

论著

雌激素和高胰岛素调节胰岛素受体底物-1, 2表达机制研究

谢平, 刘美莲, 曾卫民, 黄建军, 陈淑华, 卢瑾, 徐霞, 宋惠萍[△]

中南大学湘雅医学院生物化学教研室, 湖南 长沙 410078

收稿日期 2003-7-1 修回日期 2003-9-10 网络版发布日期 2009-9-13 接受日期 2003-9-10

摘要 目的: 研究雌激素和高浓度胰岛素对胰岛素受体底物(IRS)-1和-2表达的分子机理。方法: 将IRS-1, 2基因5'调控区克隆至含荧光素酶表达载体pGL3质粒, 转染HeLa细胞, 加雌激素(1 nmol/L)或高浓度胰岛素(100 nmol/L)培养, 检测IRS-1, 2基因5'调控区相对转录活性。结果: 高浓度胰岛素刺激细胞48 h, IRS-2基因5'调控区相对转录活性减低, IRS-1无明显差异; 雌激素处理显著增加IRS-1, 2基因5'调控区的相对转录活性。结论: 高胰岛素可能通过作用于IRS-2基因5'调控区中胰岛素作用元件, 使其转录活性降低。而雌激素则通过作用于IRS-1, 2基因5'调控序列, 使其转录活性提高, 增强其表达。

关键词 [雌激素类](#); [胰岛素](#); [受体, 胰岛素](#)

分类号 [R363](#)

Regulatory mechanism in expression of IRS-1 and 2 by estrogen and high concentration of insulin

XIE Ping, LIU Mei-lian, ZENG Wei-min, HUANG Jian-jun, CHEN Shu-hua, LU Jin, XU Xia, SONG Hui-ping

Department of Biochemistry, Xiangya School of Medicine, Central Southern University, Changsha 410078, China

Abstract

AIM: To study the molecular mechanism in modulation of expression of insulin receptor substrate-1 and -2 (IRS-1, -2) by estrogen and high concentration of insulin. METHODS: The 5'-regulatory regions of IRS-1 and IRS-2 gene were cloned into the pGL3 plasmid with luciferase reporter, and the clones were transfected into HeLa cells. The cells were incubated with estradiol (1 nmol/L) and high concentration of insulin (100 nmol/L). The relatively transcriptional activity of the 5'-regulatory regions of IRS-1 and IRS-2 gene was detected. RESULTS: It was found that the relatively transcriptional activity of the 5'-modulatory regions of IRS-2 reduced markedly after cells were incubated with 100 nmol/L insulin (P<0.05), but that of IRS-1 was not affected. Estradiol increased the relatively transcriptional activity of the 5'-regulatory regions of IRS-1 and -2 distinctly (P<0.05). CONCLUSIONS: High concentration of insulin decreases the expression of IRS-2 by acting on its insulin reactive element, and estradiol elevates the expression of IRS-1 and -2 by acting on their 5'-modulatory regions.

Key words [Estrogens](#) [Insulin](#) [Receptor](#) [insulin](#)

DOI: 1000-4718

通讯作者 宋惠萍 huiping-song@hotmail.com

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(1826KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [参考文献](#)

服务与反馈

- ▶ [把本文推荐给朋友](#)
- ▶ [加入我的书架](#)
- ▶ [加入引用管理器](#)
- ▶ [复制索引](#)
- ▶ [Email Alert](#)
- ▶ [文章反馈](#)
- ▶ [浏览反馈信息](#)

相关信息

- ▶ [本刊中 包含“雌激素类; 胰岛素; 受体, 胰岛素”的 相关文章](#)
- ▶ [本文作者相关文章](#)

- [谢平](#)
- [刘美莲](#)
- [曾卫民](#)
- [黄建军](#)
- [陈淑华](#)
- [卢瑾](#)
- [徐霞](#)
- [宋惠萍](#)