



肿瘤防治研究 2008, Vol. 35 Issue (2): 84-87 DOI:

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苦参碱对SMMC-7721细胞MAPK、JAK-STAT信号通路的影响

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Effect of Matrine on Signaling Transduction of MAPK and JAK-STAT in SMMC-7721 Cell Line

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全文: PDF (242 KB) HTML (0 KB) 输出: BibTeX | EndNote (RIS) 背景资料

摘要 目的观察苦参碱对肝癌细胞SMMC-7721 MAPK通路和JAK-STAT通路的影响。方法苦参碱和(或)AG490抑制JAK-STAT途径特异性抑制剂AG490培养肝癌细胞SMMC-7721, RT-PCR法检测苦参碱对SMMC-7721细胞ERK, STAT3、STAT5 mRNA的影响, Western blott法检测苦参碱对肝癌SMMC-7721细胞ERK、STAT3、STAT5、P-ERK、P-STAT3、P-STAT5蛋白表达的影响。结果苦参碱能下调ERK、STAT3、STAT5mRNA表达水平,降低ERK、STAT3、STAT5、P-ERK、P-STAT3、P-STAT5蛋白表达量(P<0.05或P<0.01)。AG490作用于SMMC-7721细胞后,ERK、STAT3、STAT5 mRNA和ERK、STAT3、STAT5蛋白的表达量与对照组比较差异无统计学意义(P>0.05),P-ERK、P-STAT3、P-STAT5蛋白表达量与对照组比较显著降低(P<0.05或P<0.01)。与AG490组比较,AG490+苦参碱组ERK、STAT3、STAT5 mRNA的表达量显著降低(P<0.05),ERK、STAT3、STAT5蛋白表达量显著降低(P<0.05),P-ERK、P-STAT3、P-STAT5蛋白表达量差异无统计学意义(P>0.05)。与苦参碱组比较,AG490+苦参碱组ERK、STAT3、STAT5 mRNA的表达量差异无统计学意义(P>0.05),ERK、STAT3、STAT5、P-ERK、P-STAT3、P-STAT5蛋白表达量差异无统计学意义(P>0.05)。结论苦参碱能下调ERK、STAT3、STAT5 mRNA表达水平,因而能降低ERK、STAT3、STAT5蛋白表达水平,抑制细胞信号转导通路,从而抑制肝癌细胞增殖。

关键词: 苦参碱 MAPK通路 JAK-STAT通路 AG490

Abstract: Objective To investigate the effect of matrine on MAPK and JAK-STAT signaling transduction pathway in SMMC-7721 cell line. Methods Treated with matrine and AG490 (the inhibitor of JAK-STAT signaling transduction), the mRNA expression of ERK, STAT3 and STAT5 in SMMC-7721 cell line were assessed with RT-PCR. The protein expression of ERK, STAT3, STAT5, P-ERK, P-STAT3 and P-STAT5 in SMMC-7721 cell line were detected by Western blotting. Results The mRNA expression of ERK, STAT3 and STAT5 in SMMC-7721 cell with matrine was significantly lower than those in control group (P<0.05 or P<0.01) and so did the protein expression of ERK, STAT3, STAT5, P-ERK, P-STAT3 and P-STAT5 (P<0.05 or P<0.01). There were no significant difference of the mRNA expression of ERK, STAT3 and STAT5 between AG490 and control group (P>0.05), and so did the protein expression of ERK, STAT3 and STAT5 (P>0.05). But P-ERK, P-STAT3 and P-STAT5 protein were significantly lower than those in control group (P<0.05 or P<0.01). After treated with matrine plus AG490, the mRNA expression of ERK, STAT3 and STAT5 were significantly lower than those in AG490 group (P<0.05) and so did the protein expression of ERK, STAT3, STAT5 (P<0.05). There were no significant difference of the P-ERK, P-STAT3 and P-STAT5 protein between matrine plus AG490 group and AG490 group (P>0.05). There were no significant difference of the mRNA expression of ERK, STAT3 and STAT5 between matrine plus AG490 group and matrine group (P>0.05), and so did ERK, STAT3, STAT5, P-ERK, P-STAT3 and P-STAT5 protein (P>0.05). Conclusion Matrine could significantly down-regulate the mRNA expression of ERK, STAT3, STAT5 and protein expression of ERK, STAT3 and STAT5 in SMMC-7721 cells. So matrine could inhibit the

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signaling transduction pathway of MAPK and JAK-STAT and inhibit the proliferation of SMMC-7721 cells.

Key words: **Matrine** **MAPK** **JAK-STAT** **AG490**

收稿日期: 2007-01-17;

引用本文:

殷飞,赵军艳,姚树坤. 苦参碱对SMMC-7721细胞MAPK、JAK-STAT信号通路的影响[J]. 肿瘤防治研究, 2008, 35(2): 84-87.

YIN Fei,ZHAO Jun-yan,YAO Shu-kun. Effect of Matrine on Signaling Transduction of MAPK and JAK-STAT in SMMC-7721 Cell Line[J]. CHINA RESEARCH ON PREVENTION AND TREATMENT, 2008, 35(2): 84-87.

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鄂ICP备08002248号

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