

# ***Tlr5 Cas9-KO Strategy***

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**Reviewer:**

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# Project Overview

**Project Name**

*Tlr5*

**Project type**

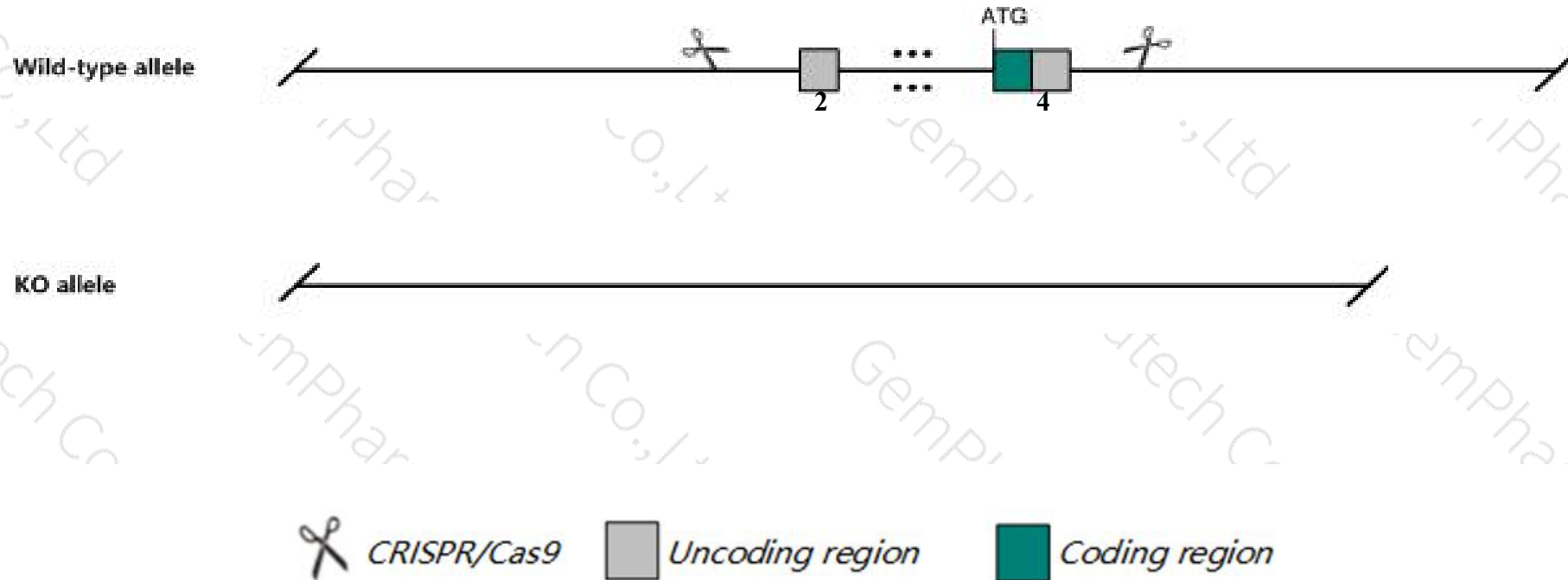
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tlr5* gene. The schematic diagram is as follows:



- The *Tlr5* gene has 5 transcripts. According to the structure of *Tlr5* gene, exon2-exon4 of *Tlr5-201* (ENSMUST00000110997.6) transcript is recommended as the knockout region. The region contains most of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Tlr5* gene. The brief process is as follows: CRISPR/Cas9 system w

- According to the existing MGI data, Mice homozygous for disruption of this gene have a generally normal phenotype. However they fail to respond immunologically to purified flagellin and are resistant to infection with *Salmonella typhimurium*.
- The *Tlr5* gene is located on the Chr1. 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)

