

Abhd16a Cas9-KO Strategy

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Project Overview

Project Name

Abhd16a

Project type

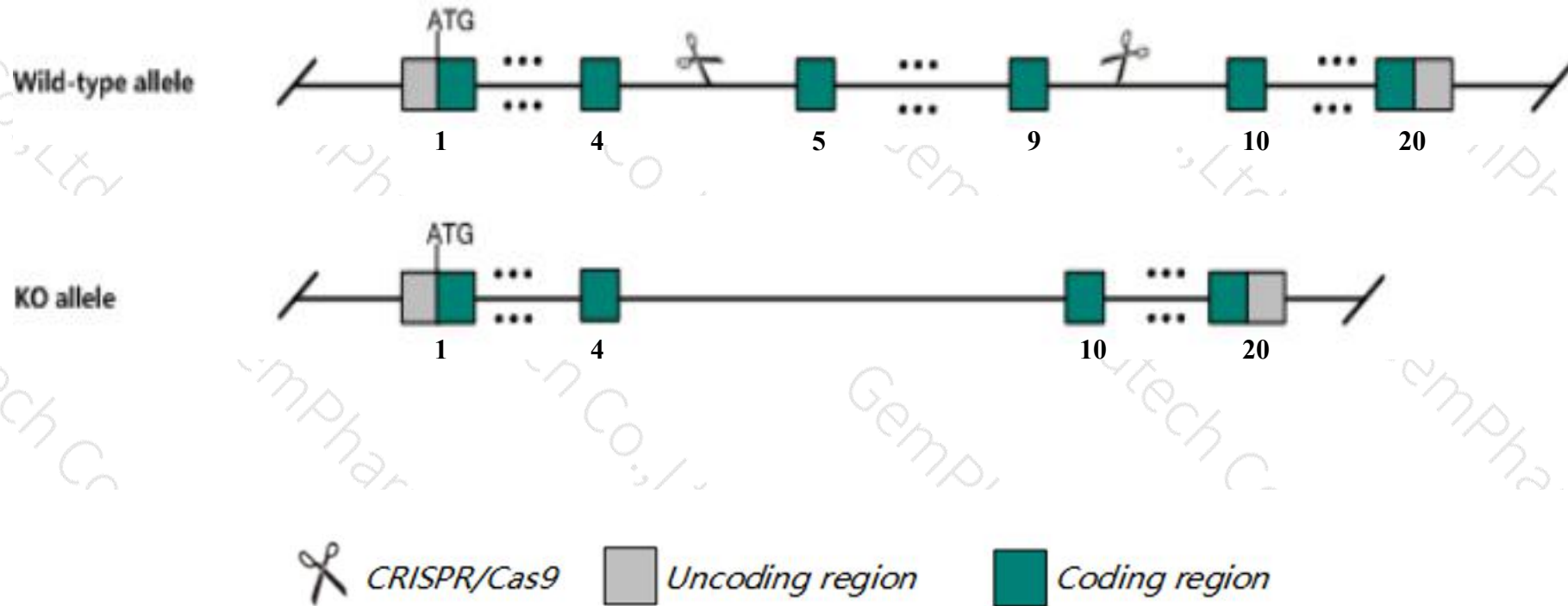
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Abhd16a* gene. The schematic diagram is as follows:



- The *Abhd16a* gene has 7 transcripts. According to the structure of *Abhd16a* gene, exon5-exon9 of *Abhd16a-201* (ENSMUST00000007251.13) transcript is recommended as the knockout region. The region contains 500bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Abhd16a* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for a knock-out allele exhibit partial prenatal lethality, decreased body size and weight, and decreased brain lysophosphatidylserines. Macrophages display a reduction in lysophosphatidylserines and LPS-induced cytokine production.
- Transcript *Abhd16a*-203&204&205&206 may not be affected.
- The N-terminal of *Abhd16a* gene will remain several amino acids, it may remain the partial function of *Abhd16a* gene.
- The *Abhd16a* 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)

Abhd16a abhydrolase domain containing 16A [*Mus musculus* (house mouse)]

