

[1]黄磊,储卫华,袁继超,等.丙戊酸钠通过p21调控大鼠神经干细胞的增殖[J].第三军医大学学报,2013,35(06):487-490.

Huang Lei,Chu Weihua,Yuan Jichao,et al.Sodium valproate inhibits proliferation in rat neural stem cells through p21 pathway[J].J

Third Mil Med Univ,2013,35(06):487-490.

[点击复制](#)

丙戊酸钠通过p21调控大鼠神经干细胞的增殖(PDF)分

《第三军医大学学报》[ISSN:1000-5404/CN:51-1095/R] 卷: 35 期数: 2013年第06期 页码: 487-490 栏目: 论著 出版日期: 2013-03-30

Title: Sodium valproate inhibits proliferation in rat neural stem cells through p21 pathway

作者: [黄磊](#); [储卫华](#); [袁继超](#); [赵明月](#); [陈图南](#); [蒋周阳](#); [林江凯](#); [冯华](#)
第三军医大学西南医院神经外科,全军神经外科研究所,全军神经创伤防治重点实验室

Author(s): [Huang Lei](#); [Chu Weihua](#); [Yuan Jichao](#); [Zhao Mingyue](#); [Chen Tunan](#); [Jiang Zhoyang](#); [Lin Jiangkai](#); [Feng Hua](#)

Institute of Neurosurgery, PLA Key Laboratory of Neurotrauma Prevention and Treatment, Southwest Hospital, Third Military Medical University, Chongqing, 400038, China

关键词: [丙戊酸钠](#); [脊髓](#); [神经干细胞](#); [增殖](#); [p21](#)

Keywords: [sodium valproate](#); [spinal cord](#); [neural stem cells](#); [proliferation](#); [p21](#)

分类号: R322.8;R329.28;R971.6

文献标志码: A

摘要: 目的 探讨丙戊酸钠(sodium valproate, VPA)对体外培养的成年雌大鼠脊髓神经干细胞(neural stem cells, NSCs)增殖的影响。方法 采用不同浓度的VPA(10^{-5} 、 10^{-4} 、 10^{-3} 、 10^{-2} 、 10^{-1} 、1、10 mmol/L)作用于NSCs, CCK-8法检测在不同时间点(0、24、48、72 h)对细胞增殖的影响; VPA(10^{-5} 、1 mmol/L)作用于NSCs 48 h后, 流式细胞仪测定细胞周期分布, PCR测定p21在基因水平的表达, Western blot测定p21在蛋白质水平的表达。结果 CCK-8检测显示, 当VPA浓度 $>10^{-5}$ mmol/L时, 体外培养的成年大鼠脊髓NSCs的增殖受到明显抑制, 且具有时间依赖性。流式细胞仪细胞周期检测显示, 同样浓度下, VPA可阻滞NSCs由G₀/G₁期向S期转换, 表现为G₀/G₁期细胞增多, S期细胞减少, G₂/M期细胞减少。PCR检测发现VPA可促进p21基因水平的表达。Western blot检测发现VPA可促进p21蛋白质水平的表达, 各组间差异均有统计学意义(P<0.05)。结论 VPA可能通过促进p21表达, 使NSCs阻滞于G₀/G₁期, 最终抑制NSCs增殖。

Abstract: Objective To determine the effect of sodium valproate (VPA) on the proliferation and cell cycle in adult female rat spinal neural stem cells (NSCs). Methods Cell proliferation was assessed by CCK-8 assay after the cells were treated with VPA at different concentrations of 10^{-5} , 10^{-4} , 10^{-3} , 10^{-2} , 10^{-1} , 1 or 10 mmol/L for 0, 24, 48 or 72 h. After NSCs were treated with VPA at a

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\(804KB\)](#)

[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 177

全文下载/Downloads 115

[评论/Comments](#)

[RSS](#) [XML](#)

dose of 10^{-5} and 1 mmol/L for 48 h, cell cycle was analyzed by flow cytometry and the expression of p21(cyclin-dependent kinase inhibitor) was detected by PCR and Western blot analysis. Results CCK-8 staining colorimetry showed that the proliferation of NSCs was markedly inhibited in a time-dependent manner when the concentration of VPA was more than 10^{-5} mmol/L. Flow cytometry indicated more cultured NSCs were arrested in the G_0/G_1 phase and fewer at the S phase after being treated with VPA, which indicated that VPA arrested the transition of NSCs from G_0/G_1 phase to S phase. PCR and Western blot analysis indicated that VPA enhanced the expression of p21 at mRNA and protein levels($P<0.05$). Conclusion VPA may arrest NSCs at G_0/G_1 by increasing the expression of p21, and then finally inhibit the proliferation of NSCs.

