高等学校化学学报 2008, 29(4) 757-761 DOI: ISSN: 0251-0790 CN: 22-1131/O6

论文

扇贝多肽经由aSMase-JNK通路抑制UVA诱导HaCaT细胞凋亡

邢雁霞[1,2], 苏爱[3], 杜卫[3], 王春波[4]

1. 青岛大学医学院生物化学与分子生物学教研室, 青岛 266071;
2. 山西大同大学医学院生物化学教研室, 大同 037008;
3. 青岛大学医学院细胞与分子生物学实验室,
4. 青岛大学医学院药理教研室, 青岛 266071

摘要:

建立紫外线A(UVA)辐射损伤HaCaT细胞的病理模型, 从酸性鞘磷脂酶-JNK信号通路的角度研究扇贝多肽(Polypeptide from *Chlamys farreri*, PCF)抑制UVA诱导HaCaT细胞凋亡的分子机制. 采用Hoechst 33258染色结合琼脂糖凝胶电泳分析细胞凋亡; 用RT-PCR法和细胞免疫荧光染色检测胞内酸性鞘磷脂酶(acid sphingomyelinase, aSMase)的表达; 蛋白印迹法检测细胞内JNK及磷酸化JNK的蛋白水平. 结果表明, PCF可明显地抑制UVA诱导的HaCaT细胞凋亡; aSMase抑制剂Desipramine和JNK抑制剂SP600125均可阻断UVA引起的细胞凋亡; PCF的浓度在1.42~5.68 mmol/L范围内可依赖性地抑制UVA辐射后细胞内aSMase的表达量以及JNK蛋白的磷酸化; 预先加入Desipramine则抑制UVA引起的JNK蛋白的磷酸化. 表明PCF通过阻断aSMase-JNK通路来抑制UVA诱导HaCaT细胞凋亡.

关键词: 扇贝多肽 酸性鞘磷脂酶 JNK 紫外线A 凋亡 HaCaT细胞

Polypeptide from *Chlamys Farreri* Inhibits UVA-induced Apoptosis of HaCaT Cells Involving of aSMase-JNK Pathway

XING Yan-Xia[1,2], SU Ai[3], DU Wei[3], WANG Chun-Bo[4]*

1. Department of Biochemistry and Molecular Biology, Medical College, Qingdao University, Qingdao 266071, China;
2. Department of Biochemistry, Medical College, Shanxi Datong University, Datong 037008, China;
3. Laboratory of Cellular and Molecular Biology,
4. Department of Pharmacology, Medical College, Qingdao University, Qingdao 266071, China

Abstract:

A pathological model of UVA-induced HaCaT cells was established to investigate whether polypeptide from *Chlamys farreri*(PCF) protects HaCaT cells from apoptosis induced by UVA through acid sphingomyelinase(aSMase)-JNK pathway and to explore its related molecular mechanism. Apoptosis of cells were determined by Hoechst 33258 staining and agarose gel electrophoresis. The expression of aSMase in HaCaT cells was detected *via* RT-PCR and immunofluorescence. Using Western Blot analysis, expression levels of JNK and phosphorylated JNK were assayed. The results showed that PCF can significantly protect against UVA-induced apoptosis of HaCaT cells. PCF can also inhibit expression of aSMase and phosphorylated of JNK in HaCaT cells radiated by UVA in a dose-dependent manner. ASMase inhibitor Desipramine and JNK inhibitor SP600125 had inhibitory effects on UVA-induced apoptosis, the former blocked phosphorylated of JNK. So it is concluded that PCF can protect HaCaT cells from apoptosis induced by UVA and its protective effects may attribute to blocking aSMase-JNK pathway.

Keywords: Polypeptide from *Chlamys farreri*(PCF) Acid sphingomyelinase(aSMase) JNK Ultraviolet A Apoptosis HaCaT cell

收稿日期 2007-07-17 修回日期 1900-01-01 网络版发布日期

DOI:

基金项目:

通讯作者: 王春波

作者简介:

参考文献：

1. de Gruijl F. R.. Eur. J. Cancer[J], 1999, 35(14): 2003—2009
2. Yellow Sea Fishery Research Institute of China(中国水产科学研究院黄海水产研究所). A New Type of Oceanic Polypeptide to Have Anti-oxidative Activity, CN 00111426.9[P], 2003
3. Yao R. Y., Wang C. B.. Acta Pharmacol. Sin.[J], 2002, 23(11): 1018—1022
4. Han Y. T., Han Z. W., Yu G. Y., *et al*.. Pharmacol. Res.[J], 2004, 49(3): 265—274
5. Dou M., Han Y. T., Han Z. W., *et al*.. Invest. New Drugs[J], 2004, 22(4): 391—398
6. LI Jin-Lian(李金莲), YAN Zhou-Ping(严州萍), CHEN Xue-Hong(陈雪红), *et al*.. China Pharm. J.(中国药学杂志)[J], 2007, 42(2): 116—120
7. Zhang Y., Mattjus P., Schmid P. C., *et al*.. J. Biol. Chem.[J], 2001, 276(15): 11775—11782
8. Gao M. Q., Guo S. B., Chen X. H., *et al*.. Acta Pharmacol. Sin.[J], 2007, 28(7): 1007—1014
9. Paris F., Fuks Z., Kang A., *et al*.. Science[J], 2001, 293(5528): 293—297
10. Dempsey P. W., Doyle S. E., He J. Q., *et al*.. Cytokine Growth Factor Rev.[J], 2003, 14(3/4): 193—209
11. Grassme H., Schwarz H., Gulbins E.. Biochem. Biophys. Res. Commun.[J], 2001, 284(4): 1016—1030
12. Rotolo J. A., Zhang J., Donepudi M., *et al*.. J. Biol. Chem.[J], 2005, 280(28): 26425—26434
13. Huang C. S., Ma W., Ding M., *et al*.. J. Biol. Chem.[J], 1997, 272(44): 27753—27757

本刊中的类似文章

1．黄河宁,,李安章,翁露娜,林庆梅,黄河清,郑忠辉,李棋福,蔡宗苇 .茶多酚锰合成、表征及络合和诱导肿瘤细胞凋亡的研究[J]. 高等学校化学学报, 2007,28(6): 1072-1076

2．黄河宁,李程,谢笠升,黄河清, .茶多酚锰-壳聚糖微球的制备、控释和诱导肝癌细胞凋亡的研究[J]. 高等学校化学学报, 2008,29(8): 1592-1597

3．赵文静, 牛凤兰.3,4,5-三羟基苯甲酸通过线粒体途径诱导人肝癌细胞SMMC-7721的凋亡[J]. 高等学校化学学报, 2009,30(2): 320-323

4．梁重阳,徐蔚青,曹焱鑫,刘立侠,张淑芹,刘志屹,李泓睿,李柏志,孙非 .FITC标记重组灵芝免疫调节蛋白(rLz-8)在NB4细胞中的动态定位[J]. 高等学校化学学报, 2009,30(3): 489-492

5．李霄, 金宁一, 李昌, 田明尧, 陈漉,贾鹏, 刘立明,刘妍,高鹏,.抗肿瘤双特异免疫导向治疗制剂CAtin的表达及活性分析[J]. 高等学校化学学报, 2009,30(4): 682-686

文章评论

序号	时间	反馈人	邮箱	标题	内容
1	2009-	reviewups	edfwen@163.com	sdweue	Buy discount ugg cheap ugg shoes ugg ugg rainier b ugg usa discour boots ugg 5825 shoes sale ugg su