[1]刘成海,彭松,胡厚源,等.融合蛋白TAP-SSL5对血小板微粒与THP-1细胞结合及Mac-1活化的影响[J].第三军医大学学报,2014,36(09):864-867.
Liu Chenghai,Peng Song,Hu Houyuan,et al.Fusion protein TAP-SSL5 suppresses binding of platelet microparticles to THP-1 cells and activation of Mac-1[J].J Third Mil Med Univ,2014,36(09):864-867.

点击复制

导航/NAVIGATE
本期目录/Table of Contents
下一篇/Next Article
上一篇/Previous Article

工具/TOOLS
引用本文的文章/References
下载 PDF/Download PDF(670KB)
立即打印本文/Print Now
查看/发表评论/Comments
导出

统计/STATISTICS
摘要浏览/Viewed 66
全文下载/Downloads 39
评论/Comments

RSS XML

融合蛋白TAP-SSL5对血小板微粒与THP-1细胞结合及Mac-1活化的影响(PDF)

分享到:

《第三军医大学学报》[ISSN:1000-5404/CN:51-1095/R] 卷: 36 期数: 2014年第09期 页码: 864-867 栏目: 论著 出版日期: 2014-05-15

Title: Fusion protein TAP-SSL5 suppresses binding of platelet microparticles to THP-1 cells and activation of Mac-1

作者: 刘成海; 彭松; 胡厚源; 贝俊杰; 孟璟; 房兆飞
第三军医大学西南医院心血管内科，重庆市介入心脏病学研究所

Author(s): Liu Chenghai; Peng Song; Hu Houyuan; Bei Junjie; Meng Jing; Fang Zhaofei
Department of Cardiology, Chongqing Institute of Interventional Cardiology, Southwest Hospital, Third Military Medical University, Chongqing, 400038, China

关键词: 血小板微粒; 金黄色葡萄球菌超抗原样蛋白-5; 蜱抗凝血肽; 融合蛋白; THP-1细胞; Mac-1

Keywords: platelet microparticles; staphylococcal superantigen like protein-5; anti-coagulant tick anticoagulant peptide; fusion protein; THP-1 cells; Mac-1

分类号: R331.143; R341; R392.1

文献标志码: A

摘要: 目的　探讨融合蛋白TAP-SSL5对血小板微粒（platelet microparticles，PMPs）与人单核细胞株THP-1细胞结合及Mac-1活化的影响。　方法　以二磷酸腺苷（adenosine diphosphate，ADP）激活人血小板并获取PMPs。采用流式细胞仪（flow cytometry，FCM）及PE标记的抗CD62P单克隆抗体、FITC标记的Annexin V检测PMPs，以FITC标记的抗CD41单克隆抗体和PE标记的抗CD154（CD40L）单克隆抗体检测PMPs的表面特征。采用JC-1试剂盒检测血小板线粒体膜电位。采用FCM检测PMPs与THP-1细胞的结合，以及PMPs诱导THP-1细胞表面 Mac-1（CD11b/CD18，$\alpha M\beta_2$）的活化情况，并研究TAP-SSL5的干预作用。　结果　PMPs呈现CD62P和Annexin V双阳性，且 CD41和CD40L的阳性率分别达到50.8%和44.0%。JC-1检测显示，ADP对血小板线粒体膜电位无明显影响（$P>0.05$）。PMPs与THP-1细胞的结合率为（24.80±5.16）%，PMPs 诱导THP-1细胞Mac-1的活化率为（21.17±5.92）%，THP-1细胞经10 mg/L TAP-SSL5预处理后，PMPs的结合率下降至（13.67±2.15）%（$P<0.05$），Mac-1的活化率下降至（0.99±0.62）%（$P<0.01$）。　结论　TAP-SSL5可抑制PMPs与THP-1细胞的结合及THP-1细胞表面Mac-1的活化。