参考文献/REFERENCES:

黄磊, 储卫华, 袁继超, 等. 丙戊酸钠通过p21调控大鼠神经干细胞的增殖[J]. 第三军医大学学报, 2013, 35(6):487-490.

相似文献/REFERENCES:

- [1]李敏,肖菊平,曾俊伟,等. 脊髓糖皮质激素受体在神经病理性疼痛中的作用[J]. 第三军医大学学报, 2012, 34(17):1719.
Li Min, Xiao Juping, Zeng Junwei, et al. Role of spinal glucocorticoid receptor in neuropathic pain[J]. J Third Mil Med Univ, 2012, 34(06):1719.
 - [2]曾俊伟,肖智,陈远寿,等. 地塞米松快速升高大鼠脊髓背角星形胶质细胞钙浓度[J]. 第三军医大学学报, 2013, 35(04):316.
Zeng Junwei, Xiao Zhi, Chen Yuanshou, et al. Rapid elevation of calcium concentration in astrocytes of rat spinal dorsal horn by dexamethasone[J]. J Third Mil Med Univ, 2013, 35(06):316.
 - [3]王伍超,葛衡江. 大鼠鞘内促肾上腺素皮质激素释放激素抗伤害性效应的实验研究[J]. 第三军医大学学报, 2006, 28(10):1072.
 - [4]周占松,宋波,卢根生,等. 前列腺炎症疼痛与脊髓星形胶质细胞活化关系的研究[J]. 第三军医大学学报, 2005, 27(18):1853.
 - [5]杜璐,张金海,阮怀珍. 炎性痛大鼠脊髓和背根节P2X3受体的表达变化[J]. 第三军医大学学报, 2010, 32(02):99.
Du Lu, Zhang Jinhai, Ruan Huaizhen. Expression change of P2X3 receptor in spinal dorsal horn and dorsal root ganglion in inflammatory pain rats[J]. J Third Mil Med Univ, 2010, 32(06):99.
 - [6]刘才保,王毅,张乐天,等. 脊髓内脑室外神经细胞瘤1例[J]. 第三军医大学学报, 2010, 32(01):12.
 - [7]包晓航,伊宏亮,郭文琼,等. 雌激素对福尔马林致痛后小鼠脊髓背角C-Fos和P物质的影响[J]. 第三军医大学学报, 2010, 32(08):739.
Bao Xiaohang, Yi Hongliang, Guo Wenqiong, et al. Effect of estrogen on expressions of c-Fos and substance P in dorsal horn of spinal cord in mice following formalin stimulation[J]. J Third Mil Med Univ, 2010, 32(06):739.
 - [8]王强,宋波. p38MAPK在体外培养脊髓星形胶质细胞P物质刺激活化中的作用[J]. 第三军医大学学报, 2009, 31(08):689.
WANG Qiang, SONG Bo. Role of p38MAPK in substance P-induced activation of spinal cord astrocytes in vitro[J]. J Third Mil Med Univ, 2009, 31(06):689.
 - [9]汪克建,孙善全,贺桂琼,等. 福尔马林致痛大鼠脊髓去甲肾上腺素能神经元及其激活蛋白2 α 的表达变化[J]. 第三军医大学学报, 2007, 29(08):658.
WANG Ke-jian, SUN Shan-quan, HE Gui-qiong, et al. Changes of dopamine-beta-hydroxylase and activator protein-2 α expression in spinal cord of formalin-induced rat pain model[J]. J Third Mil Med Univ, 2007, 29(06):658.
 - [10]高宇,陈兴书,余洪俊,等. DNA结合抑制因子2在成年大鼠脊髓表达的研究[J]. 第三军医大学学报, 2007, 29(07):592.
GAO Yu, CHEN Xing-shu, YU Hong-jun, et al. Expression of inhibitor of DNA binding-2 in spinal cord of adult rats[J]. J Third Mil Med Univ, 2007, 29(06):592.
-