中国病理生理杂志 2005 21 (6): 1056-1060 ISSN: 1000-4718 CN: 44-1187/R

论著

# 成人骨髓间质干细胞在脑梗塞模型鼠的迁移和分化

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收稿日期 2004-8-21 修回日期 2004-11-15 网络版发布日期 2009-9-25 接受日期 2004-11-15

摘要 目的：探讨成人骨髓间质干细胞（human mesenchymal stem cells， hMSC）在脑梗塞模型鼠脑内的迁移和分化，是否影响模型大鼠的运动功能。 方法： 体外扩增培养hMSC，建立左大脑中动脉梗塞模型（MACO）大鼠，将标记Hoeschst33342的hMSC，经参芪液诱导30 min后注入模型鼠脑内，观察hMSC在大鼠脑内的存活、迁移、分化，以及能否改善模型鼠运动功能。 结果： 第5代呈集落生长的hMSC，均一性好。hMSC可在脑内存活6周以上；随着时间的延长，hMSC在脑内迁移的范围越来越大；间接免疫荧光表明hMSC在大鼠脑内表达人神经元特异性烯醇化酶（NSE）、神经丝蛋白（NF）和胶质纤维酸性蛋白（GFAP）；模型鼠的肢体运动功能有明显改善。 结论： hMSC可在大鼠脑内分化为神经细胞，有望成为治疗脑梗塞的理想的种子细胞。

关键词 骨髓间质干细胞； 脑梗塞； 细胞分化； 细胞运动； 参芪液

分类号 R363

# Migration and differentiation of the human bone marrow mesenchymal stem cells in the cerebral infarct animal model

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**Abstract**

<FONT face=Verdana>AIM: To investigate the survival, migration and differentiation of human bone marrow mesenchymal stem cells (hMSC) in the middle cerebral artery occlusion (MACO) model and to observe the influence on motor function in the animal model. METHODS: hMSC with Hoeschst 33342 were injected into the animal model of MACO after Shenqiye induced for half an hour and their survival, migration, differentiation and the behavior changes in MACO rats were examined. RESULTS: hMSC had good homogeneousness and immunological reaction after implantation. The results showed that hMSC survived in rat brain for a long time over six weeks. As time going, hMSC were found in much more areas in the rat brain. Immunofluorescence staining suggested that implanted hMSC expressed human neuron specific enolase, neurofilament, and glial fibrillary acid protein. At the same time, improvements in abnormal behavior of MACO rats were observed. CONCLUSION: hMSC differentiate into neurons in the brain of rats, which means that hMSC is an ideal seed cells for the therapy of cerebral infarction.</FONT>

**Key words** Bone marrow mesenchymal stem cells Cerebral infarction Cell differentiation Cell movement Shenqiye

DOI: 1000-4718

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