Zfp606 Cas9-CKO Strategy

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Project Overview

Project Name	***Zfp606***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

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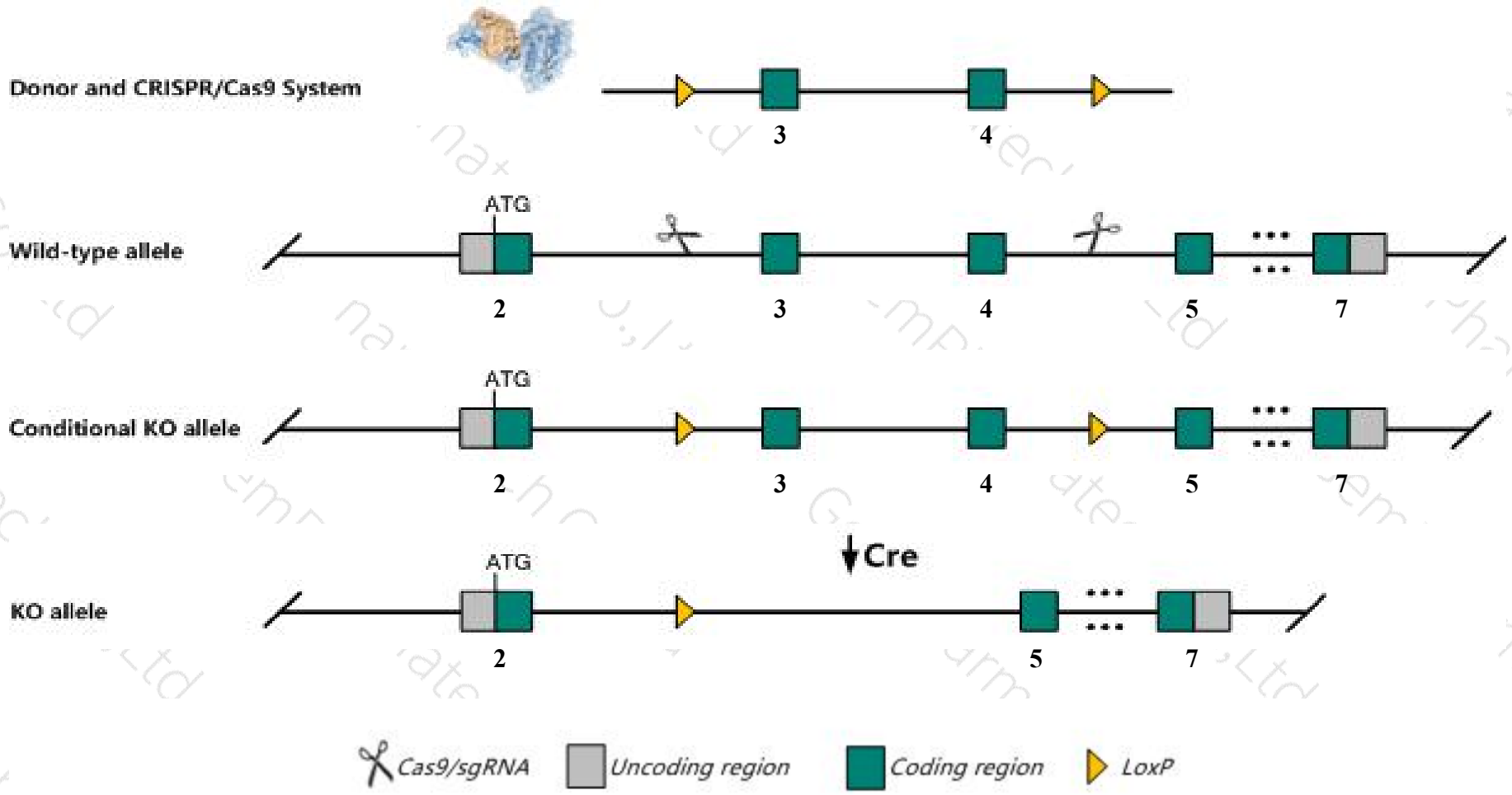
This model will use CRISPR/Cas9 technology to edit the *Zfp606* gene. The schematic diagram is as follows:



Technical routes

➢ The *Zfp606* gene has 5 transcripts. According to the structure of *Zfp606* gene, exon3-exon4 of *Zfp606-201*(ENSMUST00000098822.9) transcript is recommended as the knockout region.The region contains 149bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Zfp606* gene. The brief process is as follows:sgRNA was transcribed in vitro, donor vector was constructed.Cas9, sgRNA 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 was 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.

Notice

➢ The *Zfp606* gene is located on the Chr7. 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.

➢ Transcript *Zfp606*-203 may not be affected.

