Upf3b Cas9-KO Strategy

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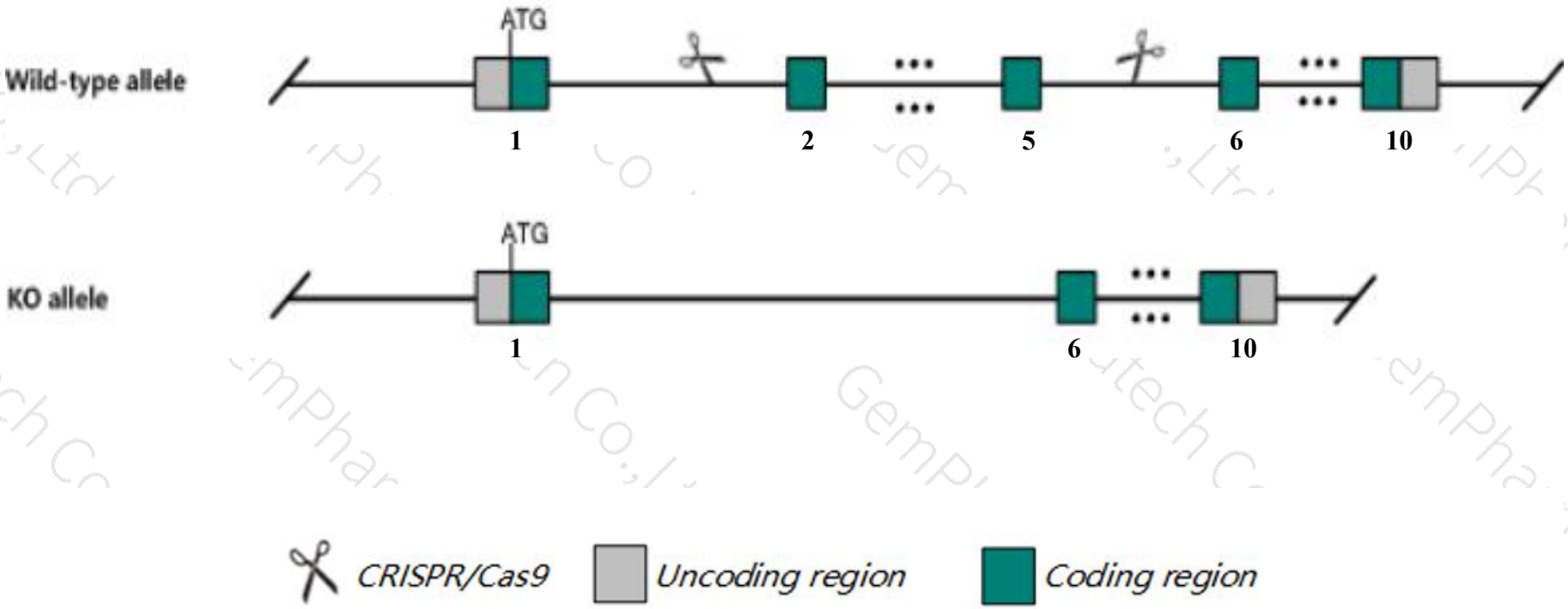
Project Overview

Project Name	***Upf3b***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Upf3b* gene. The schematic diagram is as follows:



Technical routes

➢ The *Upf3b* gene has 3 transcripts. According to the structure of *Upf3b* gene, exon2-exon5 of *Upf3b-201* (ENSMUST00000076265.12) transcript is recommended as the knockout region.The region contains 424bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Upf3b* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

- According to the existing MGI data,Mice homozygous or hemizygous for a null mutation display impaired startle responses, prepulse inhibition, and cued and contextual fear conditioning behavior, limb grasping, decreased neuronal precursor proliferation, and increased neuronal precursor proliferation.

- The *Upf3b* gene is located on the ChrX. 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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Upf3b UPF3 regulator of nonsense transcripts homolog B (yeast) [Mus musculus (house mouse)]

Gene ID: 68134, updated on 31-Jan-2019

Summary

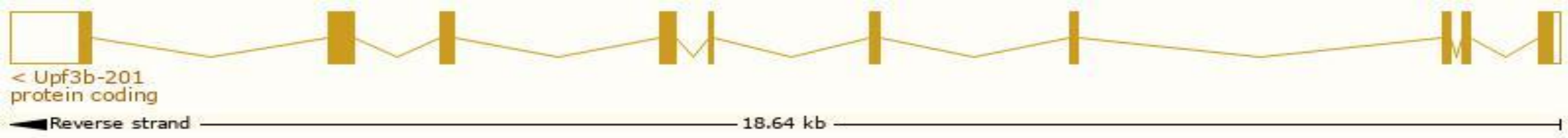
Official Symbol	Upf3b provided by MGI
Official Full Name	UPF3 regulator of nonsense transcripts homolog B (yeast) provided by MGI
Primary source	MGI:MGI:1915384
See related	Ensembl:ENSMUSG00000036572
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	5730594O13Rik, AI317193, AW541158, RENT3B, UPF3X
Expression	Broad expression in CNS E11.5 (RPKM 8.6), CNS E14 (RPKM 7.2) and 22 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

