

Map3k2 Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Map3k2

Project type

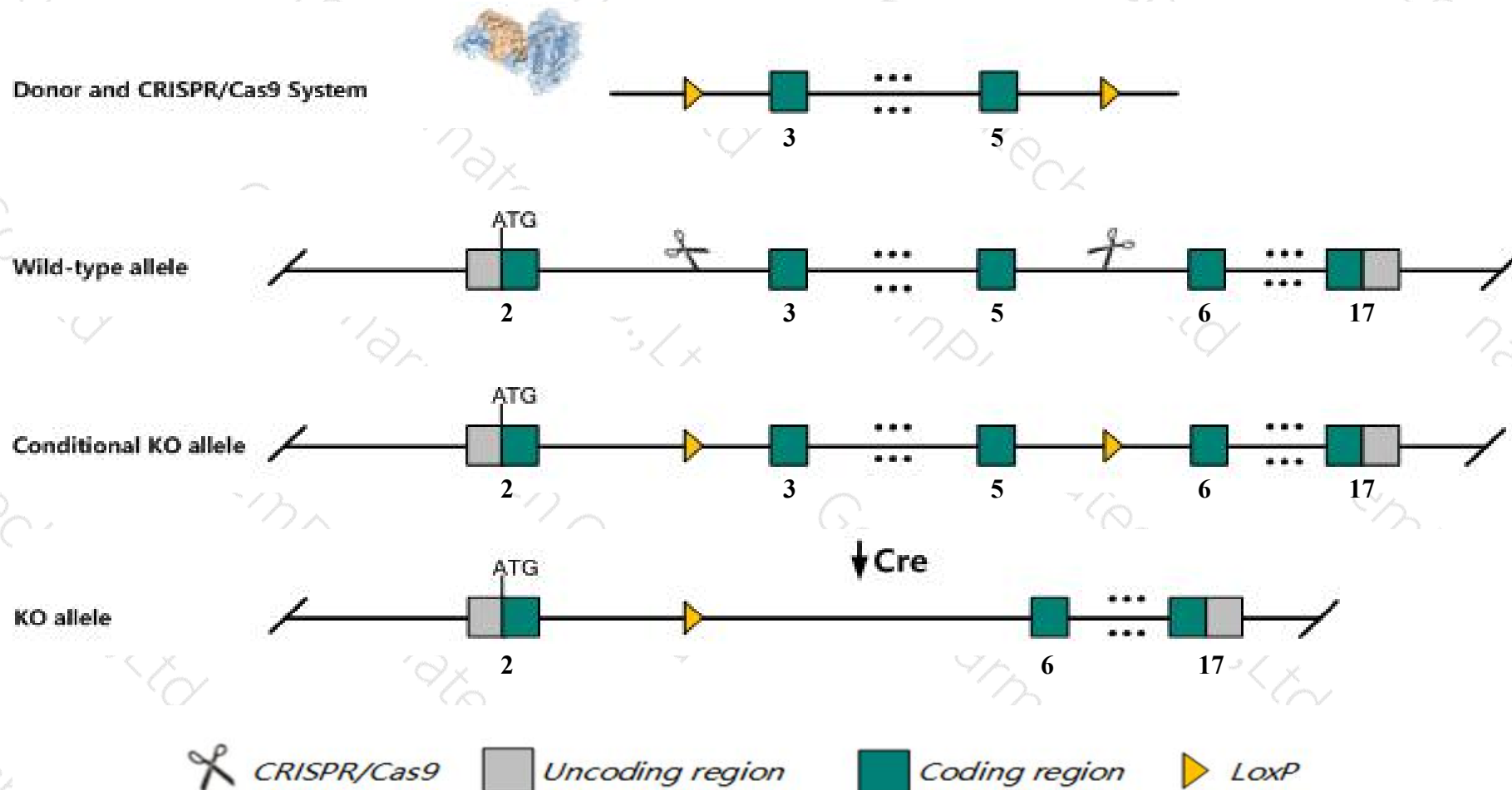
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Map3k2* gene. The schematic diagram is as follows:



- The *Map3k2* gene has 3 transcripts. According to the structure of *Map3k2* gene, exon3-exon5 of *Map3k2-201* (ENSMUST00000096575.4) transcript is recommended as the knockout region. The region contains 260bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Map3k2* 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.

