

# 黄芪提取物对 3T3 - L1 细胞的影响及其部分作用机制

刘新迎<sup>1</sup> 王培训<sup>2</sup>

(1. 佛山市南海区罗村医院, 广东 佛山 528226; 2. 广州中医药大学, 广东 广州 510405)

**摘要:** **目的** 观察黄芪提取物对 3T3 - L1 细胞增殖、分化和分泌 Leptin、PAI - 1 的影响, 探讨中药黄芪调脂作用的部分机制。 **方法** 培养 3T3 - L1 细胞, 并用不同浓度的黄芪多糖和黄芪甲苷进行干预, 以四甲基偶氮唑盐 (MTT) 法检测细胞增殖, 用油红 O 染色和染色比色法分析脂肪细胞的分化程度。用 ELISA 法检测细胞培养上清中 Leptin、PAI - 1 的含量。 **结果** 黄芪多糖和黄芪甲苷均能促进前脂肪细胞的增殖和分化, 且对 Leptin 分泌均有促进作用, 而二者对 PAI - 1 的分泌均有抑制作用。 **结论** 中药黄芪调脂机制复杂, 其可能通过促进前脂肪细胞的增殖与分化和影响脂肪细胞分泌功能而达到调脂作用。

**关键词:** 黄芪提取物; 3T3 - L1 细胞; 增殖分化; 分泌作用

中图分类号: R28 文献标识码: A 文章编号: 1672 - 0571 (2018) 01 - 0086 - 04

DOI: 10. 13424/j. cnki. mtcm. 2018. 01. 030

## Effect of Astragalus Extract on 3T3 - L1 Cells and Its Partial Mechanism of Action

Liu Yingxin<sup>1</sup> Wang Peixun<sup>2</sup>

(1. Hospital in luocun village in Nanhai District of Foshan, Guangdong 528226, China;

2. Guangzhou University of Chinese Medicine, Guangdong 510405, China)

**Abstract Objective:** To observe the effect of astragalus extract on the proliferation, differentiation and secretion of Leptin and PAI - 1 in 3T3 - L1 cells and to explore partial mechanism of astragalus' lipid regulating effect. **Method:** 3T3 - L1 cells were cultured and treated with different concentrations of astragalus polysaccharides and astragaloside IV. The cell proliferation was detected by MTT assay. The differentiation of adipocytes was analyzed by oil red O staining and staining colorimetry. The contents of Leptin and PAI - 1 in the cell culture supernatant were detected by ELISA. **Result:** Astragalus polysaccharide and Astragaloside can promote the proliferation and differentiation of preadipocytes, and promote the secretion of Leptin, both of which have inhibitory effects on the secretion of PAI - 1. **Conclusion:** The mechanism of lipid - regulating of Astragalus membranaceus is complex. It may promote lipid regulating by promoting the proliferation and differentiation of preadipocytes and affecting the secretory function of adipocytes.

**Key words** astragalus extract; 3T3 - L1 cell; proliferation and differentiation; secretory function

脂肪细胞的增殖与分化是正常体内脂肪储存的生理基础,也是导致脂肪组织过多堆积,造成肥胖、脂代谢、糖代谢异常发生的病理基础。黄芪味甘性微温,是补气升阳的常用中药,它含有多种有

效成分,具有广泛的药理作用,能增强和调节机体免疫功能、抵抗脂质过氧化、改善心功能、调节血糖、抗肿瘤、抗衰老等。3T3 - L1 细胞是最早建立起来的广泛应用于脂代谢、脂肪细胞分化、脂肪组