中南大学学报(医学版) 2014, 39(1) 43-48 DOI: 10.11817/j.issn.1672-7347.2014.01.008 ISSN: 1672-7347 CN: 43-1427/R

论著

小鼠下丘脑SH2B1, SOCS3, PTP1B及NPY表达的变化及其与肥胖的关系

苏涛[1]，吴静[2]，刘玮芳[2]，段朝军[1]，张赛[1]，汤参娥[1]，罗凡砚[3]

中南大学湘雅医院 1. 医学科学研究中心； 2. 内分泌科； 3. 心胸外科，长沙 410008

摘要：

目的：研究肥胖小鼠及正常小鼠不同周龄下丘脑组织SH2B1(adapter protein with a Src-homology 2 domain)，细胞因子信号转导抑制蛋白3(the suppressor of cytokine signaling-3，SOCS3)，蛋白质酪氨酸磷酸酶1B(proteintyrosine phosphatase 1B，PTP1B)和神经肽Y(neturopetide Y，NPY)表达的变化规律及其与血清瘦素及胰岛素水平的关系。方法：选用健康C57BL/6乳鼠制作肥胖动物模型，计算Lee’s指数及稳态模型胰岛素抵抗指数。荧光定量RT-PCR法检测下丘脑SH2B1，SOCS3及PTP1B mRNA表达量，Western印迹检测下丘脑SH2B1和NPY蛋白表达量。结果：与同周龄对照组小鼠相比，肥胖组小鼠下丘脑组织SH2B1 mRNA表达减少，SOCS3及PTP1B mRNA表达增加；Western印迹结果显示：肥胖组小鼠SH2B1蛋白表达水平较对照组下降，NPY表达升高。直线相关分析显示：血清瘦素和血清空腹胰岛素水平与SH2B1 mRNA表达呈负相关，与SOCS3及PTP1B mRNA表达正相关。结论：SH2B1，SOCS3，PTP1B及NPY是肥胖发生、发展过程中的关键因子。

关键词： 肥胖 小鼠 SH2B1 细胞因子信号转导抑制蛋白3 蛋白质酪氨酸磷酸酶1B 神经肽Y

Expression change of SH2B1, SOCS3, PTP1B and NPY in mice hypothalamus and its relation with obesity SU

SU Tao[1], WU Jing[2], LIU Weifang[2], DUAN Chaojun[1], ZHANG Sai[1], TANG Can'e[1], LUO Fanyan[3]

1. Institute of Medical Sciences; 2. Department of Endocrinology; 3. Department of Cardiothoracic Surgery,Xiangya Hospital, Central South University, Changsha 410008, China

Abstract:

Objective: To investigate the expression pattern of adapter protein with a Src-homology 2 domain (SH2B1), the suppressor of cytokine signaling-3 (SOCS3), protein-tyrosine phosphatase 1B (PTP1B) and neturopetide Y (NPY) in obese and normal mice hypothalamus and its relation with serum leptin and insulin levels. Methods: The obesity animal model was prepared with healthy C57/bl6 mice. Lee’s index and Homeostasis model assessment-insulin resistance (HOMA-IR) were calculated. The mRNA levelsof SH2B1, SOCS3, PTP1B and NPY were measured by fluorescent quantitation RT-PCR. The SH2B1 and NPY protein expressions were detected by Western blot. Results: Compared with the normal mice of the same age, SH2B1 mRNA expression in the obese mice hypothalamus decreased. SOCS3 and PTP1B mRNA expression increased. Western blot showed that SH2B1 protein expression decreased, while NPY protein expression increased in the obese mice. Linear correlation analysis showed that the serum leptin and fasting insulin levels were negatively correlated with SH2B1mRNA expression and positively correlated with SOCS3 and PTP1B mRNA expression.
Conclusion: SH2B1, SOCS3, PTP1B and NPY are key factors for obesity development.

Keywords: obesity mouse a Src-homology 2 domain the suppressor of cytokine signaling-3 proteintyrosine phosphatase 1B neturopetide Y

收稿日期 2013-06-26 修回日期 网络版发布日期

DOI: 10.11817/j.issn.1672-7347.2014.01.008

基金项目:

湖南省自然科学基金(14JJ4011)；湖南省科技厅基金(2013FJ4112)。This work was supported by the Natural Science Foundation of Hunan Province (14JJ4011) and Science and Technology Project of Hunan Province (2013FJ4112), P. R. China.

通讯作者: 罗凡砚，Email:drlfy@163.com

作者简介: 苏涛，副主任技师，主要从事肥胖发病机制方面的研究。

作者Email: Email:drlfy@163.com

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硅纳米颗粒的生物毒理学研究

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