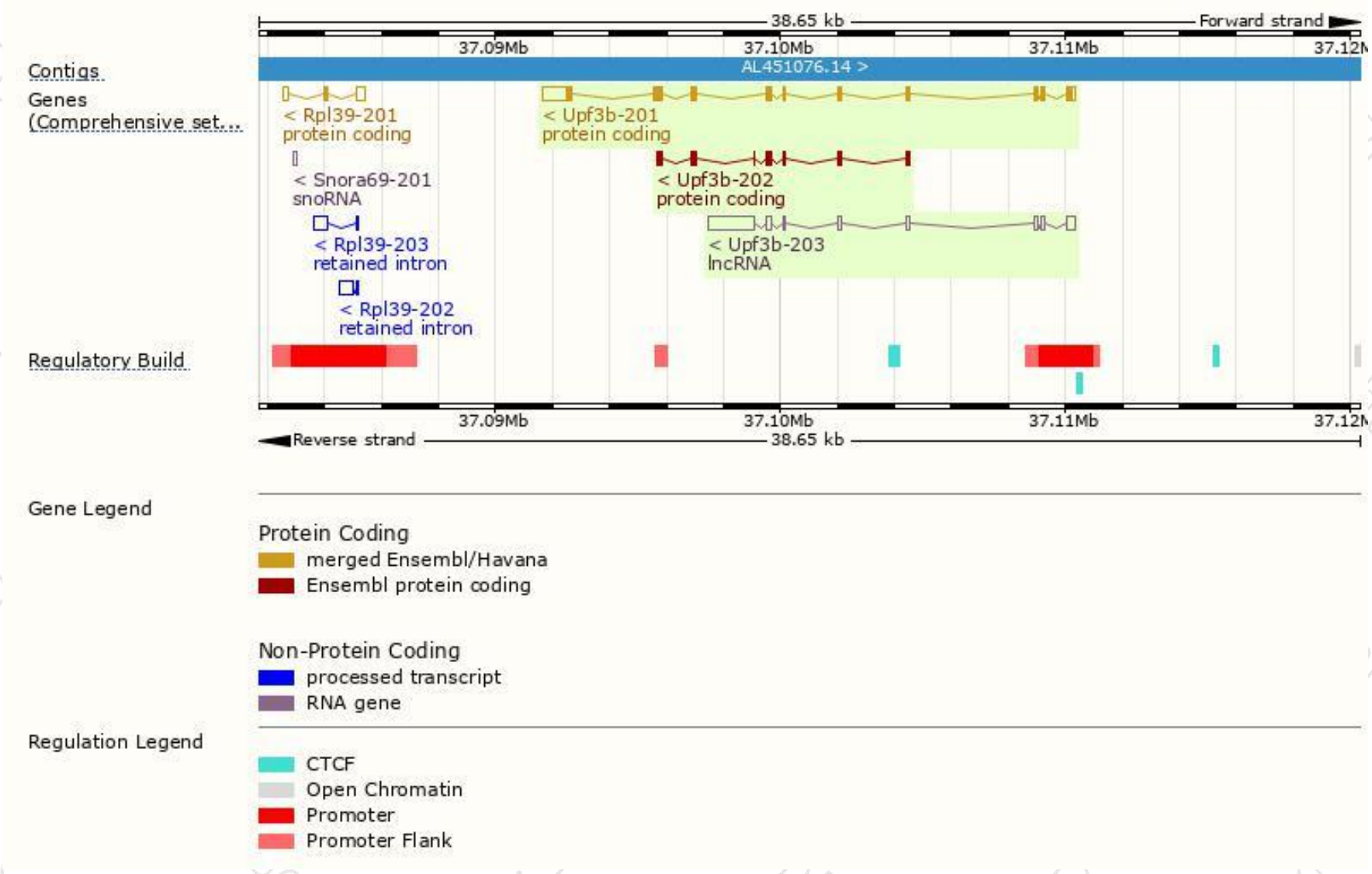
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Upf3b-201	ENSMUST00000076265.12	2344	472aa	Protein coding	CCDS30068	Q3ULL6	TSL:1 GENCODE basic APPRIS P1
Upf3b-202	ENSMUST00000130324.1	780	260aa	Protein coding	-	F6Q8N5	5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete TSL:3
Upf3b-203	ENSMUST00000133481.1	2553	No protein	lncRNA	-	-	TSL:1