## Tlr5 toll-like receptor 5 [Mus musculus (house mouse)]

Gene ID: 53791, updated on 9-Apr-2019

### Summary



<b>Official Symbol</b>	Tlr5 provided by <a href="#">MGI</a>
<b>Official Full Name</b>	toll-like receptor 5 provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:1858171</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000079164</a>
<b>Gene type</b>	protein coding
<b>RefSeq status</b>	VALIDATED
<b>Organism</b>	<a href="#">Mus musculus</a>
<b>Lineage</b>	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
<b>Expression</b>	Broad expression in mammary gland adult (RPKM 1.5), lung adult (RPKM 1.5) and 24 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

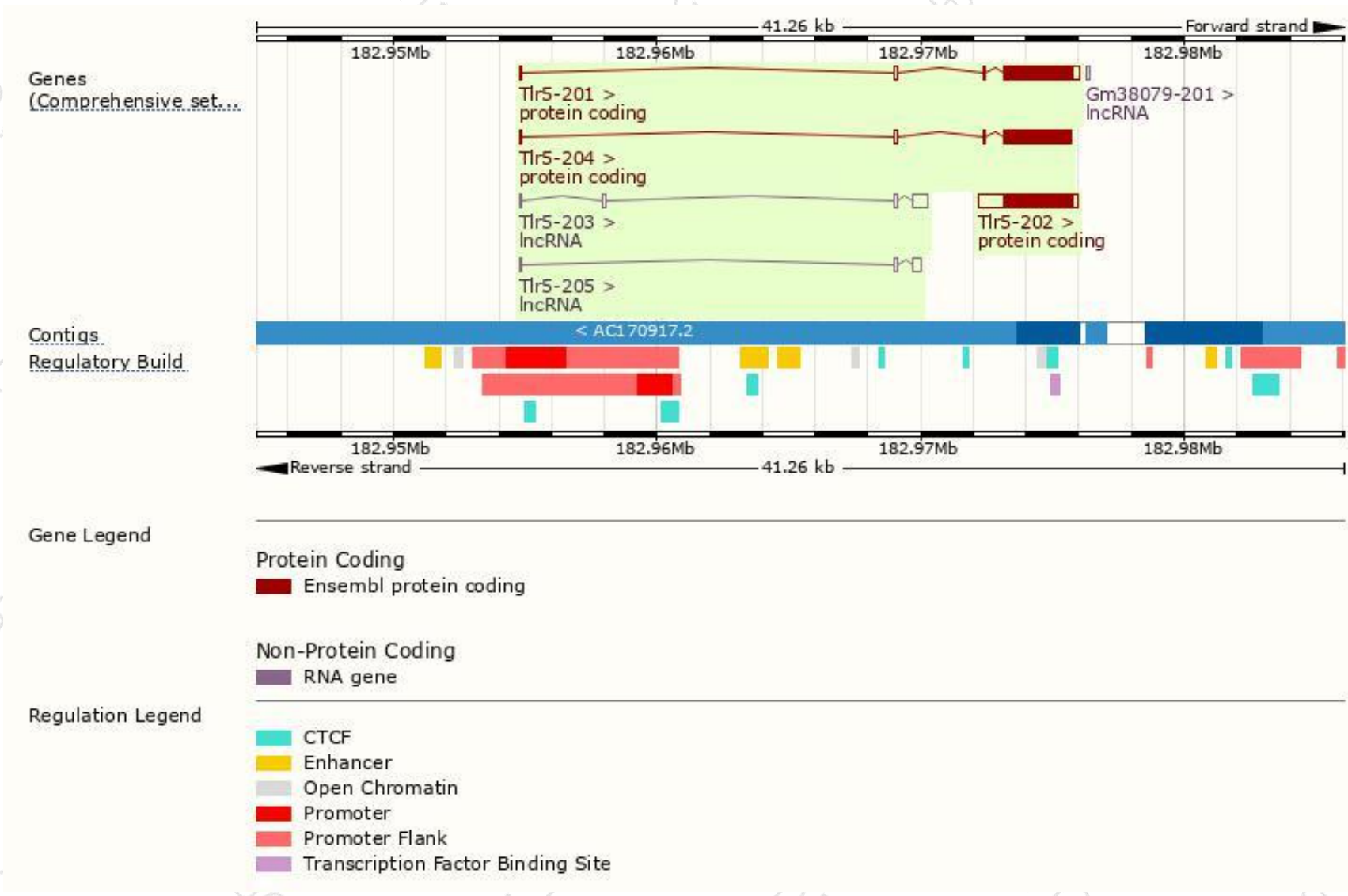
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tlr5-201	<a href="#">ENSMUST00000110997.6</a>	3199	<a href="#">873aa</a>	Protein coding	<a href="#">CCDS35815</a>	<a href="#">E9QL10</a>	TSL:1 GENCODE basic APPRIS P2
Tlr5-202	<a href="#">ENSMUST00000191820.1</a>	3818	<a href="#">859aa</a>	Protein coding	-	<a href="#">Q05AH3</a>	TSL:NA GENCODE basic APPRIS ALT2
Tlr5-204	<a href="#">ENSMUST00000193687.5</a>	2847	<a href="#">853aa</a>	Protein coding	-	<a href="#">A0A0A6YVY4</a>	CDS 3' incomplete TSL:1
Tlr5-203	<a href="#">ENSMUST00000193539.5</a>	888	No protein	Processed transcript	-	-	TSL:5
Tlr5-205	<a href="#">ENSMUST00000195614.1</a>	498	No protein	Processed transcript	-	-	TSL:2

