

论著

### 不同基因载体转导人骨髓间充质干细胞比较

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**摘要** 摘要: 目的 比较腺病毒载体、腺相关病毒载体、杆状病毒载体和质粒载体对人骨髓间充质干细胞 (hBMSCs) 的转导效率。方法 体外原代培养hBMSCs, 进行腺病毒载体、腺相关病毒载体、杆状病毒载体和质粒载体转染实验。采用倒置荧光显微镜及流式细胞仪检测经基因载体转染后的hBMSCs胞内目的蛋白表达情况。结果 倒置荧光显微镜观察结果显示, 基因载体转染后的部分hBMSCs胞内有GFP表达而发绿色荧光,

其中杆状病毒转导的hBMSCs荧光强度较强。流式细胞仪检测结果表明, 腺病毒载体、腺相关病毒载体及质粒载体的转导效率和绿色荧光蛋白阳性细胞平均荧光强度分别是42%、37%、22%和158、115、77, 均明显低于杆状病毒的70% (P<0.01) 和212 (P<0.05)。结论 杆状病毒载体对hBMSCs的转导效率高于腺病毒载体、腺相关病毒载体和质粒载体, 有望成为人体基因治疗研究中更为理想的基因载体。

**关键词** [杆状病毒; 基因载体; 转导; 人骨髓间充质干细胞](#)

分类号

### Comparison of Transduction Efficiencies of Various Gene Vectors in Human Bone-marrow-derived Mesenchymal Stem Cells

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**Abstract** ABSTRACT: Objective To compare the transduction efficiencies of adenoviral vector, adeno-associated viral vector, baculoviral vector, and plasmid vector in human bone-marrow-derived mesenchymal stem cells (hBMSCs). Methods The hBMSCs were cultured in vitro and transduced with the adenoviral vector, adeno-associated viral vector, baculoviral vector, and plasmid vector. The expression of target protein was observed by inverted fluorescent microscopy and flow cytometry. Results Inverted fluorescent microscopy showed that some of the hBMSCs after transduction expressed the green fluorescent protein (GFP) and the hBMSCs transduced with baculoviral vector expressed more GFP than those of other three vectors. Flow cytometry showed that the transduction efficiencies and mean fluorescence intensities of the adenoviral vector, adeno-associated viral vector, and plasmid vector were 42%, 37%, and 22% and 158, 115, and 77, respectively, which were significantly lower than those of baculoviral vector (70%, P<0.01; 212, P<0.05; respectively). Conclusion Compared with the adenoviral vector, adeno-associated viral vector, and plasmid vector, the baculoviral vector has higher transduction efficiency in hBMSCs and therefore may be a more suitable gene vector for research in human gene therapy.

**Key words** [baculovirus; gene vector; transduction; human bone-marrow-derived mesenchymal stem cells](#)

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