中国医学科学院学报
ACTA ACADEMIAE MEDICINAE SINICAE
Medline收录 核心期刊
ISSN 1000-503X CN 11-2237/R

中国医学科学院学报 » 2010, Vol. 32 » Issue (1) :71-75 DOI: 10.3881/j.issn.1000-503X.2010.01.017

人脐带间充质干细胞对脐血CD34+细胞在NOD/SCID小鼠体内造血重建的影响

郝 牧1，漆佩静1，李 刚1，孟恒星2，徐 燕1，李长虹1，王亚非1，邱录贵1，2*

1中国医学科学院 北京协和医学院 血液学研究所 血液病医院实验血液学国家重点实验室，天津 300020
2协和干细胞基因工程有限公司，天津 300384

Effect of Human Umbilical Cord Mesenchymal Stem Cells on the CD34+ Cells Transplantation in NOD/SCID Mice

HAO Mu1，QI Pei-jing1，LI Gang1，MENG Heng-xing2，XU Yan1，LI Chang-hong1，WANG Ya-fei1，QIU Lu-gui 1*

1State key Laboratory of Experimental Hematology, Institute of Hematology and Blood Disease Hospital，CAMS and PUMC，Tianjin 300020, China
2Union Stem cell & Gene Engineering Co.Ltd，Tianjin 300384，China

摘要 摘要：目的 探讨人脐带间充质干细胞对脐血CD34+细胞在NOD/SCID小鼠体内造血重建的影响。方法 将3.5×105个脐血CD34+细胞单独（单移植组）或与5.0×106个人脐带间充质干细胞共同（共移植组）输入经137Cs 3.0Gy照射后的NOD/SCID小鼠体内，观察移植后6周内小鼠外周血象的变化情况。于移植后第6周处死小鼠，采用流式细胞术检测小鼠骨髓、脾脏及外周血人源细胞（hCD45+）含量，并分别检测小鼠骨髓中人源淋巴系（CD3/CD19）、粒系（CD33）、单核系（CD14）、血小板（CD61）、红系（CD235a）等各系血细胞比例，比较间充质干细胞共移植对CD34+细胞植入率的影响。结果 移植后3周，两组小鼠外周血象开始有不同程度恢复；移植后6周，共移植组外周血白细胞和血小板计数均已达高峰，明显高于单移植组（P＜0.05），两组小鼠的红细胞计数差异无统计学意义（P＞0.05）。移植后6周，共移植组骨髓及外周血中人源细胞hCD45+CD34+比例分别为（42.66±2.57）%和（4.74±1.02）%，明显高于单移植组的（25.27±1.67）%和（1.19±0.54）%（P=0.006）。移植后6周，共移植组小鼠骨髓内的CD19+、CD33+、CD14+、CD61+和CD235a+细胞比例均明显高于单移植组（P＜0.05），CD3+ T淋巴细胞比例明显低于单移植组（P=0.003）；CD19+ B淋巴细胞得到优势扩增，明显高于其他各系血细胞比例（P＜0.05）。结论 脐带间充质干细胞与脐血CD34+细胞共移植可促进造血干细胞的植入，缩短CD34+细胞移植后造血恢复时间。

关键词： 人脐带间充质干细胞 CD34+细胞 造血重建 造血干细胞移植

Abstract： ABSTRACT:Objective To study the effect of human umbilical blood（UB） mesenchymal stem cells (MSC) on the CD34+ cells transplantation in NOD/SCID Mice. Methods Umbilical blood CD34+ cells (3.5×105 cells) alone or combined with umbilical cord MSC cells were transplanted into NOD/SCID mice that had been irradiated with 137Cs (3.0Gy) before transplantation. Changes in peripheral blood cells within 6 post-transplantation weeks were detected. The mice were sacrificed 6 weeks after transplantation. The human hematopoietic cells (hCD45+) and multi-lineage engraftment cells (CD3/CD19, CD33, CD14, CD61, and CD235a) in NOD/SCID recipients' bone marrow, spleen, and peripheral blood were analyzed by flow cytometry. Results In the 3rd post-transplantation week, white blood cells (WBC), platelets(PLT), and red blood cells (RBC) began to increase in both two groups. In the 6th post-transplantation week, WBC and PLT counts in CD34++MSC group reached peak levels and were significantly higher than CD34+ alone group（P＜0.05), while RBC level was not significantly different between these two groups （P＞0.05). hCD45+ cell levels in bone marrow and peripheral blood were (42.66±2.57）% and（4.74±1.02）% in CD34++ MSC group, which were significantly higher than those in CD34+ alone group［（25.27±1.67）% and（1.19±0.54）%, respectively, P=0.006］. Also in the 6th post-transplantation week, the proportions of CD19+, CD33+,CD14+, CD61+, and CD235a+ in CD34++MSC group were significantly higher than those in CD34+ alone group(P＜0.05), while the proportion of CD3+ T lymphocyte in CD34++MSC group was significantly lower than that in CD34+ alone group (P=0.003). The amplification of CD19+ B lymphocyte was significantly higher than other blood cell lingeages (P＜0.05). Conclusion The co-transplantation of MSC cells and CD34+ cells can promote hematopoetic stem cell transplantation and hematopoetic recovery in vivo.

Keywords： duman umbilical cord mesencdymal stem cells cd34+ cell dematopoetic recovery in vivo dematopoetic stem cells transplantation

Received 2009-03-27; published 2010-02-28

Corresponding Authors: 邱录贵

Service
把本文推荐给朋友
加入我的书架
加入引用管理器
Email Alert
RSS
作者相关文章
郝 牧
漆佩静
李 刚
孟恒星
徐 燕
李长虹
王亚非
邱录贵

引用本文:
郝 牧，漆佩静，李 刚，孟恒星，徐 燕，李长虹，王亚非，邱录贵，.人脐带间充质干细胞对脐血CD34+细胞在NOD/SCID小鼠体内造血重建的影响[J] 中国医学科学院学报, 2010,V32(1): 71-75

HAO Mu，QI Pei-jing，LI Gang，MENG Heng-xing，XU Yan，LI Chang-hong，WANG Ya-fei，QIU Lu-gui.Effect of Human Umbilical Cord Mesenchymal Stem Cells on the CD34+ Cells Transplantation in NOD/SCID Mice[J] CAMS, 2010,V32(1): 71-75

链接本文:

http://www.actacams.com/Jwk_yxkxy/CN/10.3881/j.issn.1000-503X.2010.01.017 或
http://www.actacams.com/Jwk_yxkxy/CN/Y2010/V32/I1/71

Copyright 2010 by 中国医学科学院学报