The strategy is based on the design of *Tlr5-201* transcript,The transcription is shown below

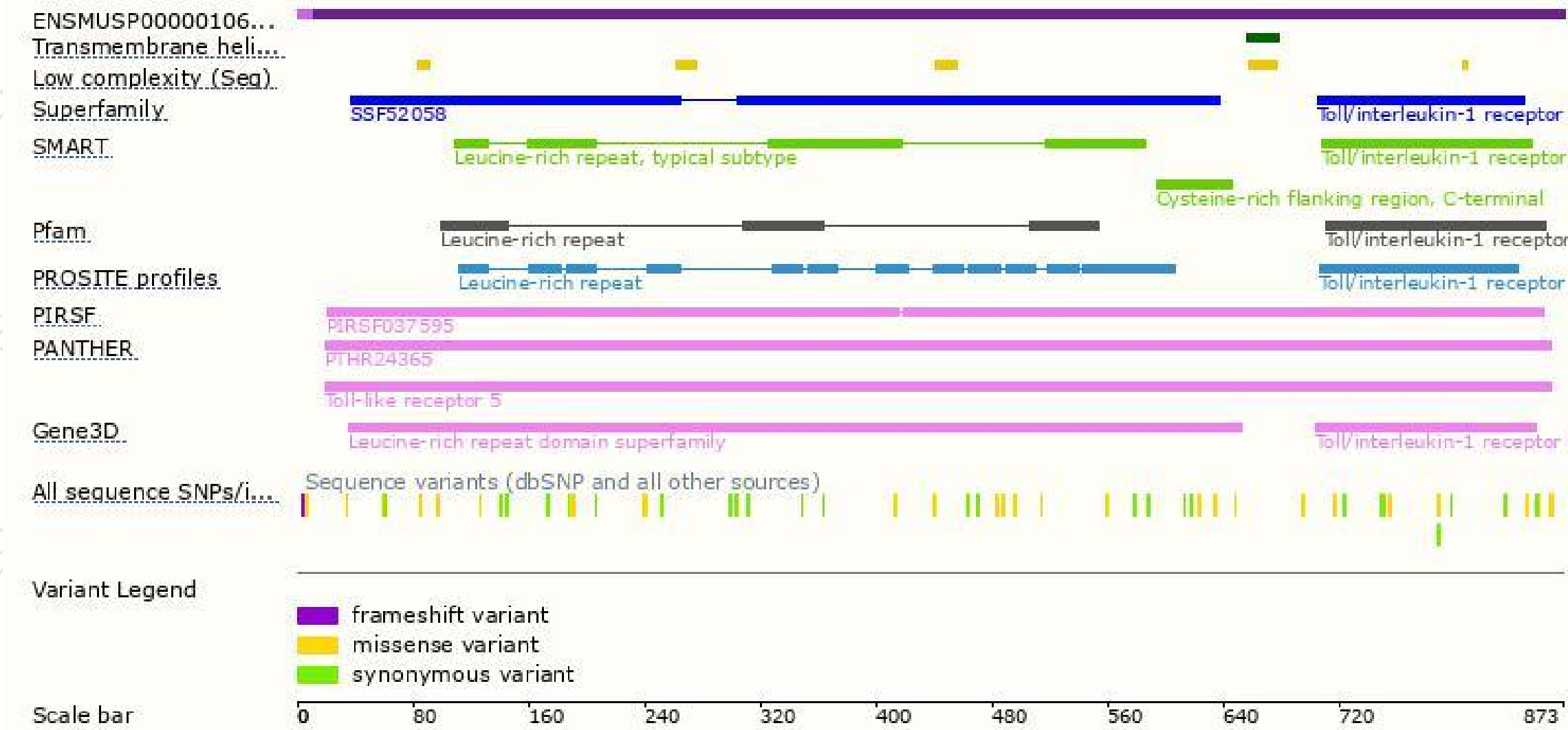


# Genomic location distribution

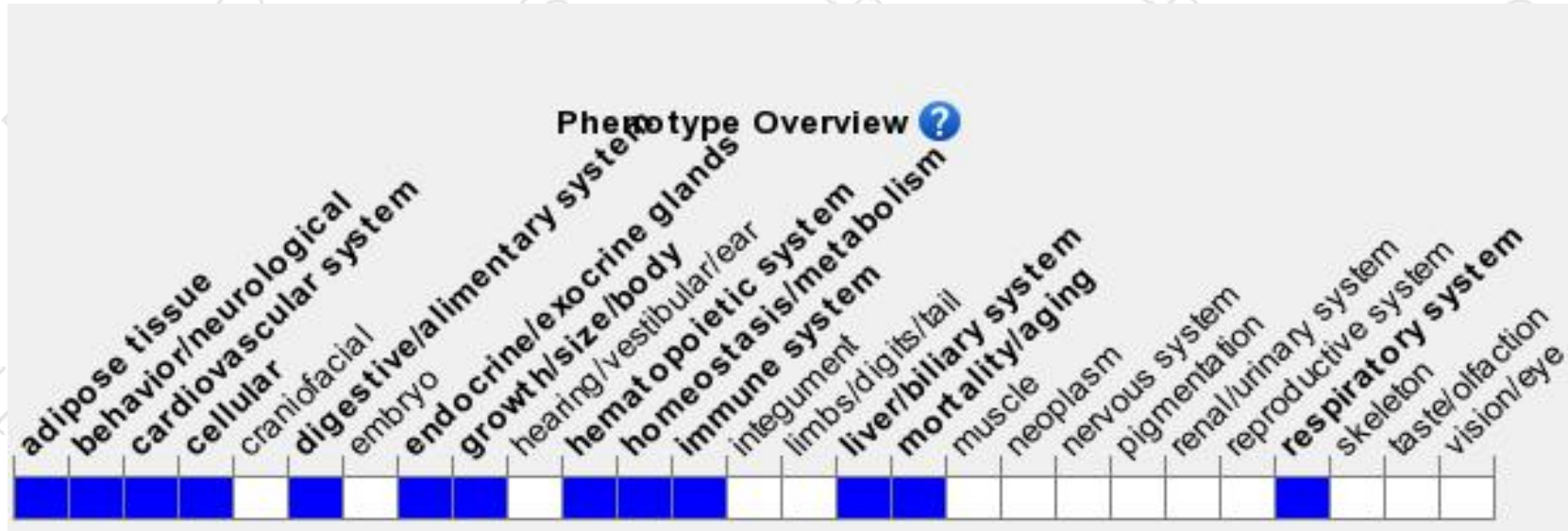




# Protein domain



# 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, Mice homozygous for disruption of this gene have a generally normal phenotype.

However they fail to respond immunologically to purified flagellin and are resistant to infection with *Salmonella typhimurium*.

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

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