

论著

邻苯二甲酸二丁酯和苯并[a]芘对大鼠睾丸支持细胞波形蛋白和微管蛋白表达的影响

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摘要 背景与目的: 探讨邻苯二甲酸二丁酯(di-n-butyl phthalate,DBP)和苯并[a]芘[benzo(a)pyrene,BaP]单独或联合染毒对大鼠睾丸支持细胞波形蛋白和 α -微管蛋白表达的影响。材料与方法: 分离纯化大鼠睾丸支持细胞,以1、10、100 $\mu\text{g/ml}$ DBP和0.1、1、10 $\mu\text{g/ml}$ BaP单独或依次联合染毒12、24、48 h后,用免疫荧光方法检测细胞中波形蛋白和 α -微管蛋白的表达。结果: 与DMSO组比较,染毒24 h后,10 $\mu\text{g/ml}$ DBP与1 $\mu\text{g/ml}$ BaP均可诱导波形蛋白表达水平下降($P<0.05$),100 $\mu\text{g/ml}$ DBP组和10 $\mu\text{g/ml}$ BaP组的波形蛋白下降更为显著($P<0.01$),100 $\mu\text{g/ml}$ DBP+10 $\mu\text{g/ml}$ BaP联合染毒组波形蛋白的表达显著降低($P<0.01$)。染毒48 h后,DBP和BaP单独染毒中、高剂量组波形蛋白的表达显著降低(分别为 $P<0.05$ 和 $P<0.01$);联合染毒各组的波形蛋白表达与DMSO组相比均显著减少($P<0.05$ 或 $P<0.01$),但与DBP和BaP各对应剂量单独作用组并无显著差异($P>0.05$)。染毒24 h后,10 $\mu\text{g/ml}$ BaP组 α -微管蛋白表达明显增加($P<0.05$);48 h后,100 $\mu\text{g/ml}$ DBP组 α -微管蛋白表达显著上升($P<0.05$),BaP各组 α -微管蛋白表达均显著增加。结论: 一定剂量的DBP和/或BaP可诱导大鼠支持细胞内波形蛋白表达降低,微管蛋白表达增加,二者联合作用呈现拮抗效应。

关键词 [邻苯二甲酸二丁酯](#); [苯并\[a\]芘](#); [睾丸支持细胞](#); [波形蛋白](#); [\$\alpha\$ -微管蛋白](#)

Combined Effect of Di-n-butyl Phthalate and Benzo(a)pyrene on Vimentin and α -tubulin in Rat Sertoli Cells

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Abstract BACKGROUND AND AIM: To investigate the combined effects of di-n-butyl phthalate (DBP) and benzo(a)pyrene (BaP) on vimentin and α -tubulin in rat sertoli cells. MATERIALS AND METHODS: Rat testicular sertoli cells were isolated, purified and cultured, then treated with the toxins at different doses, DBP(1,10,100 $\mu\text{g/ml}$), BaP (0.1,1, 10 $\mu\text{g/ml}$) and DBP+BaP (1+0.1,10+1,100+10 $\mu\text{g/ml}$), for 12 h,24 h and 48 h. The vimentin and α -tubulin were measured with immunofluorescence technique. RESULTS: At 24 h, the expressions of vimentin protein in 10 $\mu\text{g/ml}$ DBP group and 1 $\mu\text{g/ml}$ BaP group were decreased significantly ($P<0.05$), and lower in 100 $\mu\text{g/ml}$ DBP group ($P<0.01$), 10 $\mu\text{g/ml}$ BaP group ($P<0.01$) and 100 $\mu\text{g/ml}$ DBP+10 $\mu\text{g/ml}$ BaP group($P<0.01$). At 48 h, the expressions of vimentin protein in middle and high dose of DBP group and BaP group and all three combined groups were obviously decreased, but there was no difference between each combined group and their matched dose group. The expression of α -tubulin protein was increased significantly in 10 $\mu\text{g/ml}$ BaP group($P<0.05$) at 24 h and in 100 $\mu\text{g/ml}$ DBP group and each BaP groups at 48 h. CONCLUSION: DBP and BaP could decrease vimentin protein expression and increase α -tubulin protein expression at certain dosages, and their combined effect on these two proteins in rat sertoli cells were antagonistic.

Keywords [dibutyl phthalate](#) [benzo\(a\)pyrene](#) [sertoli cell](#) [vimentin](#) [\$\alpha\$ -tubulin](#)

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