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论著

低氧诱导因子-1α对毛囊细胞的作用

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摘要 摘要：目的 探讨外源性人低氧诱导因子－1α（HIF-1α）在成纤维细胞中表达的可行性及其对毛囊周围细胞活性的影响。方法 通过脂质体将含有HIF-1α cDNA的真核表达载体pcDNA3.0 稳定转染成纤维细胞, 应用RT-PCR及Western blot方法检测HIF-1α在成纤维细胞中的表达, ELISA法检测转染细胞上清液中血管内皮细胞生长因子（VEGF）的表达, RT-PCR方法检测转染后细胞中成纤维细胞生长因子（bFGF）的表达。将该上清加入成纤维细胞及真皮鞘细胞中, MTT法检测加入上清后成纤维细胞及真皮鞘细胞活性。结果 RT-PCR及Western blot可检测出转染后细胞中HIF-1α的表达, MTT检测加入转染上清后成纤维细胞及真皮鞘细胞活性增强（P<0.05）, 并且该上清液VEGF的表达显著高于未转染组（P<0.01）。转染后成纤维细胞的bFGF的mRNA表达显著高于未转染组（P<0.01）。结论 应用脂质体能够成功地将外源性人HIF-1α基因转染成纤维细胞, 并进行有效表达, 其表达的HIF-1α可增强细胞活性且可诱导转染细胞上清液中VEGF的表达, 并增加bFGF的mRNA表达, 且转染细胞上清可增强成纤维细胞及真皮鞘细胞活性。推测HIF-1α通过其下游因子VEGF及bFGF促进毛囊相关细胞的活性, 为HIF-1α对毛囊作用的进一步研究打下了基础。

关键词 低氧诱导因子-1α 成纤维细胞

分类号

Effect of Hypoxia Inducible Factor-1α on Cells of Hair Follicle

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Abstract ABSTRACT:Objective To investigate the feasibility of stable transfection of human hypoxia inducible factor-1α（HIF-1α）gene into fibroblasts cells and the effects of supernatant from the transfected cell culture on hair follicle cells. Methods PcDNA-HIF1α was stably transfected into fibroblasts cells with lipofectamineTM 2000. Expression of HIF-1α was observed by reverse transcription-polymerase chain reaction (RT-PCR) and Western blot. The supernatant was obtained to detect the expression of vascular endothelial growth factor (VEGF) by ELISA. The mRNA expression of basic fibroblast growth factor (bFGF) was detected by RT-PCR. MTT was used to detect the activity of fibroblasts cells and dermal sheath cells added with supernatant. Results PcDNA-HIF1α was successfully transfected into fibroblasts cells. HIF-1α could be detected by RT-PCR and Western blot. The expression of VEGF in the supernatant of cells transfected with PcDNA-HIF1α was detected. The mRNA expression of bFGF was significantly higher than in the control group（P<0.01）. MTT showed the activity of cells added with supernatant was enhanced (P<0.05). Conclusion PcDNA-HIF1α can stably transfected into fibroblasts cells, and the expressed HIF-1α induces the expression of VEGF and bFGF, and the expressed VEGF enhances the activity of cells.

Key words hypoxia inducible factor-1α fibroblast

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