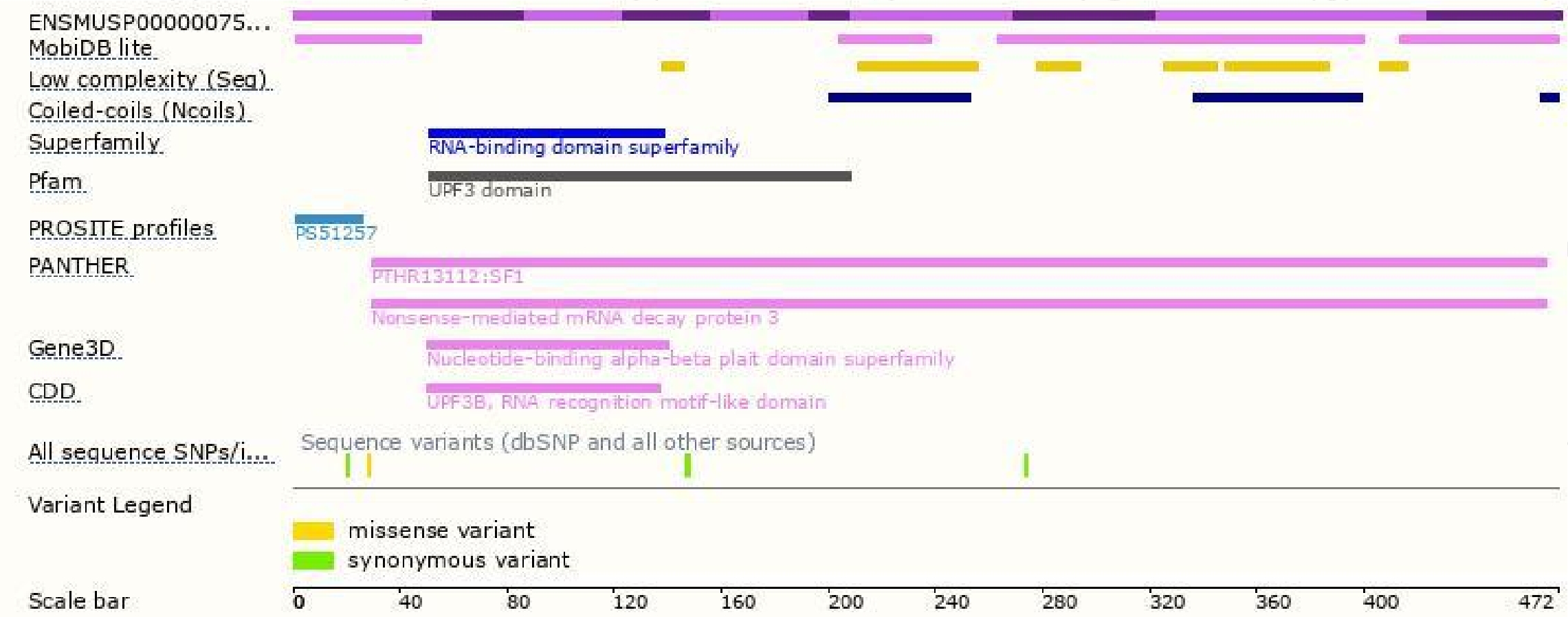
The strategy is based on the design of *Upf3b-201* transcript,The transcription is shown below



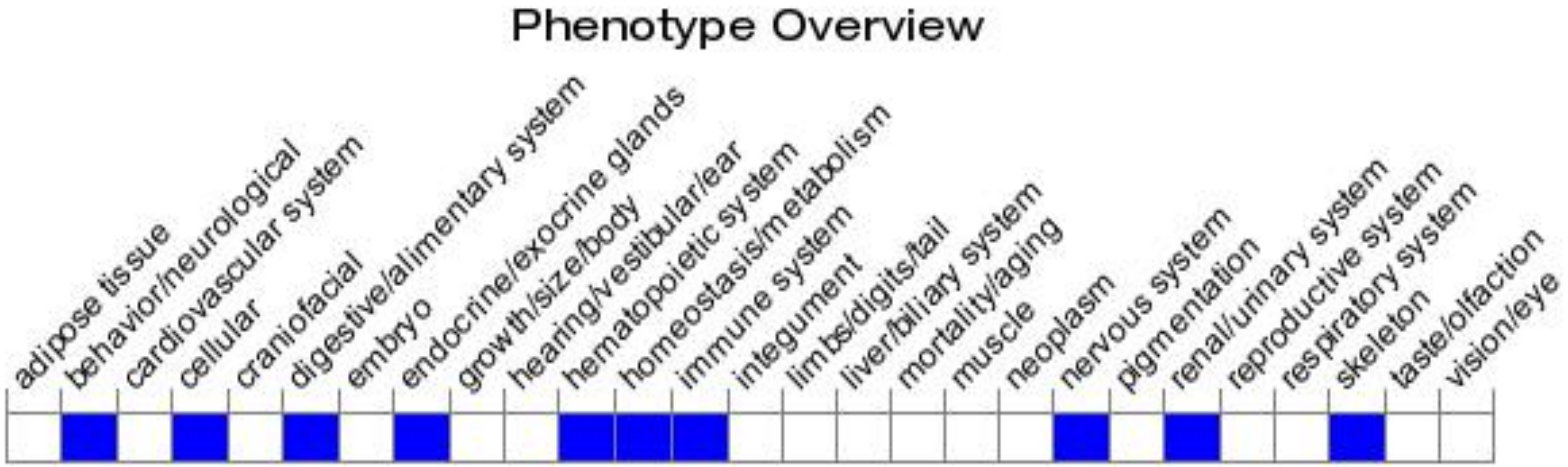
Genomic location distribution



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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