

Cd320 Cas9-KO Strategy

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Project Overview



Project Name

Cd320

Project type

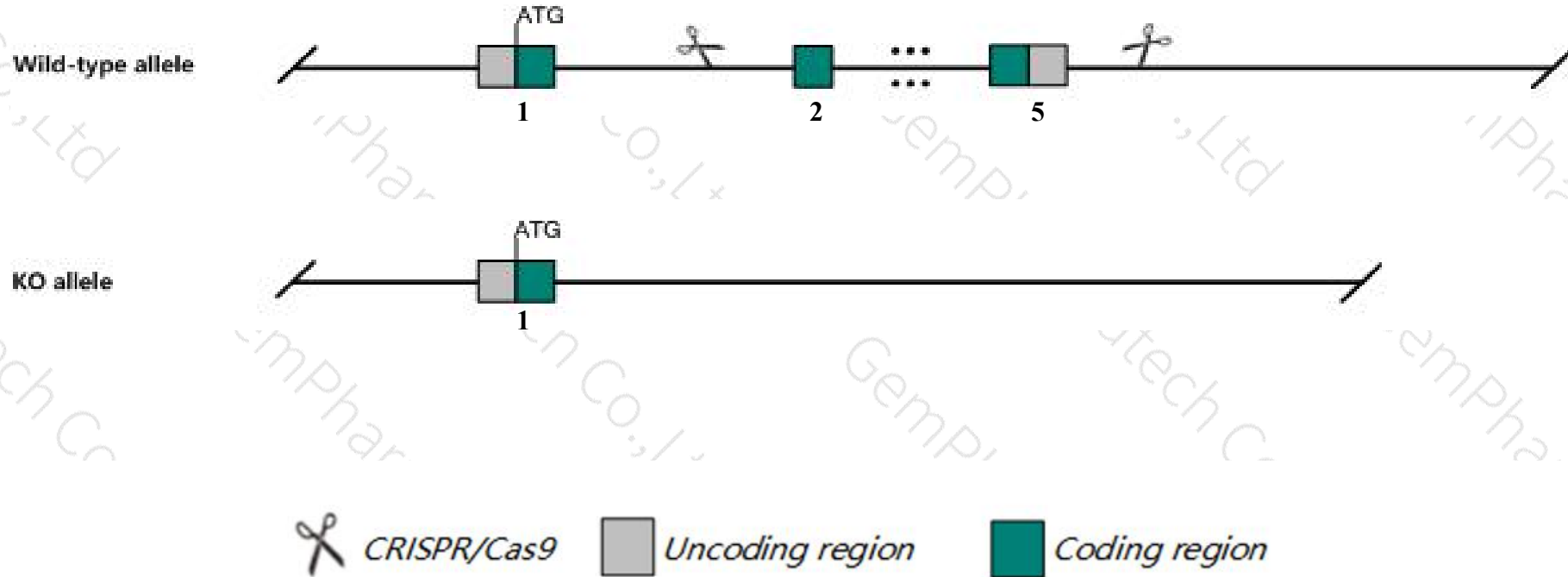
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cd320* gene. The schematic diagram is as follows:



- The *Cd320* gene has 4 transcripts. According to the structure of *Cd320* gene, exon2-exon5 of *Cd320-201* (ENSMUST00000002379.14) transcript is recommended as the knockout region. The region contains 662bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Cd320* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, The homozygous mutant and heterozygous mice exhibited an increased mean retinal artery-to-vein ratio when compared with controls. Mice homozygous for a gene trap knock-out allele exhibit vitamin B12 deficiency in the central nervous system.
- The *Cd320* gene is located on the Chr17. 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)

Cd320 CD320 antigen [*Mus musculus* (house mouse)]

