

6~11.膜结合型干细胞因子促进白血病细胞K562的增殖和集落形成[J].王大刚,郑国光,种靖慧,马翠花,林永敏,吴克复.中国肿瘤生物治疗杂志,2009,16(1)

膜结合型干细胞因子促进白血病细胞K562的增殖和集落形成 [点此下载全文](#)

[王大刚](#) [郑国光](#) [种靖慧](#) [马翠花](#) [林永敏](#) [吴克复](#)

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; 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; 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; 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; 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; 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

基金项目: 国家重点基础研究发展规划(973) 前期资助项目(2008CB517301); 美国中华医学基金会(CMB) 资助项目(No.2007001)

DOI: 10.3872/j.issn.1007-385X.2009.1.003

摘要:

目的: 探讨膜结合型干细胞因子(membrane bound stem cell factor, m SCF)在白血病细胞中的作用。方法: 克隆并构建携可溶性干细胞因子(soluble stem cell factor, s SCF)前体的真核表达质粒pTARGET s, 采用Overlap PCR法去除外显子6序列, 进一步构建m SCF的表达质粒pTARGET m, DNA测序鉴定。通过脂质体介导分别将上述载体和空载体pTARGET转染白血病K562细胞, 用G418筛选稳定表达细胞株, 并用RT-PCR、Western blotting法鉴定。通过CCK-8细胞增殖实验以及集落形成实验观察不同细胞株体外增殖特点。结果: 成功构建了s SCF和m SCF的真核表达载体, 获得了稳定转染细胞株K562 V、K562 S、K562 M。U底培养条件下, K562 M增殖能力明显高于K562 V和K562 S (均 $P < 0.01$)。K562 M集落形成率显著高于K562 V和K562 S (均 $P < 0.01$), 且集落形态大于其他两种细胞。结论: m SCF与C kit之间的并置性作用显著促进白血病细胞的增殖。

关键词: [膜结合型干细胞因子](#) [C kit](#) [白血病](#) [并置性作用](#)

Membrane bound stem cell factor increases proliferation and colony formation of leukemia cell line K562 [Download Fulltext](#)

[WANG Da gang](#) [ZHENG Guo guang](#) [CHONG Jing hui](#) [MA Cui hua](#) [LIN Yong min](#) [WU Ke fu](#)

State Key Laboratory for Experimental Hematology, Institute of Hematology & Blood Diseases Hospital, Chinese Academy of Medical Sciences & Peking Union Medical College, Tianjin 300020, China; State Key Laboratory for Experimental Hematology, Institute of Hematology & Blood Diseases Hospital, Chinese Academy of Medical Sciences & Peking Union Medical College, Tianjin 300020, China; State Key Laboratory for Experimental Hematology, Institute of Hematology & Blood Diseases Hospital, Chinese Academy of Medical Sciences & Peking Union Medical College, Tianjin 300020, China; State Key Laboratory for Experimental Hematology, Institute of Hematology & Blood Diseases Hospital, Chinese Academy of Medical Sciences & Peking Union Medical College, Tianjin 300020, China; State Key Laboratory for Experimental Hematology, Institute of Hematology & Blood Diseases Hospital, Chinese Academy of Medical Sciences & Peking Union Medical College, Tianjin 300020, China; State Key Laboratory for Experimental Hematology, Institute of Hematology & Blood Diseases Hospital, Chinese Academy of Medical Sciences & Peking Union Medical College, Tianjin 300020, China

Fund Project: Supported by the Major State Basic Research Development Program of China (2008CB517301); China Medical Board (CMB) (No.A2007001)

Abstract:

Objective: To explore the role of membrane bound stem cell factor (m SCF) in the pathogenesis of leukemia. Methods: The eukaryotic expression plasmid of soluble stem cell factor (s SCF) precursor (pTARGET s) was constructed. Overlap PCR was used to obtain m SCF sequence with the deletion of exon 6, and pTARGET m was constructed. After verified by DNA sequencing, pTARGET m and control pTARGET vector were transfected into K562 cells via Lipofetamine 2000, and the positive cells were screened by G418. K562 cells stably transfected with pTARGET m were verified by RT-PCR and Western blotting. Proliferation and colony formation of these stably transfected cells were studied. Results: The s SCF and m SCF eukaryotic expression vectors were successfully constructed. The stable transfectants K562 V, K562 S, and K562 M were obtained. Under U bottom culture condition, proliferation ability of K562 M cells was significantly stronger than those of K562 V or K562 S (both $P < 0.01$). Colony formation ability of K562 M was significantly higher than those of K562 V and K562 S (both $P < 0.01$). Furthermore, the colony size of K562 M was larger than those of the other two kinds of cells. Conclusion: m SCF significantly enhances proliferation and colony formation of leukemia cells by a juxtacrine mechanism.

Keywords: [membrane bound stem cell factor \(m SCF\)](#) [C kit](#) [leukemia](#) [juxtacrine](#)

[查看全文](#) [查看/发表评论](#) [下载PDF阅读器](#)