

## GEPHE SUMMARY

**Gephebase Gene**  
VvMYBA1

**Entry Status**  
Published

**GepheID**  
GP00002097

**Main curator**  
Courtier

## PHENOTYPIC CHANGE

**Trait Category**  
Morphology

**Trait**  
Coloration (fruit)

**Trait State in Taxon A**  
Vitis vinifera - red-skinned cultivar

**Trait State in Taxon B**  
Vitis vinifera - pink-skinned cultivar

**Ancestral State**  
Taxon A

**Taxonomic Status**  
Domesticated

### Taxon A

**Latin Name**  
*Vitis vinifera*

**Common Name**  
wine grape

**Synonyms**  
Vitis vinifera subsp. vinifera; wine grape; Vitis vinifera L.

**Rank**  
species

**Lineage**  
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; rosids; rosids incertae sedis; Vitales; Vitaceae; Viteae; Vitis

**Parent**  
Vitis () - (Rank: genus)

**NCBI Taxonomy ID**  
29760

**is Taxon A an Intraspecies?**  
No

### Taxon B

**Latin Name**  
*Vitis vinifera*

**Common Name**  
wine grape

**Synonyms**  
Vitis vinifera subsp. vinifera; wine grape; Vitis vinifera L.

**Rank**  
species

**Lineage**  
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; rosids; rosids incertae sedis; Vitales; Vitaceae; Viteae; Vitis

**Parent**  
Vitis () - (Rank: genus)

**NCBI Taxonomy ID**  
29760

**is Taxon B an Intraspecies?**  
No

## GENOTYPIC CHANGE

**Generic Gene Name**  
VvmybA1

**Synonyms**  
mybA; MybA3; mybA1; VVMYBA1; VvmybA3; MYBA1; VIT\_02s0033g00410

**String**  
29760.VIT\_02s0033g00410.t01

**Sequence Similarities**  
-

**GO - Molecular Function**  
GO:0003677 : DNA binding

**GO - Biological Process**  
-

**GO - Cellular Component**  
GO:0005634 : nucleus

**Presumptive Null**  
No

**Molecular Type**

**UniProtKB** *Vitis vinifera*  
Q6L973

**GenebankID or UniProtKB**  
FN596505

## Cis-regulatory

**Aberration Type**  
Insertion

**Insertion Size**  
10-99 bp

### Molecular Details of the Mutation

33â€bp insertion in the second intron of the MYBA1 red allele which affects messenger RNA (mRNA) stability - 16 bp of the 3' end in the insertion is a key structure for a defect in splicing of MybA1 transcripts

**Experimental Evidence**  
Candidate Gene

### Main Reference

Pink-colored grape berry is the result of short insertion in intron of color regulatory gene. (2011)

### Authors

Shimazaki M; Fujita K; Kobayashi H; Suzuki S

### Abstract

We report here that pink grape berries were obtained by a short insertion in the intron of the MybA1 gene, a gene that regulates grape berry color. Genetic variation was detected among the MybA1 genes from grapes cultivated worldwide. PCR analysis of the MybA1 gene demonstrated that the size of the MybA1 gene in the red allele differs among grapes. Oriental *V. vinifera* bearing pink berries has the longest MybA1 gene among grapes, whereas the shortest MybA1 gene was detected in occidental *V. vinifera* grapes. The nucleotide sequences of the MybA1 genes demonstrated that oriental *V. vinifera* has two additional gene fragments (44 bp and 111 bp) in the promoter region of the MybA1 gene in the red allele and another 33 bp fragment in the second intron of the MybA1 gene in the red allele. The short insertion in the intron decreased the transcription activity in the model system and retained MybA1 transcripts with unspliced intron in the total RNA. From the experiments using deletion mutants of the 33 bp short insertion, 16 bp of the 3' end in the insertion is a key structure for a defect in splicing of MybA1 transcripts. Thus, a weakly colored grape berry might be a result of the short insertion in the intron of a color regulatory gene. This is new evidence concerning the molecular mechanism of the fate of grape berry color. These findings are expected to contribute to the further understanding of the color variation in grape berries, which is correlated with the evolutionary events occurring in the MybA1 gene of grapes.

### Additional References

## RELATED GEPHE

### Related Genes

3 ([VvMybA1](#), [VvMybA2](#), [VvMybA3](#) and [VvMybA4](#), [VvMYBA2](#), [VvMYBA3](#))

### Related Haplotypes

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## EXTERNAL LINKS

## COMMENTS