Gene ID: 193742, updated on 5-Nov-2019

Summary

- Official Symbol** Abhd16a provided by [MGI](#)
- Official Full Name** abhydrolase domain containing 16A provided by [MGI](#)
- Primary source** [MGI:MGI:99476](#)
- See related** [Ensembl:ENSMUSG000000007036](#)
- Gene type** protein coding
- RefSeq status** PROVISIONAL
- Organism** [Mus musculus](#)
- Lineage** Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
- Also known as** Bat5; NG26; Bat-5; mBAT5; AI326074; D17H6S82E
- Expression** Ubiquitous expression in cerebellum adult (RPKM 54.1), adrenal adult (RPKM 49.8) and 28 other tissues [See more](#)
- Orthologs** [human](#) [all](#)

Genomic context

Location: 17 B1; 17 18.59 cM See Abhd16a in [Genome Data Viewer](#)

Exon count: 21

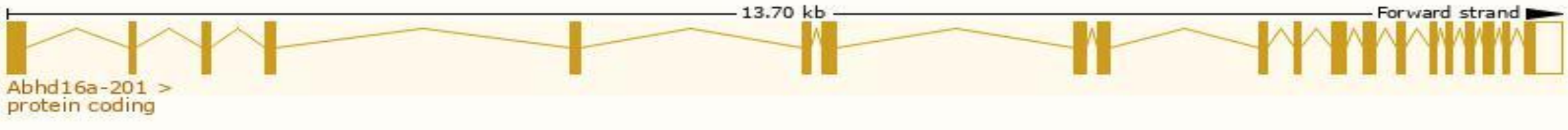
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	17	NC_000083.6 (35089234..35102987)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	17	NC_000083.5 (35226236..35239932)

Transcript information (Ensembl)

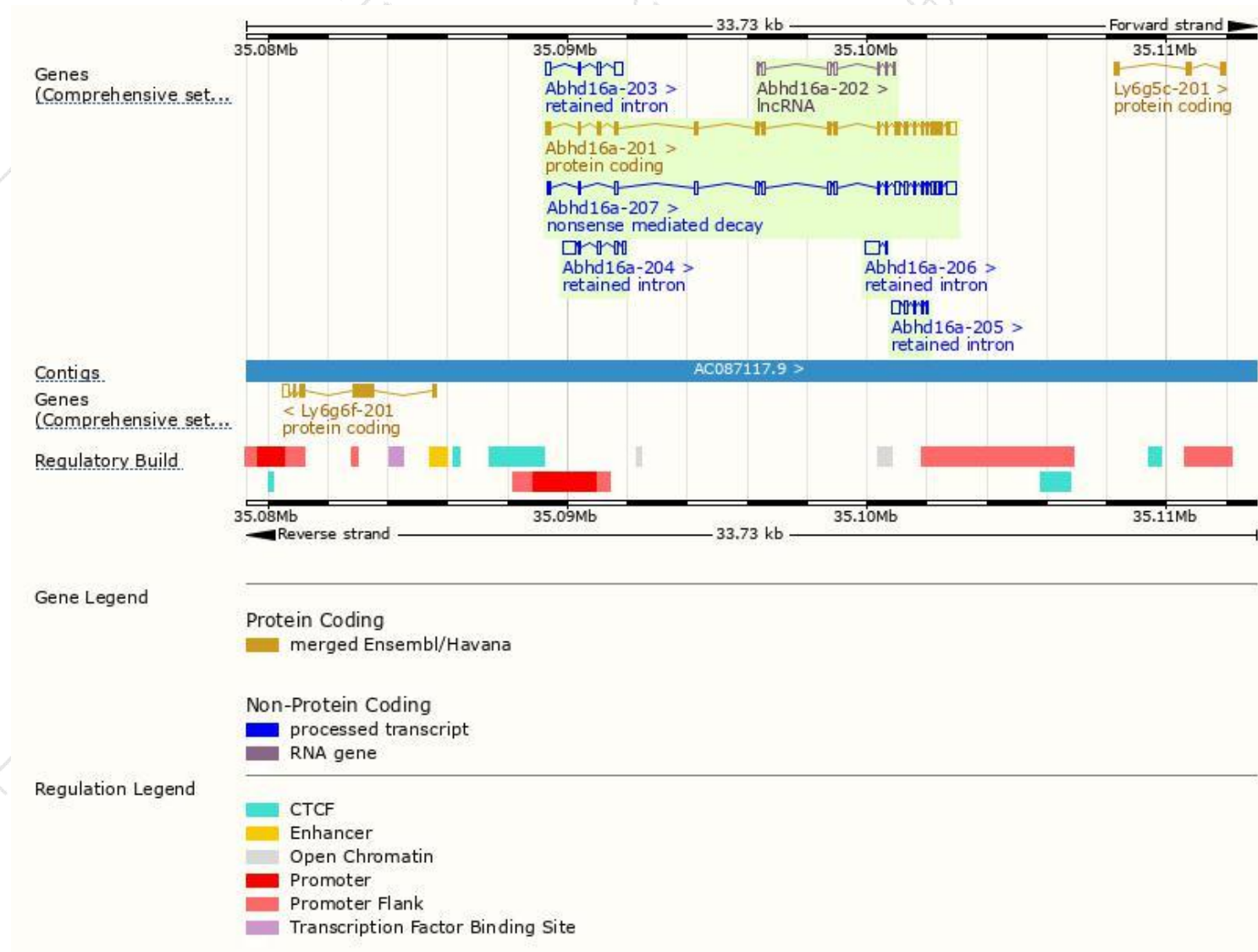
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Abhd16a-201	ENSMUST00000007251.13	1945	558aa	Protein coding	CCDS28681	Q9Z1Q2	TSL:1 GENCODE basic APPRIS P1
Abhd16a-207	ENSMUST00000173846.7	1824	65aa	Nonsense mediated decay	-	G3UX11	TSL:5
Abhd16a-204	ENSMUST00000173190.1	778	No protein	Retained intron	-	-	TSL:3
Abhd16a-203	ENSMUST00000173134.7	574	No protein	Retained intron	-	-	TSL:2
Abhd16a-206	ENSMUST00000173579.1	525	No protein	Retained intron	-	-	TSL:3
Abhd16a-205	ENSMUST00000173247.1	519	No protein	Retained intron	-	-	TSL:2
Abhd16a-202	ENSMUST00000172584.1	536	No protein	lncRNA	-	-	TSL:3