- According to the existing MGI data, Mice homozygous for disruptions in this gene are grossly normal and fertile.
- The *Map3k2* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

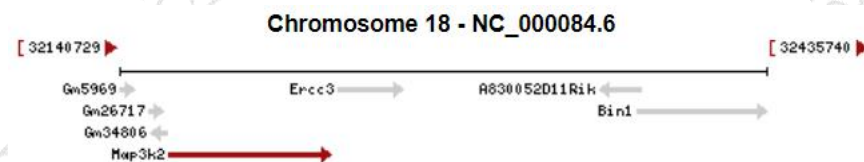
Gene information (NCBI)

Map3k2 mitogen-activated protein kinase kinase kinase 2 [*Mus musculus* (house mouse)]

Gene ID: 26405, updated on 10-Oct-2019

Summary

Official Symbol Map3k2 provided by MGI
Official Full Name mitogen-activated protein kinase kinase kinase 2 provided by MGI
Primary source MGI:MGI:1346873
See related Ensembl:ENSMUSG00000024383
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 Mekk2; Mekk2b; AI585793; 9630061B06Rik
Expression Ubiquitous expression in CNS E18 (RPKM 3.3), placenta adult (RPKM 2.8) and 28 other tissues [See more](#)
Orthologs [human](#) [all](#)

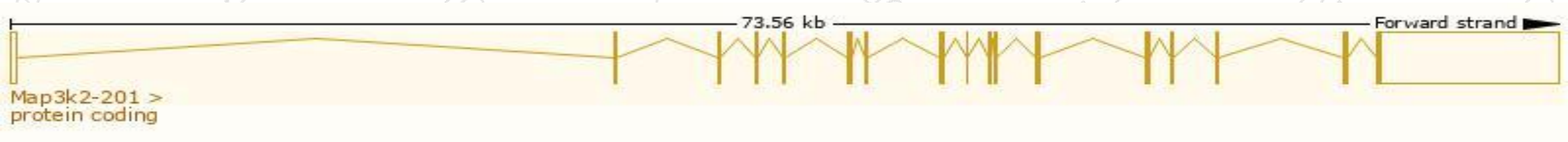


Transcript information (Ensembl)

