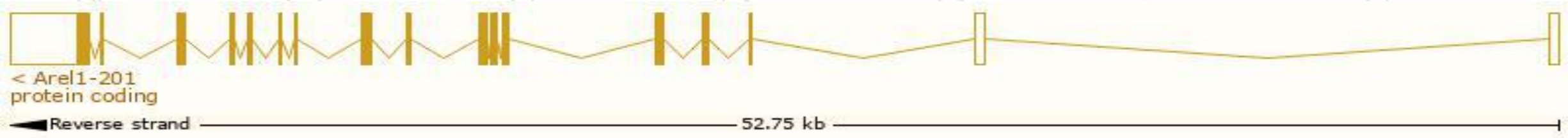
<b>Official Symbol</b>	Arel1 provided by <a href="#">MGI</a>
<b>Official Full Name</b>	apoptosis resistant E3 ubiquitin protein ligase 1 provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:1915747</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000042350</a>
<b>Gene type</b>	protein coding
<b>RefSeq status</b>	VALIDATED
<b>Organism</b>	<a href="#">Mus musculus</a>
<b>Lineage</b>	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
<b>Also known as</b>	1110018G07Rik, A1649076, AW610792
<b>Expression</b>	Ubiquitous expression in testis adult (RPKM 22.2), CNS E18 (RPKM 18.7) and 28 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

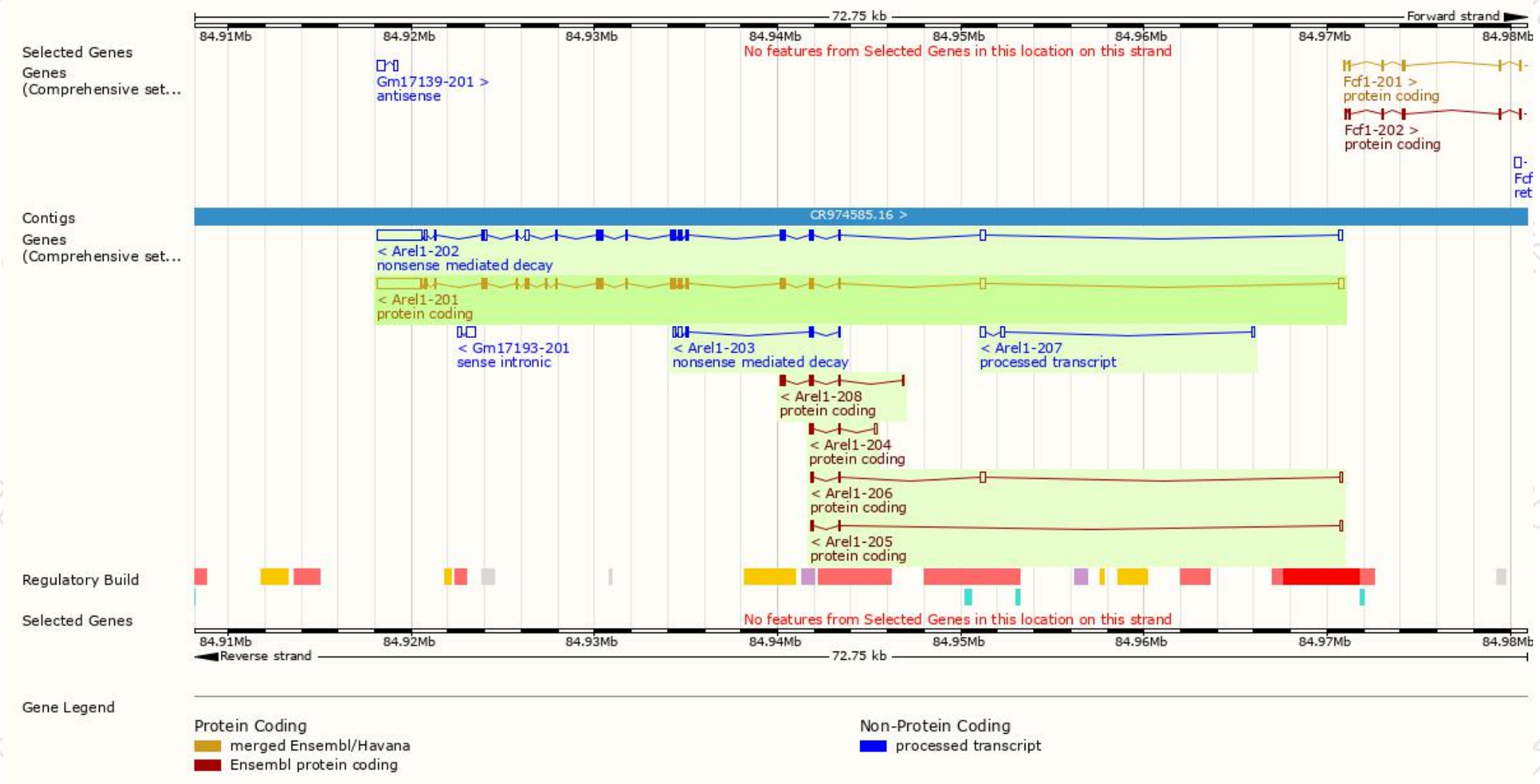
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Are11-201	<a href="#">ENSMUST00000043169.13</a>	5446	<a href="#">823aa</a>	Protein coding	<a href="#">CCDS26051</a>	<a href="#">Q8CHG5</a>	TSL:1 GENCODE basic APPRIS P1
Are11-206	<a href="#">ENSMUST00000167448.7</a>	725	<a href="#">64aa</a>	Protein coding	-	<a href="#">E9Q2W2</a>	CDS 3' incomplete TSL:3
Are11-208	<a href="#">ENSMUST00000169161.7</a>	644	<a href="#">160aa</a>	Protein coding	-	<a href="#">E9PY98</a>	CDS 3' incomplete TSL:2
Are11-205	<a href="#">ENSMUST00000165886.1</a>	369	<a href="#">61aa</a>	Protein coding	-	<a href="#">E9PYA6</a>	CDS 3' incomplete TSL:3
Are11-204	<a href="#">ENSMUST00000165093.7</a>	367	<a href="#">71aa</a>	Protein coding	-	<a href="#">E9PYE5</a>	CDS 3' incomplete TSL:3
Are11-202	<a href="#">ENSMUST00000163231.7</a>	5262	<a href="#">502aa</a>	Nonsense mediated decay	-	<a href="#">E9PZX5</a>	TSL:1
Are11-203	<a href="#">ENSMUST00000163372.7</a>	706	<a href="#">99aa</a>	Nonsense mediated decay	-	<a href="#">E9Q7I2</a>	TSL:3
Are11-207	<a href="#">ENSMUST00000168713.1</a>	668	No protein	Processed transcript	-	-	TSL:3

