

论文

甘草次酸对苯并芘诱发DNA损伤及非程序DNA合成的影响

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摘要:

甘草次酸(GA)是甘草的有效成分之一。实验结果表明,GA能够抑制巴豆油诱发的小鼠耳肿胀和鸟氨酸脱羧酶(ODC)活性。甘草次酸对由苯并芘所诱发的DNA损伤有一定的保护作用,同时还降低强致癌剂苯并芘所引起的非程序DNA合成。结果提示GA是一种有前途的癌化学预防药。

关键词: 甘草次酸 DNA损伤保护 非程序DNA合成 癌的化学预防

EFFECT OF GLYCYRRHETINIC ACID ON DNA DAMAGE AND UNSCHEDULED DNA SYNTHESIS INDUCED BY BENZO(a) PYRENE

XG Chen and R Han

Abstract:

Glycyrrhetic acid(GA)is an active component of *Glycyrrhiza uralensis* Fisch. In this study, the effects of glycyrrhetic acid on DNA damage and unscheduled DNA synthesis induced by benzo(a)pyrene were studied. Mouse ear edema was visible obviously at the 6th h after topical application of single dose croton oil. A topical application of croton oil on the back of ICR mice for 5h, induced elevation of ornithine decarboxylase(ODC)activity in epidermal. The administration of glycyrrhetic acid(50~200 mg·kg<sup>-1</sup>·d<sup>-1</sup>) to animals for 3 days exhibited 20%~80%inhibition of epidermal ornithine decarboxylase activity in a dose-dependent manner. Benzo(a)pyrene obviously caused DNA damage and unscheduled DNA synthesis mediated by S<sub>9</sub> fraction in Chinese hamster lung cell line. Glycyrrhetic acid was found to protect the rapid DNA damage induced by benzo(a)pyrene. At concentration of 5μg·mL<sup>-1</sup>, glycyrrhetic acid exhibited 70% protection. At 20μg·mL<sup>-1</sup>, this action was more potent and approached to 80%. The addition of hydroxyurea 10mmol·L<sup>-1</sup> suppressed DNA replicative synthesis to 84.4% and benzo(a)pyrene stimulated the DNA repair synthesis(6-fold). Glycyrrhetic acid(20μg·mL<sup>-1</sup> and 50μg·mL<sup>-1</sup> significantly decreased the stimulation of DNA repair synthesis induced by benzo(a)pyrene. This suggests that glycyrrhetic acid has effective anti-initiating and ant-promoting activities and could be used for cancer chemopreventive purpose.

Keywords: DNA damage protection Unscheduled DNA synthesis Cancer chemoprevention Glycyrrhetic acid

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