Gene ID: 54219, updated on 12-Aug-2019

Summary

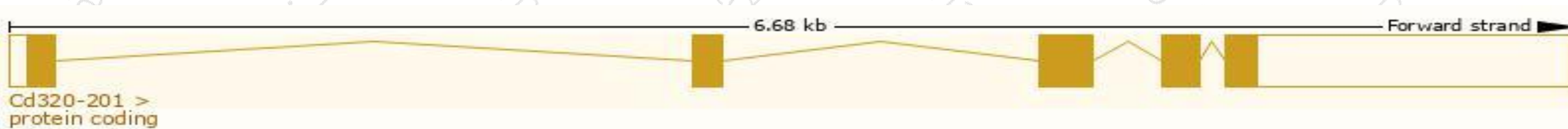
Official Symbol	Cd320 provided by MGI
Official Full Name	CD320 antigen provided by MGI
Primary source	MGI:MGI:1860083
See related	Ensembl:ENSMUSG00000002308
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	8D6; NG29; VLDL; TCbIR; 425O18-1; D17Erd716e
Expression	Broad expression in testis adult (RPKM 40.7), ovary adult (RPKM 24.7) and 25 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

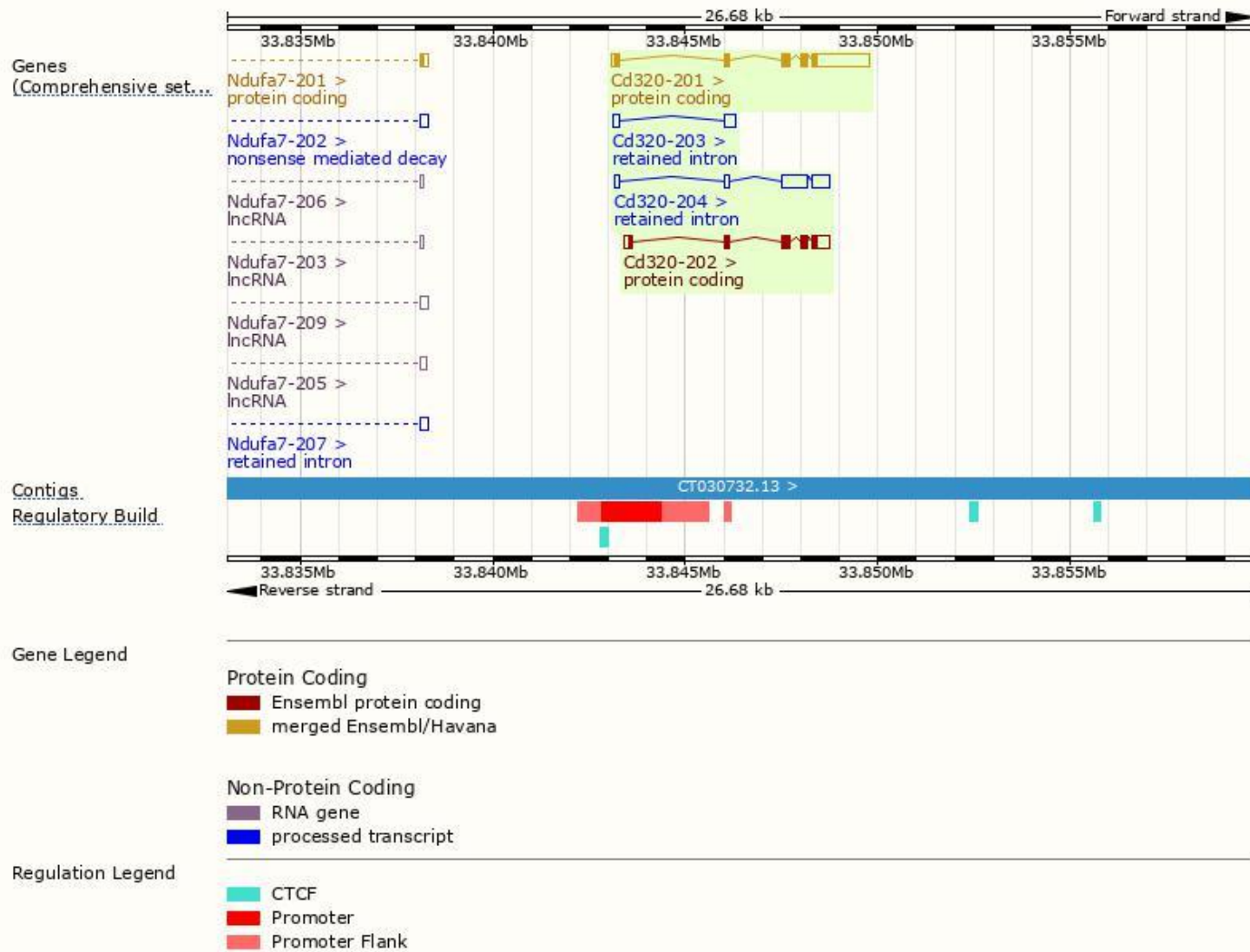
The gene has 4 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cd320-201	ENSMUST00000002379.14	2209	260aa	Protein coding	CCDS28632	Q9Z1P5	TSL:1 GENCODE basic APPRIS P3
Cd320-202	ENSMUST000000087559.7	1191	246aa	Protein coding	CCDS79533	Q9Z1P5	TSL:1 GENCODE basic APPRIS ALT2
Cd320-204	ENSMUST00000234506.1	1417	No protein	Retained intron	-	-	-
Cd320-203	ENSMUST00000173418.1	492	No protein	Retained intron	-	-	TSL:2

