

论文

乙酸铅对脑脉络丛Z310细胞毒性作用

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摘要:

目的 初步探讨乙酸铅诱导大鼠脑脉络丛Z310细胞的低剂量兴奋作用和高剂量抑制作用。方法 以浓度为0、0.000 2、0.002、0.02、0.2、2、20、200、500 $\mu\text{mol/L}$ 的乙酸铅分别染毒Z310细胞12和24h,用噻唑蓝(MTT)法和2-(2-甲氧基-4-硝苯基)-3-(4-硝苯基)-5-(2,4-二磺基苯)-2H-四唑单钠盐(WST-8)法检测细胞生存情况,并观察各剂量组细胞形态变化。结果 0.02 $\mu\text{mol/L}$ 乙酸铅染毒24 h,MTT法检测Z310细胞存活率为107.06%,0.2 $\mu\text{mol/L}$ 染毒组24 h时细胞存活率升高为110.91%; >2 $\mu\text{mol/L}$ 乙酸铅染毒时,细胞存活率随剂量增加而降低;染毒24 h时,200、500 $\mu\text{mol/L}$ 乙酸铅组细胞存活率(MTT法)分别下降至79.37%和76.81%( $P<0.01$ );染毒12、24 h时,200、500 $\mu\text{mol/L}$ 乙酸铅组细胞存活率(WST-8法)分别下降至81.67%和72.36%及56.89%和44.05%( $P<0.05$ )。结论 低剂量乙酸铅可引起Z310细胞兴奋效应;高剂量乙酸铅引起Z310细胞抑制效应;WST-8法检测细胞存活率较MTT法更敏感。

关键词: 乙酸铅 Z310细胞 细胞毒性 WST-8法 噻唑蓝(MTT)法

Lead acetate-induced cytotoxicity in Z310 cells

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Abstract:

Objective To detect hormesis effects of lead acetate on Z310 cells. Methods Z310 cells were treated with lead acetate at concentrations of 0,0.000 2,0.002,0.02,0.2,2,20,200 and 500  $\mu\text{mol/L}$  for 12 hours and 24 hours. The proliferation viability of Z310 cells was measured by 3-(4,5-dimethylthiazol-2-yl) -2,5-diphenyltetrazolium bromide(MTT) and 2-(2-methoxy-4-nitrophenyl) -3-(4-nitrophenyl) -5 (2,4-disulfophenyl)-2H-tetrazolium,monosodium salt (WST-8) assay. And morphological changes in Z310 cells were observed under optical microscope. Results Lead acetate stimulated cell survival rate (107.06%) at lower concentration(0.02  $\mu\text{mol/L}$ ) for 24 hours. Compared with the control, a significant survival rate increase(110.91%, $P< 0.05$ ) was observed following exposure to 0.2  $\mu\text{mol/L}$  lead acetate for 24 hours, but at higher concentrations(over 2  $\mu\text{mol/L}$ ), the survival of the cells was inhibited. The survival rates significantly decreased(79.37% and 76.81%) only at 200 and 500  $\mu\text{mol/L}$  lead acetate for 24 hours tested by MTT( $P< 0.01$ ). The same effects were observed by WST-8 at the same concentration, with the survival rates of 81.67% and 72.36% for 12 hours( $P< 0.01$ ) and 56.89% and 44.05% for 24 hours( $P< 0.01$ ). Conclusion Lead acetate can induce the hormesis of Z310 cell proliferation. There is a higher sensitivity in cell survival rate test with WST-8 than MTT.

Keywords: lead acetate Z310 cytotoxicity WST-8 MTT

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