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PTD-ABD融合蛋白对髓系白血病细胞的增殖和凋亡到:

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Title: Effects of PTD-ABD fusion protein on proliferation and apoptosis in myeloid leukemia cells

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关键词: [BCR/ABL融合蛋白](#); [肌动蛋白结合域](#); [蛋白转导结构域](#); [K562细胞](#); [HL60细胞](#); [细胞增殖](#); [细胞凋亡](#)

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摘要: 目的 研究癌基因BCR/ABL C末端肌动蛋白结合域(actin-binding domain, ABD)蛋白对白血病细胞增殖和凋亡的影响。 方法 构建含有ABD基因的重组表达载体,应用蛋白转导结构域(protein transduction domain, PTD)将蛋白转入白血病细胞内,应用Western blot与免疫荧光法确定蛋白是否进入白血病细胞,然后分别应用流式细胞仪及MTT法检测融合蛋白对白血病细胞凋亡及增殖的影响。 结果 成功构建PTD-ABD融合表达载体,获得高纯度PTD-ABD融合蛋白。同时构建PTD表达载体并获得高纯度表达蛋白。将PTD、PTD-ABD蛋白与白血病细胞K562、HL60共培养,Western blot与免疫荧光法确定PTD、PTD-ABD蛋白成功进入细胞内。与阴性对照比较,PTD-ABD蛋白能显著抑制HL60细胞的生长,并且对HL60细胞的凋亡具有明显的促进作用,差异具有统计学意义($P < 0.05$),但对K562细胞的增殖及凋亡无影响($P > 0.05$); PTD蛋白对K562、HL60细胞的增殖及凋亡无影响,与阴性对照比较,差异无统计学意义

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($P>0.05$)。 结论 PTD 转导的ABD蛋白抑制HL60细胞的增殖，并诱导细胞凋亡。

Abstract: Objective To study the function of BCR-ABL protein C-terminal actin-binding domain (ABD) on cell cycle and apoptosis in K562 cells and HL60 cells, and to provide the experimental basis for chronic myeloid leukemia (CML) treatment. Methods The recombinant expression vector harboring ABD was constructed, and then recombinant proteins were transferred into leukemia cells with protein transduction domain (PTD). The localization of recombinant proteins inside the leukemia cells was confirmed by Western blotting and immunofluorescence assay. Growth curves and apoptosis of leukemia cells transfected by PTD-ABD fusion protein were determined by MTT assay and flow cytometry respectively. Results The PTD-ABD and PTD recombinant expression vectors were constructed successfully, and proteins with high purity were obtained. The growth of HL60 cells was inhibited and the apoptosis was accelerated by PTD-ABD fusion protein. The difference between experimental and control groups had statistical significance ($P<0.05$). However, PTD-ABD fusion protein showed no difference on K562 cells ($P>0.05$). In addition, PTD protein had no effect on the apoptosis and growth of K562 and HL60 cells in comparison with negative control ($P>0.05$). Conclusion PTD-ABD fusion protein inhibits the growth and induces the apoptosis in HL60 cells.

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