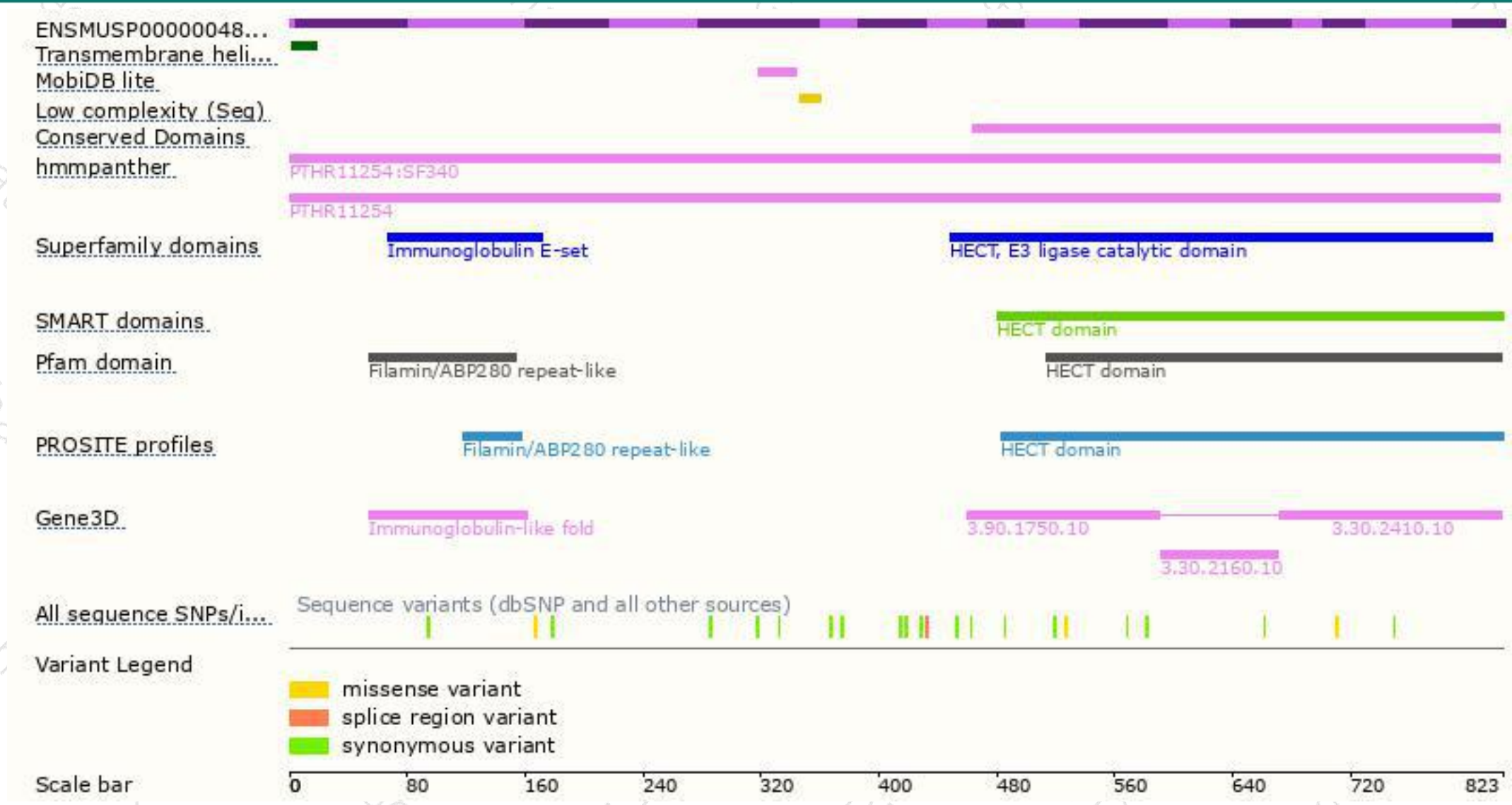
The strategy is based on the design of *Are11-201* transcript,The transcription is shown below:



# Genomic location distribution



# Protein domain



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

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