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论著

低氧诱导因子-1α siRNA对HaCaT细胞诱导型一氧化氮合酶表达的影响

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摘要:

目的: 观察低氧诱导因子-1α(hypoxia inducible factor -1α, *HIF-1α*)RNA干扰对低氧条件下永生化角质形成细胞株HaCaT细胞HIF-1α和诱导型一氧化氮合酶(inducible nitric oxide synthase, iNOS)表达的影响。方法: 将HaCaT细胞分为4组:常氧对照组(无干预因素)、低氧组(低氧培养24 h)、脂质体对照组(转染空载脂质体后低氧培养24 h)、RNA干扰组(转染脂质体介导的RNA干扰序列后低氧培养24 h)。荧光实时定量PCR法检测各组HaCaT细胞的 *HIF-1α* 和*iNOS* mRNA表达水平,Western 印迹检测各组HaCaT细胞HIF-1α和iNOS蛋白表达水平。结果: 低氧组和常氧对照组 *HIF-1α* mRNA的表达无明显差异($P>0.05$),而低氧组iNOS mRNA和蛋白及HIF-1α蛋白的表达均较常氧对照组明显增高($P<0.05$); RNA干扰组HIF-1α和iNOS mRNA及蛋白的表达均较脂质体对照组显著降低($P<0.05$)。结论: 低氧条件下可以使HaCaT细胞HIF-1α和iNOS的表达增加,而抑制HIF-1α的表达可以使低氧条件下HaCaT细胞iNOS的表达减少。

关键词: HaCaT 低氧诱导因子-1α siRNA 诱导型一氧化氮合酶

Effects of hypoxia inducible factor-1 α siRNA on inducible nitric oxide synthase expression in HaCaT cells

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Abstract:

Objective To observe the effect of hypoxia inducible factor -1α *(HIF-1α)* small interfering RNA (siRNA) on the expression of HIF-1α and inducible nitric oxide synthase (iNOS) in HaCaT cells under hypoxia. Methods HaCaT cells were divided into 4 groups: the normal control group (without any treatment), the hypoxia group (under hypoxia for 24 h), the liposome control group (HaCaT cells transfected with liposome before hypoxia treatment), the RNA interference group (HaCaT cells transfected with siRNA sequences then under hypoxia for 24 h). Real-time PCR and Western blot were utilized to determine HIF-1α and iNOS mRNA and protein expression in HaCaT cells.Results There was no significant difference of the mRNA expression of *HIF-1α* between the hypoxia group and the normoxia group ($P>0.05$), but the protein expressions of HIF-1α was increased in the hypoxic group than that in the normoxia group ($P<0.05$). Both the mRNA and protein expression of iNOS were increased in hypoxic conditions than that in the normoxia ($P<0.05$). Decreases were more significant in the mRNA and protein expression of HIF-1α and iNOS in the RNA interference group than that in the liposome control group in HaCaT cells ($P<0.05$). Conclusion Hypoxia increased HIF-1α and iNOS expression in HaCaT cells and inhibition of HIF-1α expression decreased iNOS expression.

Keywords: HaCaT hypoxia-inducible factor-1α small interfering RNA inducible nitric oxide synthase

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