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## SDF-1促进BMSCs向血管内皮细胞分化(PDF) 分享到:

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Title: Effect of SDF-1 on mesenchymal stem cells differentiating into vascular endothelial cells

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关键词: [基质细胞衍生因子-1](#); [血管内皮生长因子A](#); [骨髓间充质干细胞](#); [血管内皮细胞](#)

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摘要: 目的 探究基质细胞衍生因子-1(stromal cell-derived factor-1, SDF-1)对人骨髓间充质干细胞(bone marrow mesenchymal stem cells, BMSCs)向血管内皮细胞(vascular endothelial cells, VECs)分化的作用。方法 BMSCs分为空白组(A组);实验组:10、25、50 ng/mL SDF-1组(B1、B2、B3组),25 ng/mL VEGF+25 ng/mL SDF-1组(B4组);对照组:25、50 ng/mL VEGF组(C1、C2组),在添加相应细胞因子的无血清培养基中诱导12 d。免疫组织化学检测诱导后BMSCs的血小板内皮细胞黏附分子(platelet endothelial cell adhesion molecules,PECAM-1即CD31)、管性血友病因子(von Willebrand Factor, vWF)表达情况。实时荧光定量PCR检测vWF、CD31、血管细胞黏附分子-1(vascular cell adhesion molecule,VCAM-1)、血管内皮生长因子受体-2(vascular endothelial growth factor receptor-2,KDR)、血管内皮钙粘蛋白(VE-cadherin, VE)的表达。结果 B4组KDR、VE、vWF、CD31、VCAM-1表达及CD31、vWF阳性率分别较B1、B2、B3组显著升高( $P<0.01$ );B4组VE、vWF表达较C1组显著升高( $P<0.01$ ),且vWF阳性率较C1组也显著升高( $P<0.01$ );B4组KDR、CD31、VCAM-1表达及CD31阳性率较C2组显著升高( $P<0.01$ ),且CD31阳性率较C2组也显著升高( $P<0.01$ )。结论 SDF-1对BMSCs向VEC分化起促进作用,联合使用SDF-1和VEGF可以更好地促进BMSCs向VECs分化。

Abstract: Objective To study the effect of stromal cell-derived factor-1 (SDF-1) on human bone marrow mesenchymal stem cells (BMSCs) differentiating into vascular

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endothelial cells (VECs). Methods Group of experiments: a blank group (A); experimental groups: groups of 10, 25 and 50 ng/mL SDF-1(B1/B2/B3), and group of 25 ng/mL VEGF+25 ng/mL SDF-1 (B4); and control groups: group of 25 and 50 ng/mL VEGF (C1/C2). The BMSCs of different groups were cultured in serum-free media with the corresponding cytokines for 12 d. Immunohistochemistry was applied to detect positive rates of CD31 and von Willebrand Factor(vWF) on the BMSCs. qPCR was applied to measure the mRNA levels of vWF, vascular cell adhesion molecule(VCAM-1), vascular endothelial growth factor receptor-2(KDR), VE-cadherin(VE) and CD31. Results The mRNA levels of KDR, VE, vWF, CD31 and VCAM-1 and positive rates of CD31 and vWF in the B4 group were significantly higher than those in the B1, B2 and B3 groups ( $P<0.01$ ). The mRNA levels of VE and vWF and positive rate of vWF in the B4 group were significantly higher than those in the C1 group ( $P<0.01$ ). The mRNA levels of KDR, CD31 and VCAM-1 and positive rate of CD31 in the B4 group were significantly higher than those in the C2 group ( $P<0.01$ ). Conclusion SDF-1 can promote BMSCs differentiating into VECs, and SDF-1 combined with VEGF is more effective than single use of VEGF or SDF-1.

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