

论著

阿尔茨海默病β淀粉样肽40人单链抗体的生物活性

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摘要 摘要: 目的 测定重组表达的抗β淀粉样肽(Aβ)40的人单链抗体的生物活性。方法 通过基因重组表达方式获得抗Aβ40人单链抗体,应用常规ELISA和竞争性ELISA 鉴定抗Aβ40人单链抗体的抗原结合活性,以人成神经细胞瘤SH-SY5Y细胞为模型检测抗Aβ40人单链抗体的神经元保护作用。结果 重组表达的抗Aβ40的人单链抗体主要位于细菌不溶性内涵物中,经过尿素溶解和金属亲和层析纯化后具有结合Aβ40或Aβ42的活性。与Aβ42组相比,Aβ42加等摩尔抗体组可显著提高SH-SY5Y细胞的存活率(P<0.05)。与Aβ40组相比,Aβ40加等摩尔抗体组亦显著提高SH-SY5Y细胞的存活率(P<0.01)。结论 从大肠杆菌系统中重组表达的抗Aβ40人单链抗体可以部分对抗β淀粉样肽的神经毒性。

关键词 [β淀粉样肽40](#) [单链抗体](#) [神经毒性](#) [SH-SY5Y](#)

分类号

Biological Activity of Human Single-chain Antibody against Amyloid β Peptide Involved in Alzheimer's Disease

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Abstract ABSTRACT: Objective To explore the biological activity of recombinant human single-chain antibody against amyloid β peptide in vitro. Methods Human single-chain antibody against amyloid β peptide was obtained from recombinant bacteria. The antigen-binding activity of this antibody was measured by enzyme-linked immunosorbent assay (ELISA) and competitive ELISA. Human neuroblastoma SH-SY5Y cells were used as cell models to test the protective role of human single-chain antibody against amyloid β peptide. Results Recombinant human single-chain antibody was mainly located in the insoluble inclusion bodies of bacteria. The antibody was dissolved by urea and purified by metal affinity chromatography as active form to bind synthetic amyloid β peptide 40 or amyloid β peptide 42. The improvement of the survival rates of human neuroblastoma cells was significantly superior in amyloid peptide 42 plus equimolar antibody group than in amyloid peptide 42 group (P<0.05), and was significantly superior in the amyloid peptide 40 plus equimolar antibody group than in amyloid peptide 40 group (P<0.01). Conclusion The recombinant human single-chain antibody against β amyloid peptide 40 from E. coli can partially inhibit the neurotoxicity effect of amyloid β peptide in vitro.

Key words [amyloid β peptide 40](#) [single-chain antibody](#) [neurotoxicity](#) [SH-SY5Y](#)

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