

基础医学

抗人EGFR/抗CD3双功能抗体治疗胰腺癌的实验研究

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摘要:

目的 初步验证化学偶联法合成的EGFR/CD3双功能抗体在体外对胰腺癌细胞的杀伤作用。方法 在前期化学偶联法合成EGFR/CD3双功能抗体的基础上,进行效应细胞及靶细胞结合率检测及51Cr杀伤实验检测,探讨其影响效应细胞与胰腺癌细胞结合及杀伤能力的作用,并与EGFR单抗比较。采用流式细胞仪检测处理后肿瘤细胞周期与凋亡情况变化。结果 EGFR/CD3双功能抗体与效应细胞(PBLS细胞)及胰腺癌细胞株SW1990结合率较高,可满足治疗需求;EGFR/CD3双功能抗体联合效应细胞对胰腺癌细胞株SW1990杀伤率显著高于各对照组(P<0.05)。EGFR/CD3双功能抗体联合效应细胞处理后肿瘤细胞凋亡率上升。结论 EGFR/CD3双功能抗体可有效增强免疫效应细胞对胰腺癌的杀伤作用,具有潜在的临床应用价值。

关键词: 胰腺肿瘤; 细胞免疫治疗; 双功能抗体; EGFR单克隆抗体

Experimental study of anti-CD3/anti-EGFR bispecific antibody therapeutic activity against pancreatic cancer cells

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Abstract:

Objective To investigate the cytotoxicity of EGFR/CD3 bispecific antibody by chemical synthesis against pancreatic cancer cells in vitro. Methods In previous researches, the EGFR/CD3 bispecific antibody was prepared by chemical synthesis. The cytotoxicity activity of this antibody against pancreatic cancer was analyzed by the cell combination rate assay and 51Cr assay. The cell cycle and apoptosis were analyzed by flow cytometry. Then the comparisons of the cytotoxicity activity between the bispecific antibody and EGFR mAb was conducted. Results The binding rate of EGFR/CD3 bispecific antibody cell with effector cells PBLS and pancreatic cancer cell line SW1990 was high enough to satisfy the treatment demand. The lysis rate and apoptosis rate of cancer cells treated with immunological effector cells targeted by EGFR/CD3 bispecific antibody were higher than those of the control groups significantly (P<0.05). The apoptosis rate of cancer cells increased. Conclusion It is suggested that the cytotoxicity of effector cells could be enhanced by EGFR/CD3 bispecific antibody in vitro, so it has promising curative effect on pancreatic cancer.

Keywords: Pancreatic neoplasms; Cellular immunotherapy; Bispecific antibody; EGFR monoclonal antibody

收稿日期 2012-08-20 修回日期 网络版发布日期

DOI:

基金项目:

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