

### 葡萄赤霉素受体基因 *VvGID1A* 的分离、亚细胞定位及表达分析

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#### Isolation, Subcellular Localization and Expression Analysis of Gibberellin Receptor Gene *VvGID1A* from Grapevine

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摘要以‘藤稔’葡萄 (*Vitis vinifera* × *V. labrusca* ‘Fujiminori’) 的花序、茎尖、叶片以及果实为试材, 应用RT-PCR 结合RACE 技术克隆得到GID1A 同源基因全长cDNA 序列, 命名为VvGID1A (基因登录号: JQ669511), 全长1 681 bp, 含有1 个1 035 bp 的开放阅读框, 编码344 个氨基酸, 该氨基酸序列还包含两个激素敏感酯酶家族保守的结构域HGG 和GXSXG。系统进化分析表明, VvGID1A 与蒺藜苜蓿、棉花和拟南芥之间的一致性分别为70.25%、70.08%和68.21%。荧光定量RT-PCR 结果表明, VvGID1A 在葡萄花序、老叶和卷须中表达水平高于茎尖和幼叶, 而在GA 处理果实中的表达水平低于未处理的对照样品。瞬时表达载体的构建及洋葱表皮细胞转化后, 洋葱表皮细胞的瞬时表达结果显示, 该基因的表达产物定位在细胞核上。

关键词: [Vitis vinifera](#) [gibberellin](#) [VvGID1A](#) [subcellular localization](#) [expression level](#)

Abstract: A full length of GID1A gene was isolated from grapevine ‘Fujiminori’ (*Vitis vinifera* × *V. labrusca*) by RT-PCR and RACE (rapid amplification of cDNA ends) method. Sequence analysis indicated that VvGID1A was 1 681 bp in full length, and an opening reading frame (ORF) of 1 035 bp encoding 344 amino acids. Subsequently, amino acid sequence analysis revealed that VvGID1A included two conserved domains of hormone sensitive lipase (HSL): HGG and GXSXG. Phylogenetic analysis showed that VvGID1A share 70.25%, 70.08% and 68.21% identity with GID1 in *Medicago truncatula*, *Gossypium hirsutum* and *Arabidopsis thaliana*. Real-time fluorescent quantitative PCR indicated that the expression of VvGID1A gene in flower, old leaf and tendril is higher than that in stem tip and young leaf. Furthermore, the expression of VvGID1A gene was lower in gibberellins treated fruit than in the control. After construction of transient expression vector and onion epidermal cell transformation, subcellular localization assays showed that the VvGID1A protein was located in the nucleus.

Keywords: [Vitis vinifera](#), [gibberellin](#), [VvGID1A](#), [subcellular localization](#), [expression level](#)

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