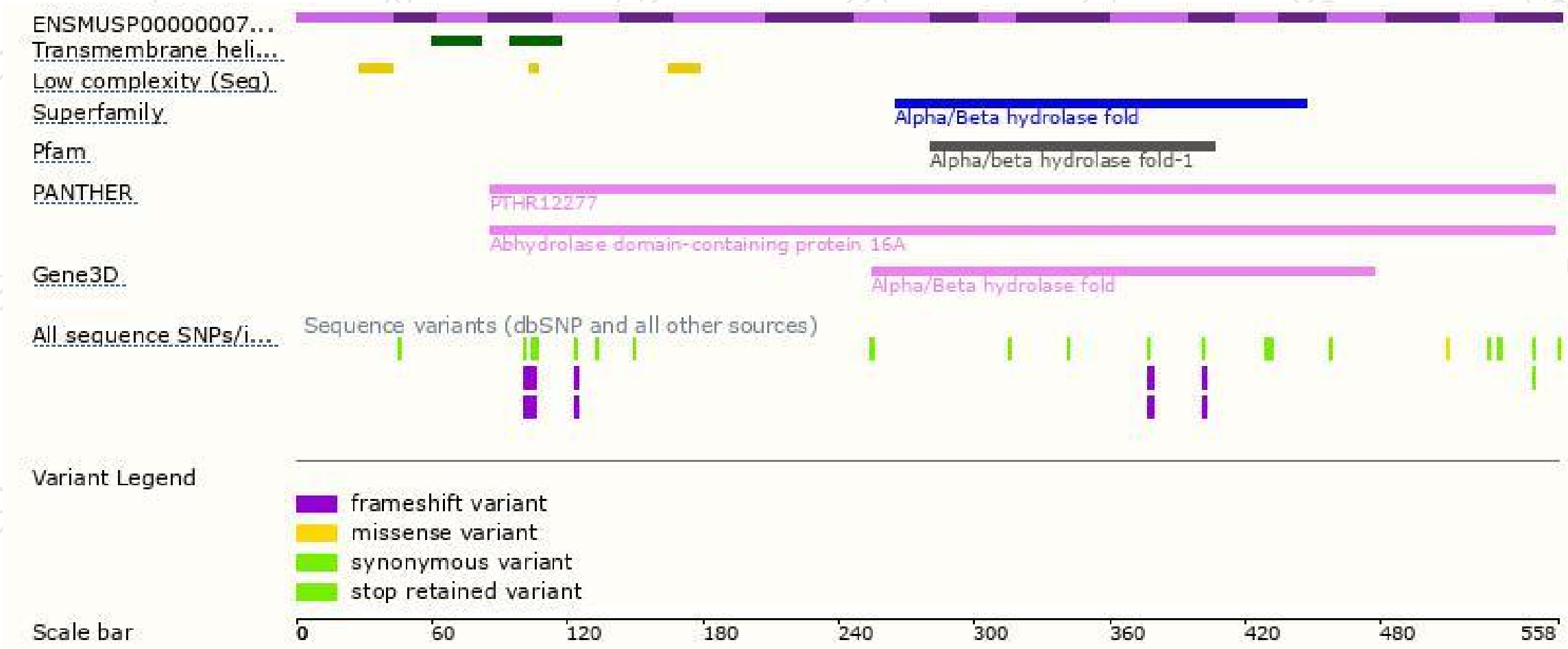
The strategy is based on the design of *Abhd16a-201* transcript,The transcription is shown below



