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關鍵字(英)	PHB PHA R. sphaeroides FJ1 phbP luciferase promoter activity
摘要(中)	<p>光合菌 R. sphaeroides FJ1 之 phbP 基因，座落於 phbC 基因下游 153 bp 處，由 450 bp 構成。分別取含有 phbP 基因轉譯起始碼 ATG 上游 216 bp，91 bp 及 41 bp 序列之不同片段，構築三個 phbP - luxAB 融合之重組質體，送入大腸桿菌 Escherichia coli JM109。含 pHPP216 及 pHPP91 質體之轉形菌皆具有冷光?活性，表示 phbP 基因具有獨立之啟動子，且其有效之啟動子範圍為 ATG 上游 91 個核?酸內。光合菌 FJ1 之 phbP 基因，可轉譯出 150 個胺基酸，分子量為 17 kDa 之 PhbP 蛋白。構築含重組質體 pHPE45 之轉形菌後，表現並純化 17 kDa PhbP 蛋白後，製備抗 PhbP 蛋白之抗體。以抗 PhbP 蛋白之抗體進行西方墨點反應，測定 PhbP 蛋白</p>

	<p>之合成。欲知 PHB 含量對 phbP 基因表現之影響，以碳氮莫耳數比值為 20 與 40 之二次培養基增加 PHB 產量，並分析 phbP 之表現。發現 phbP 之表現量會隨 PHB 含量增加，故 PHB 含量會影響 phbP 表現。欲知 phbR 基因對 phbP 表現之影響，比較 phbP 在 FJ1 野生株與 phbR 基因突變株中之表現。phbR 突變株之 PhbP 蛋白大量合成，表示 PhbR 蛋白可抑制 phbP 之表現。PHB 含量多時，PhbP 蛋白之合成亦較多，故 PhbR 蛋白抑制 phbP 基因表現較不明顯。PHB 含量少時，PhbP 蛋白之合成亦較少，故 PhbR 蛋白抑制 phbP 基因表現較明顯。因此 PHB 含量會影響 PhbR 蛋白抑制 phbP 基因之程度，故 phbP 基因之表現會受 PHB 及 phbR 影響。</p>
<p>摘要 (英)</p>	<p>phbP gene was identified in the polyhydroxybutyrate synthetic locus (phbZ-C-P-R) of Rhodobacter sphaeroides FJ1. phbP of R. sphaeroides FJ1 located in downstream 153 base pairs of phbC, is consist of 450 bp. To analyse whether phbP has its independent promoter, three fragments upstream 216 bp, 91 bp, and 41 bp of phbP translation start site were cloned into pMY1 to generate pHPP216, pHPP91, and pHPP41 plasmid. The luciferase activity of transformants carrying pHPP216 and pHPP91 plasmid is 5.12 and 4.33 RLU (×10⁶) . So phbP has its self promoter and its active promoter range is among upstream 91 bp of ATG . phbP of R. sphaeroides FJ1 has a open reading frame that can encodes 149-amino acid protein, and molecular weight of its protein is 17 kDa. After 17 kDa PhbP in Escherichia coli carrying a pHPE45 plasmid was expressed and purified, preparing anti-PhbP antibody. Expression of phbP in R. sphaeroides FJ1 was determined by western immunoblotting. Utilizing fed-batch methods, accumulation of PHB can increases expression of phbP when FJ1 was grown in medium containing excess carbon and limited nitrogen. phbP overexpresses in phbR mutant strain, so expression of phbP could be inhibited by PhbR . When content of PHB increases, PhbR decreasesly inhibits phbP express. When content of PHB decreases, PhbR apparently inhibits phbP express. These results indicated expression of phbP in R. sphaeroides FJ1 would be affected by both PHB and phbR .</p>
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