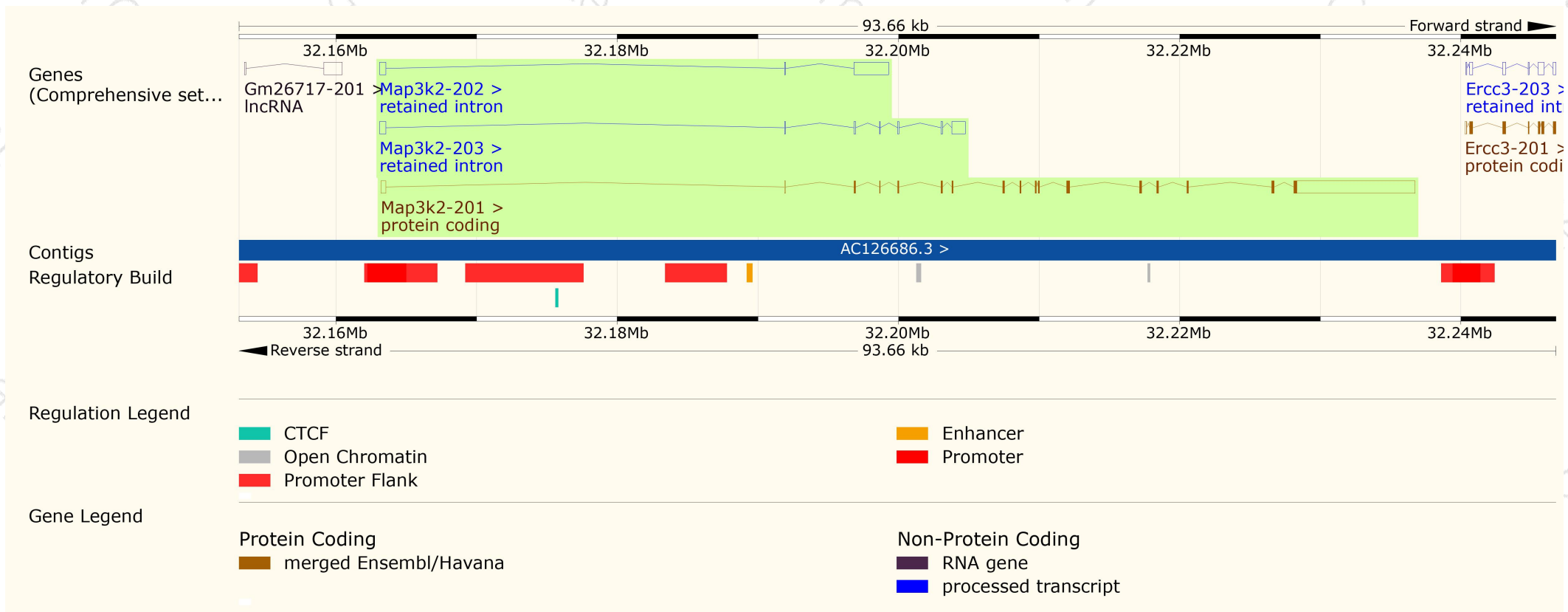
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Map3k2-201	ENSMUST00000096575.4	10684	619aa	ENSMUSP00000094326.3	Protein coding	CCDS29117	G5E8L8	TSL:1 GENCODE basic APPRIS P1
Map3k2-202	ENSMUST00000234576.1	2989	No protein	-	Retained intron	-	-	-
Map3k2-203	ENSMUST00000234611.1	1852	No protein	-	Retained intron	-	-	-

