

Sodium Chloride Regulation of COX-2 gene expression is independent of aldosterone activated mineralocorticoid receptor

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Production of prostaglandins involved in renal salt and water homeostasis is modulated by regulated expression of the inducible form of cyclooxygenase-2 (COX-2) at restricted sites in the rat kidney. COX-2 expression in the kidney is regulated by dietary salt intake, but the mechanism of its action is not fully understood. We have previously shown that high salt regulates COX-2 expression in rat kidney. The aim of the present study was to examine the role of mineralocorticoid receptor (MR) in regulation of COX-2 in kidney cell line (COS). In COS cells, TPA and hypertonicity induced a marked increase in COX-2 promoter activity. Spironolactone antagonized the aldosterone-induced trans-activation activity of the rMR transiently expressed in COS cells lacking steroid receptors. But stimulation of COX-2 promoter activity by hypertonicity was not reduced by inhibition of MR (spironolactone, 100 nM) in COS cells transiently transfected with COX-2 and rMR. We conclude that COX-2 is regulated by hypertonicity and this regulation is not occurred through MR. Currently, we are searching for regulatory region responsible for salt-induced COX-2 gene expression using several luciferase constructs containing COX-2 promoter. This work was supported in part by grants from the Korean Ministry of Health and Welfare (01-PJ1-Pg1-01CH06-0003; YJL).

[PB1-3] [04/18/2003 (Fri) 09:30 - 12:30 / Hall P]

Anti-inflammatory activity of organic germanium

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Germanium is present in all living plant and animal matter in micro-trace quantities. Clinical trials and use in private practices for more than a decade have demonstrated germanium's efficacy in treating a wide range of serious afflictions, including cancer, arthritis and senile osteoporosis. To investigate anti-inflammatory activity of organic germanium, we measured the effect of organic germanium on histamine release, ROS generation, arachidonic acid release in RBL 2H3 cells, and caragennin-induced paw edema in rats. Organic germanium inhibited caragennin-induced paw edema in a dose-dependent manner, suggesting that organic germanium has anti-inflammatory activity. Although organic germanium alone slightly increased ROS and peroxynitrite generation in RBL 2H3 cells, it dose-dependently inhibited mellitin-induced arachidonic acid release in RBL 2H3 mast cells. These results suggest that anti-inflammatory effect of organic germanium may be due to the inhibition of phospholipase A2 activity and organic germanium may be used as anti-inflammatory agent.

[PB1-4] [04/18/2003 (Fri) 09:30 - 12:30 / Hall P]

Effects of aloesin on physiological changes in rats after multiple oral administration

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This study was conducted to examine the effect of subchronic oral administration of aloesin on