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研究论文

保守GTP酶ObgE的分子伴侣活性研究

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摘要：

分子伴侣（molecular chaperone）能够帮助新生多肽链或错误折叠的蛋白质形成天然构象，但本身又不是成熟蛋白质的组成成分。蛋白质需要分子伴侣的帮助，才能够从核糖体合成的新生肽链折叠成有生物活性的大分子。*E. coli*的ObgE蛋白是保守的GTP酶，ObgE蛋白参与信号转导、蛋白运输和细胞周期调控，并与*E. coli*在氨基酸饥饿下的应激反应有关。本实验通过分子克隆，将*E. coli* ObgE蛋白的基因克隆到表达载体pET-28a中，转化到*E. coli* BL21进行蛋白表达纯化。纯化后的ObgE蛋白通过柠檬酸合成酶变复性实验、α-葡萄糖苷酶变复性实验、牛碳酸酐酶变复性实验，检测ObgE蛋白的分子伴侣活性，发现ObgE具有一定的分子伴侣活性，为该蛋白的研究应用奠定了基础。

关键词： ObgE蛋白 分子伴侣 基因克隆 蛋白纯化

Chaperone Activity of Conservative GTPase ObgE

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Abstract:

Chaperone can facilitate the nascent peptide and denatured protein to fold to the native state but do not occur in these structures when the structures are performing their normal biological functions. Peptides need the help of chaperones to fold to the nature state when they are produced from the ribosomes. Protein ObgE from *E. coli* is a highly conserved GTPase. ObgE participates in cell signaling, transportation of protein and cell cycle regulation. In present work, we cloned the DNA of *E. coli* ObgE into vector pET-28a, expressed in *E. coli* BL21, and then purified the protein. After the purification of ObgE, we tested its chaperone activity by using renaturation of citrate synthase, α-glucosidase and bovine carbonic anhydrase Ⅱ. We found that ObgE has chaperone activity to a certain extent. This result will have impact on the research of protein ObgE.

Keywords: ObgE Chaperone Gene clone Protein purification

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