

奈米金粒子載體攜帶 CXCR4 siRNA 在幹細胞基因療法之應用  
Modification of CXCR4 siRNA on nanogold-based carrier for stem cell therapy

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**中文摘要：**

研究顯示奈米金粒子(gold nanoparticle, Au)因具有生物可降解性、穩定性好、低毒性之良好生物相容性，可以提供新型藥物傳送系統之應用。於此研究中，我們合成攜帶正電荷金奈米粒子，以玻尿酸(hyaluronic acid, HA)包覆於粒子表面，並在表面接上 CXCR4 siRNA。所得結果發現此奈米粒子對於間葉幹細胞(mesenchymal stem cells, MSCs)具有良好的基因攜帶效果，推論是表面修飾有玻尿酸的奈米金粒子可以有效增加傳送生物分子的能力。

**關鍵詞：**奈米金粒子；CXCR4 siRNA；間葉幹細胞

**Abstract:**

Recently, we have developed a novel nanogold-based carrier, while conjugated with FITC (NP-FITC). NP-FITC was modified by building self-assembling with hyaluronic acid (HA). We used NP-FITC as a model system for carrying CXCR4 siRNA into mesenchymal stem cells (MSCs) to assess the effectiveness of gene delivery capacity. We intend NP-FITC as a material to elucidate the vascular endothelial growth factor(VEGF)/stromal cell-derived factor-1(SDF-1) molecular mechanism for vascular repairing mechanism. The characterization of NP-FITC was performed by UV/Vis spectrophotometer and FTIR analysis. NP-FITC had no significantly toxicity effect in mesenchymal stem cells was observed by MTT assay. MSCs biological function was examined by using ELISA, MMP and migration assay

**Keywords:** nanogold-based carrier; CXCR4 siRNA; mesenchymal stem cells