

论著

低剂量镉处理后大鼠睾丸差异表达基因的cDNA微阵列分析

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摘要 背景与目的: 深入探讨睾丸镉毒性机制。 材料与方法: 应用cDNA微阵列分析和实时定量PCR技术对低剂量镉处理后大鼠睾丸组织基因表达情况进行分析。 结果: UDP-葡萄糖醛酸转移酶、血红素加氧酶、错配修复蛋白、T-激肽原和calmegin等基因与镉毒性相关, 但作为产能的细胞器, 线粒体呼吸链并未受到低剂量镉影响。 另显示维生素C对镉毒性有明显的缓解作用。 结论: 镉诱导毒性和致癌作用的影响可能涉及能量代谢、防御保护、DNA修复多个方面; 维生素C能够明显降低镉对大鼠睾丸的毒性作用。

关键词 [大鼠毒理学芯片](#); [定量RT-PCR](#); [线粒体](#); [维生素C](#)

cDNA Microarray Analysis in Testes of Rats Exposed to Low Cadmium Toxicity

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Abstract **BACKGROUND & AIM:** To identify genes involved in cadmium-induced testicular toxicity. **MATERIAL AND METHODS:** We used cDNA microarray and real-time quantitative polymerase chain reaction(real-time PCR) technique to analyze the genes expression of testes in rats treated with low cadmium(4 μ mol/kg). **RESULTS:** Our studies for the first time demonstrated that expression of T-kininogen, calmegin, UDP-glucuronyl transferase, heme oxygenase and mismatch repair protein gene were associated with cadmium toxicity. However, as the organelles that produced energy, mitochondrion was not affected in the respiratory chain at low dose cadmium. In addition, vitamin C at the concentration of 400 mg/kg obviously attenuated cadmium-induced toxicity in testes of rats. **CONCLUSION:** The cadmium-reduced toxicity carcinogenic effects involved energy metabolism, defense mechanisms and DNA repair of the cell. Vitamin C might play essential roles in protecting testes of rats exposed to cadmium.

Keywords [rat toxicology arrays](#) [real-time PCR](#) [mitochondrion](#) [vitamin C](#)

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