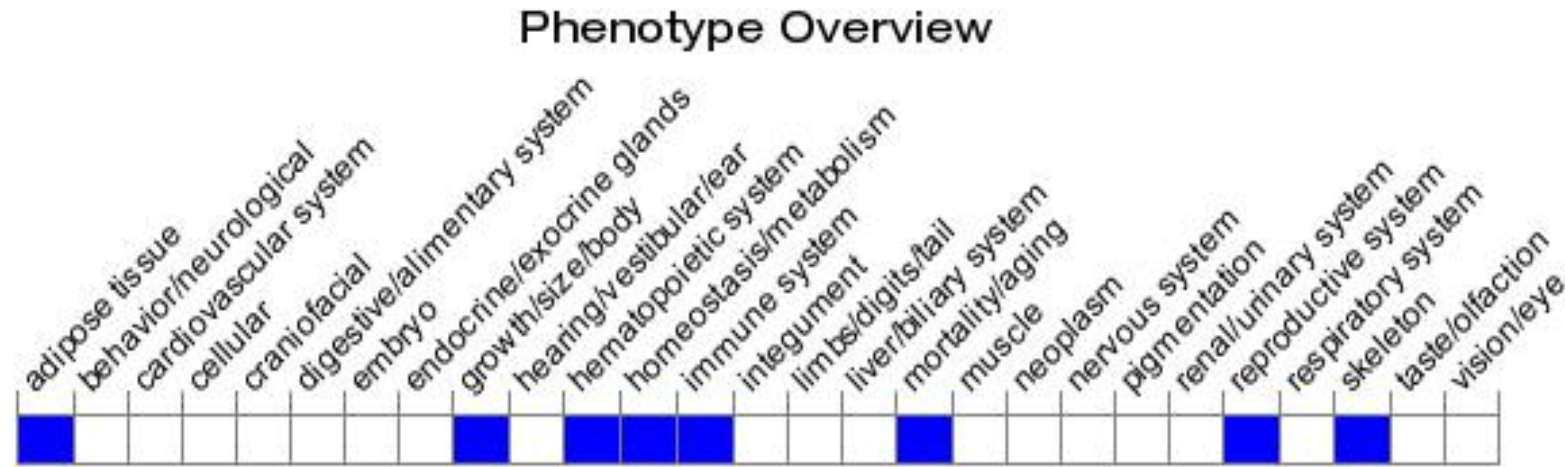
Genomic location distribution



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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