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研究报告

山榛中异戊烯焦磷酸异构酶基因的克隆及分析

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摘要:

采用RACE技术首次报道从产紫杉醇物种山榛中克隆出异戊烯焦磷酸异构酶基因（命名为CgIPI, GenBank登录号为EF553533）,该基因全长为1 196 bp,其中编码区为891 bp,编码一个由296个氨基酸组成的蛋白质.推导出的CgIPI氨基酸序列与其他植物IPI有很高的同源性.Southern blot分析表明,CgIPI基因属于一个小的多基因家族.RT-PCR分析表明,CgIPI基因在根、茎和叶中都表达,且在根中表达最高.该基因的克隆和特征分析将有助于在分子水平上更深入地了解IPI在紫杉醇生物合成中的作用.

关键词： 紫杉醇 山榛 RACE 异戊烯焦磷酸异构酶

Molecular Cloning and Characterization of a cDNA Encoding Isopentenyl Diphosphate Isomerase from Hazel （Corylus avellana L. Gasaway）

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Abstract:

Here we report for the first time the cloning and characterization of a ftdl-length eDNA encoding isopentenyl diphosphate isomerase （IPP isomerase, EC 5. 3. 3. 2 ） （designated as CglPI, GenBank accession number EF553533 ） from hazel （ Corylus avellana L. Gasaway）, a taxol-producing plant speciess by RACE technique. The full-length eDNA of CglPI was 1 196 bp containing a 891 bp ORF encoding 296 amino acids. Bioinformatic analyses revealed that the deduced CglPI had extensive homology with other plant IPIs. Southern blot analysis indicated that CglPI belonged to a small multi-gene family. Expression analysis revealed that CglPI expression could be detected in roots, stems and leaves, but expressed higher in roots. The cloning and characterization analysis of CglPI gene will enable us to further understand the role of CglPI involved in taxol biosynthetic pathway in hazel at molecular level.

Keywords: taxol Hazel （ Corylus avellana L. Gasaway） RACE IPI

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