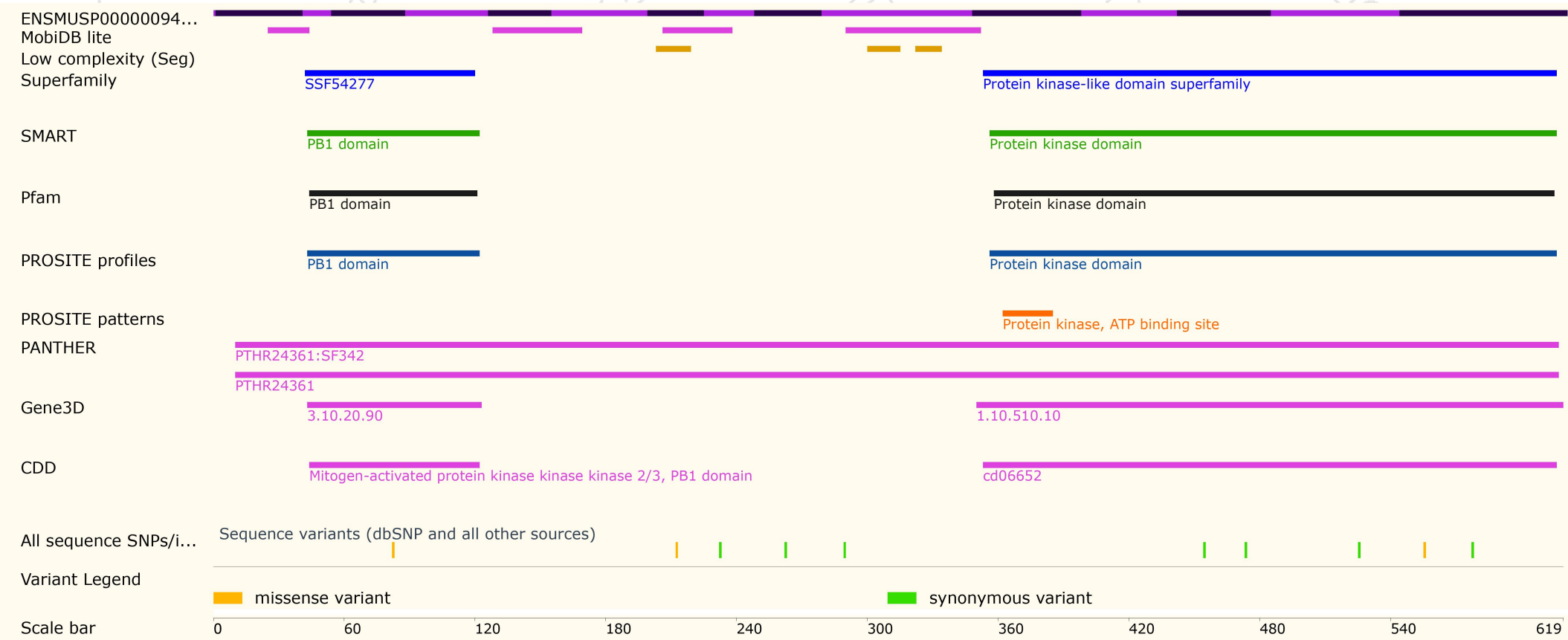
The strategy is based on the design of *Map3k2-201* transcript,The transcription is shown below



Genomic location distribution

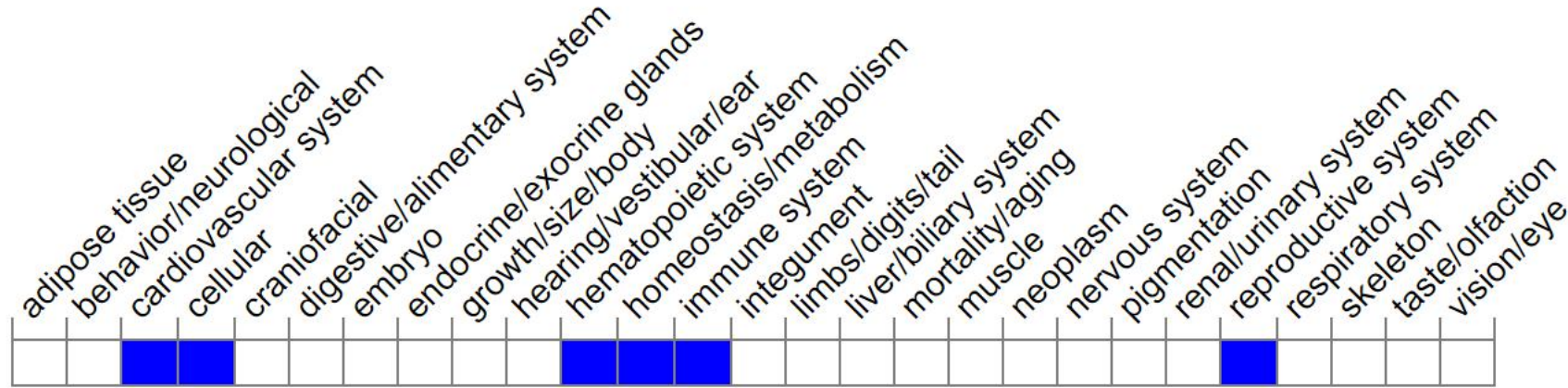


Protein domain



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/>).

According to the existing MGI data, Mice homozygous for disruptions in this gene are grossly normal and fertile.

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

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