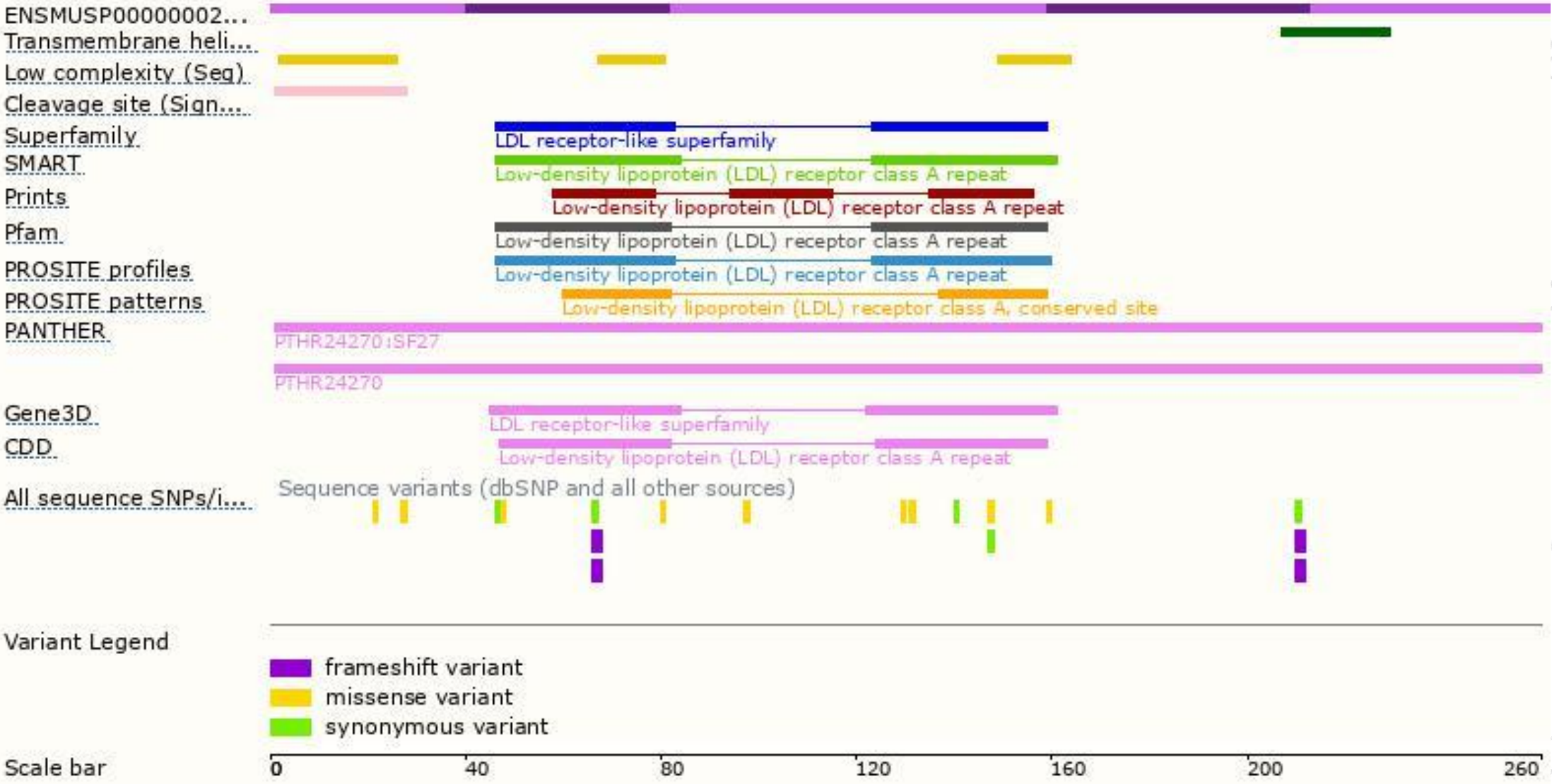
The strategy is based on the design of *Cd320-201* transcript, The transcription is shown below



