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Attenuation of Homocysteine-Induced Cyclooxygenase-2 Expression in Human Monocytes by Fulvic Acid

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Abstract : Homocysteine and pro-inflammatory mediators such as cyclooxygenase-2 (COX-2) have been linked to vascular dysfunction and risks of cardiovascular diseases. Fulvic acid (FA) is class of compounds of humic substances and possesses various pharmacological properties. However, the effect of FA on inflammatory responses of the monocytes remains unclear. We investigated the regulatory effect of FA on homocysteine-induced COX-2 expression in human monocytes. Peripheral blood monocytes and U937 cells were kept as controls or pre-treated with FA, and then stimulated with homocysteine. The results show that pretreating monocytes with FA inhibited the homocysteine-induced COX-2 expression in a dose-dependent manner. The inhibitor for nuclear factor-kB (NF-kB) attenuated homocysteine-induced COX-2 expression. Our findings provide a molecular mechanism by which FA inhibit homocysteine-induced COX-2 expression in monocytes, and a basis for using FA in pharmaceutical therapy against inflammation.

Keywords : homocysteine, monocytes, cyclooxygenase-2, fulvic acid, anti-inflammation
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