➢ 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）

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Zfp606 zinc finger protein 606 [Mus musculus (house mouse)]

Gene ID: 67370, updated on 13-Mar-2020

Summary

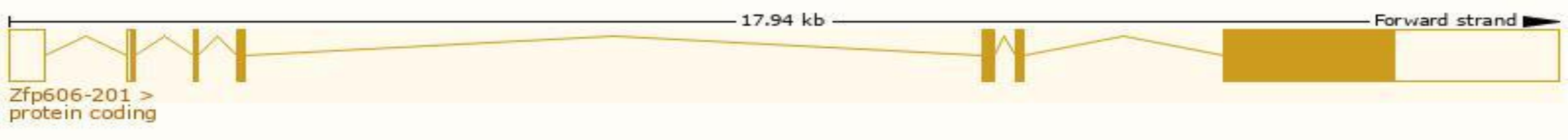
Official Symbol	Zfp606 provided by MGI
Official Full Name	zinc finger protein 606 provided byMGI
Primary source	MGI:MGI:1914620
See related	Ensembl:ENSMUSG00000030386
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2410022M24Rik, AW494727
Expression	Ubiquitous expression in CNS E14 (RPKM 3.9), CNS E11.5 (RPKM 3.8) and 28 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

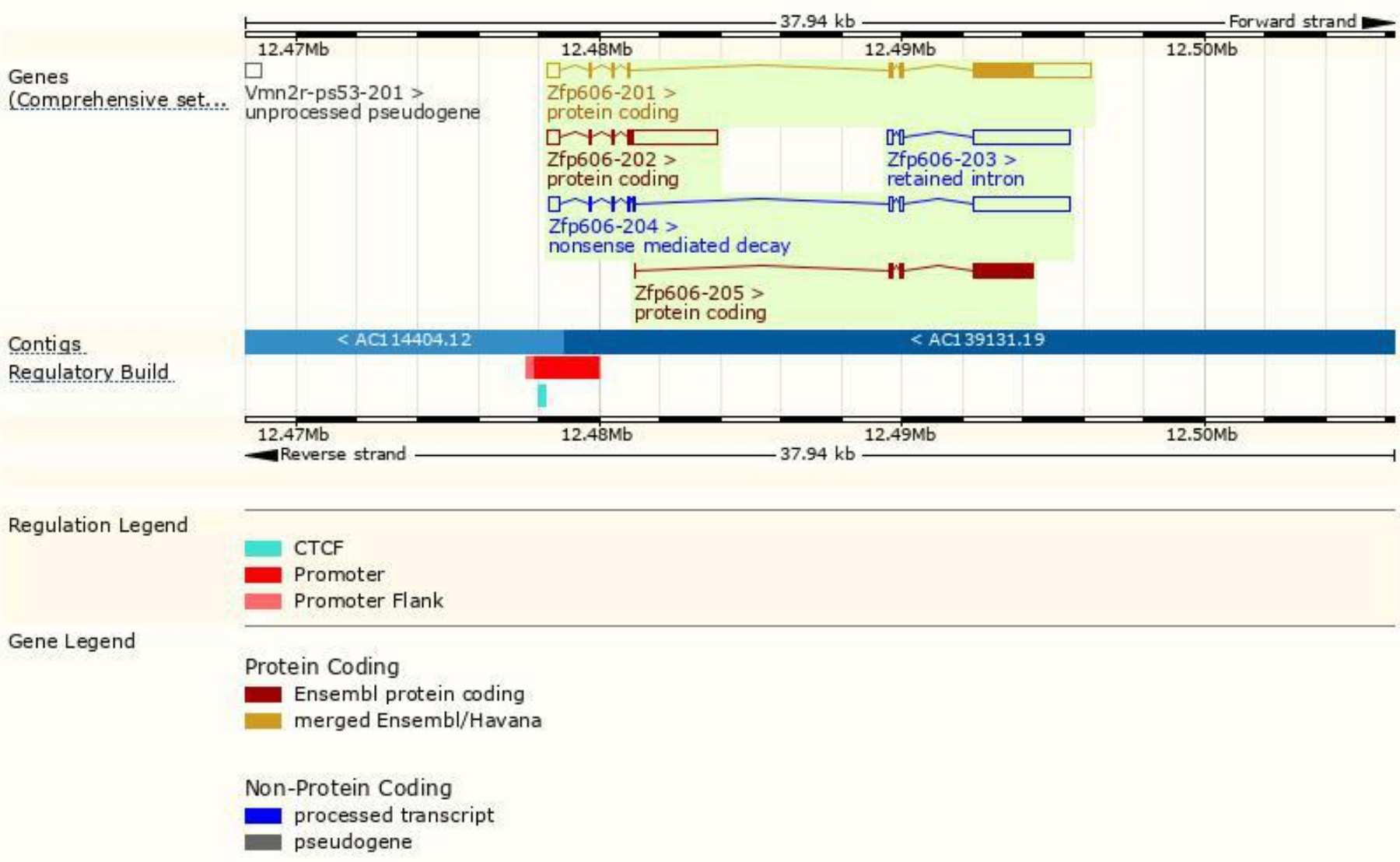
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Zfp606-201	ENSMUST00000098822.9	4748	794aa	Protein coding	CCDS20810	Q7TSV0	TSL:1 GENCODE basic APPRIS P1
Zfp606-202	ENSMUST00000123589.7	3509	87aa	Protein coding	CCDS85215	Q2TAX9	TSL:1 GENCODE basic
Zfp606-205	ENSMUST00000209403.1	2211	736aa	Protein coding	CCDS80663	Q69Z88	TSL:5 GENCODE basic
Zfp606-204	ENSMUST00000151933.1	4069	68aa	Nonsense mediated decay	-	F7BZQ2	TSL:1
Zfp606-203	ENSMUST00000133515.1	3477	No protein	Retained intron	-	-	TSL:2