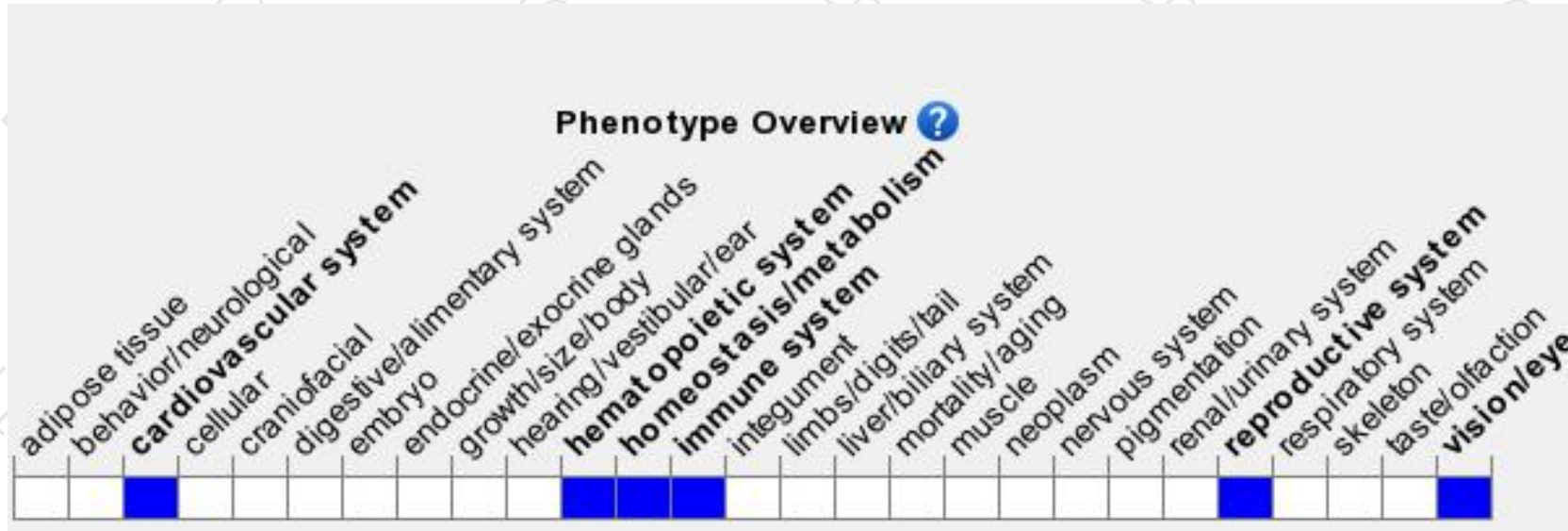
Genomic location distribution



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/>).

According to the existing MGI data, The homozygous mutant and heterozygous mice exhibited an increased mean retinal artery-to-vein ratio when compared with controls. Mice homozygous for a gene trap knock-out allele exhibit vitamin B12 deficiency in the central nervous system.

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

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