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CD147-siRNA对甲状腺乳头状癌K1细胞侵袭能力的影响

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Small Interfering CD147-Targeting RNA Inhibited Invasiveness Activity of Thyroid Carcinoma Cell Line K1

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摘要 目的

研究小干扰RNA对人甲状腺乳头状癌K1细胞CD147表达及细胞侵袭能力的影响，并筛选出有效的siRNA序列。方法 人工设计合成3对CD147-siRNA，并将CD147-siRNA转染人甲状腺乳头状癌K1细胞来沉默CD147基因的表达。用RT-PCR、ELISA分别测定CD147 mRNA和其蛋白的表达，从而验证CD147-siRNA的干扰效果；用 RT-PCR、Western blot技术分别测定MMP7 mRNA和其蛋白的表达；Transwell侵袭实验研究干扰后K1细胞的体外侵袭能力。结果 S2、S3组CD147 mRNA及其蛋白表达量较正常组和阴性对照组明显减少($P<0.05$)。与正常组相比，CD147 mRNA的表达抑制率分别为67.81%和72.48%；CD147蛋白表达抑制率分别为31.65%和35.47%。S2、S3组K1细胞中MMP7 mRNA表达抑制率分别为50.25%和53.40%，MMP7蛋白表达抑制率分别为41.58%和40.49%。Transwell小室实验检测转染后72 h的S2、S3组K1细胞，较正常组相比抑制率分别为35.87%和30.16%。而转染的S1、Normal组、Control组在细胞的侵袭力方面差异无统计学意义($P>0.05$)。结论 S2、S3组CD147-siRNA可以有效阻断CD147的表达，抑制肿瘤细胞的体外侵袭能力，CD147特异性siRNA作为一种治疗肿瘤的新途径值得进一步研究。

关键词： 甲状腺肿瘤 RNA干扰 CD147 MMP7 肿瘤侵袭

Abstract： Objective

To investigate the inhibitory effect of small interfering RNA on the expression of CD147 and invasion in human thyroid carcinoma cell line K1.And to screen the effective siRNA sequence.MethodsThree pairs sequence of CD147-siRNA small interfering RNA designed and synthesized and were transfected into K1 cells to knockdown the CD147 expression.The mRNA and protein levels of CD147 were detected by RT-PCR and ELISA.The mRNA and protein levels of MMP7 were detected by RT-PCR and Western blot.Transwell chambers were used to detect the invasiveness ability of K1 cells in vitro.ResultsCompared with the normal group and control group,mRNA and protein level of CD147 in S1 group had no significant difference($P>0.05$).In contrast,mRNA and protein level of CD147 decreased significantly($P<0.05$) in the S2 and S3 groups,in which mRNA level decreased to 67.81% and 72.48%, respectively;and protein level decreased to 31.65% and 35.47%,respectively.Meanwhile,compared with the normal group and control group,mRNA and protein level of MMP7 in the S2 and S3 groups also decreased significantly，in which mRNA level decreased to 50.25% and 53.40%, respectively,and protein level decreased to 41.58% and 40.49%,respectively.In transwell chamber assay,after transfection 72 h,the invasion inhibition rate of the cells went through membrane in the S2 and S3 groups was 35.87% and 30.16%,respectively,which was less than thatin the S1 group.While there were no significant difference($P>0.05$) among the S1,normal and control groups in the results from Transwell assay mentioned above.Conclusion CD147-siRNA in the S2 and S3 groups can decrease the expression of CD147，resulting in the suppression of invasiveness activity of tumor in vitro.The use of CD147 specific siRNA deserves further investigation as a novel approach to cancer therapy in the future.

Key words： Thyroid neoplasms RNAi CD147 MMP7 Neoplasm invasiveness

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