Involvement of p38 mitogen-activated protein kinase in PLL-AGE-induced cyclooxgenase-2 expression

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摘要

Abstract

In the present study, murine RAW 264.7 macrophages were incubated with poly-L-lysine-derived advanced glycosylation end products (PLL-AGEs) to examine cyclooxygenase-2 protein expression. Treatment of RAW 264.7 cells with PLL-AGEs caused the dose-dependent expression of cylooxygenase-2 but not cylooxygenase-1 and an increase in cylooxygenase activity. Increased cylooxygenase-2 expression was seen at 6 h and reached a maximum at 24 h. The tyrosine kinase inhibitor, genistein, and the p38 mitogen-activated protein kinase (MAPK) inhibitor, [4-(4-fluorophenyl)-2-(4-methylsulfinylphenyl)-5-(4-pyridyl)1H-imidazole] (SB 203580), inhibited PLL-AGE-induced cylooxygenase-2 expression, while the Ras inhibitor, FPT inhibitor II, and the MAP kinase kinase inhibitor, (2' -amino-3' -methoxyflavone) (PD 98059), had no effect on PLL-AGE-induced cylooxygenase-2 expression. Incubation of RAW 264.7 cells with PLL-AGEs resulted in activation of p38 MAPK, and this activation was suppressed by genistein and SB 203580. Taken together, our results suggest that activation of protein tyrosine kinase and p3X MAPK is involved in AGE-induced cyclooxygenase-2 expression in RAW 264.7 macrophages.