Abstract: Objective To investigate the effect of anticoagulant and anti-inflammatory fusion protein TAP-SSL5 (tick anticoagulant peptide and staphylococcal superantigen like protein-5) on the binding of platelet microparticles (PMPs) to human acute monocytic leukemia cell line THP-1 and the activation of Mac-1. Methods PMPs were generated by adenosine diphosphate (ADP) activating human platelets. Flow cytometry (FCM) was used to identify PMPs by PE labeled mouse anti-human CD62P monoclonal antibody and FITC-Annexin V, and to check the activation and phosphatidylserine (PS) by FITC labeled mouse anti-human CD41 monoclonal antibody and PE labeled mouse anti-human CD151 monoclonal antibody (CD40L). The mitochondrial membrane potential in human platelets was checked with JC-1 kit. The binding rates of PMPs to THP-1 cells and the conformation change of Mac-1 (CD11b/CD18, $\alpha M\beta_2$) after co-incubation with PMPs were assayed by FCM. Results Both CD62P and PS were positive on PMPs. The positive rates of CD41 and CD40L on the ADP-induced PMPs were 50.8% and 44.0% respectively. While there was no significant change on the mitochondrial membrane potential in ADP activated platelets (P>0.05). The binding rates of PMPs to THP-1 cells and the activation rates of Mac-1 on THP-1 cells were (24.80$\pm$5.16)% and (21.17$\pm$5.92)% respectively, which decreased to (13.67$\pm$2.15)% and (0.99$\pm$0.62)% after the THP-1 cells were pre-incubated with 10 mg/L TAP-SSL5 (P<0.05 and P<0.01). Conclusion TAP-SSL5 directly inhibits the binding of PMPs to THP-1 cells, and subsequently inhibits the activation of Mac-1 on THP-1 cells.

参考文献/REFERENCES:

刘成海，彭松，胡厚源，等. 融合蛋白TAP-SSL5对血小板微粒与THP-1细胞结合及Mac-1活化的影响[J].第三军医大学学报,2014,36(9):864-867.

相似文献/REFERENCES:

[1]房兆飞,龚丽莎,胡厚源,等.125I标记融合蛋白TAP-SSL5在健康大耳兔体内的药代动力学研究[J].第三军医大学学报,2012,34(21):2145.
Fang Zhaofei,Gong Lisha,Hu Houyuan,et al.Pharmacokinetics of 125I-TAP-SSL5 in normal rabbits[J].J Third Mil Med Univ,2012,34(09):2145.

[2]曲小龙,胡厚源,李敏,等.抗炎、抗凝双效融合蛋白TAP-SSL5表达载体的构建及其功能研究[J].第三军医大学学报,2010,32(01):5.
Qu Xiaolong,Hu Houyuan,Li Min,et al.Construction of a novel fusion protein TAP-SSL5 and evaluation of its function as anti-inflammatory and anticoagulant protein in vitro[J].J Third Mil Med Univ,2010,32(09):5.

[3]梁华,曲小龙,胡厚源,等.金黄色葡萄球菌超抗原样蛋白-5抑制人脐血源性内皮祖细胞黏附功能及其机制研究[J].第三军医大学学报,2011,33(06):545.
Liang Hua,Qu Xiaolong,Hu Houyuan,et al.Staphylococcal superantigen-like protein-5 inhibits adhesion of human umbilical cord blood-derived endothelial progenitor cells to P-selectin-coated surface[J].J Third Mil Med Univ,2011,33(09):545.

[4]程彦,房兆飞,曲小龙,等.融合蛋白TAP-SSL5对人血小板功能的影响[J].第三军医大学学报,2012,34(06):477.
Cheng Yan,Fang Zhaofei,Qu Xiaolong,et al.Effect of TAP-SSL5 fusion protein on human platelet functions in vitro and in vivo [J].J Third Mil Med Univ,2012,34(09):477.

[5]龚丽莎,房兆飞,胡厚源,等.融合蛋白TAP-SSL5对血小板与粒细胞结合的影响[J].第三军医大学学报,2013,35(08):754.
Gong Lisha,Fang Zhaofei,Hu Houyuan,et al.Effect of TAP-SSL5 fusion protein on binding of human platelets to neutrophils[J].J Third Mil Med Univ,2013,35(09):754.

[6]但小苹,邱倩,杨再兴,等.慢性阻塞性肺疾病患者支气管肺泡灌洗液中血小板及内皮细胞微粒变化的探讨[J].第三军医大学学报,2013,35(24):2676.
Dan Xiaoping,Qiu Qian,Yang Zaixing,et al.Platelet and endothelial microparticles in bronchoalveolar lavage fluid of patients with chronic obstructive pulmonary disease[J].J Third Mil Med Univ,2013,35(09):2676.