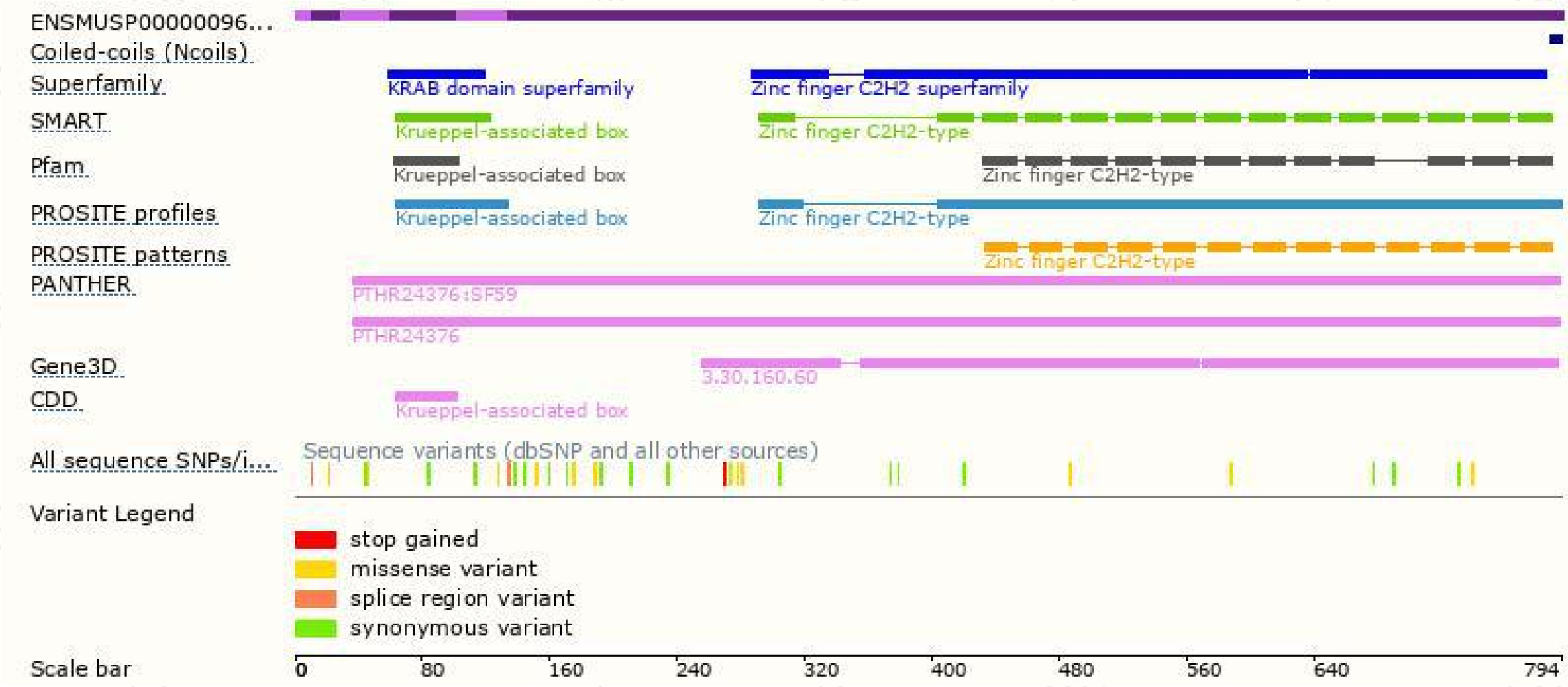
The strategy is based on the design of *Zfp606-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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