Differentiation and apoptosis inducing effects of manassatin A and B isolated from the Saururus cernus were determined. 2.5μg/ml MNS-A and MNS-B showed cytostatic effect by Trypan Blue Exclusion Test. At over 5μg/ml these compounds were found to be a potent inducer of differentiation in human promyelocytic leukemia HL60 cells as assessed by the surface antigens of CD14 and CD66b, reducing nitroblue tetrazolium. Moreover, they showed apoptosis inducing effect through PI staining and DNA fragmentation at lighter concentration. These results suggest that MNS-A and MNS-B induce not only differentiation but also apoptosis in human leukemia cells.

[PC1-22] [10/20/2000 (Fri) 15:30 - 16:30 / [Hall B]]

Synthesis of Type IV Collagen and Laminin during Proliferation and Differentiation of 3T3-L1 Cells by Glycyrrhizin

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We showed that the adipose conversion of 3T3-L1 cells was stimulated by Glycyrrhizin. To investigate effects of Glycyrrhizin on the basement membrane proteins during proliferation and differentiation of 3T3-L1 cells, we have analyzed synthetic amounts of basement membrane components such as type IV collagen and laminin. Glycyrrhizin stimulated the synthesis and secretion of type IV collagen from both 3T3-L1 preadipocytes and adipocytes. The synthesis and secretion of laminin was not affected by Glycyrrhizin. The continuous addition of Glycyrrhizin stimulated cell growth and increased cell density at confluence 1.2-fold. These results suggest an important role for type IV collagen in adipocyte differentiation

[PC1-23] [10/20/2000 (Fri) 15:30 - 16:30 / [Hall B]]

Effects of 19 naturally occurring prenylated flavonoids on arachidonic acid metabolizing enzymes: Cyclooxygenases and lipoxygenases

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Prenylated flavonoids are chemical entities having isoprenyl, geranyl, 1,1-dimethylallyl and/or lavendullyl moiety to their flavonoid backbone structure. In this study, effects of 19 naturally occurring prenylated flavonoids isolated from medicinal plants on cyclooxygenase (COX)-1, -2, 5-lipoxygenase (LO) and 12-LO were investigated using 14C-arachidonic acid as a substrate. The homogenates of bovine platelets, polymorphonuclear leukocytes and aspirin-pretreated lipopolysaccharide (LPS)-induced RAW 264.7 cells were used as COX-1, -2, 5- and 12-LO enzyme sources. Among 19 prenylated flavonoids, morusin, kuwanon C, sanggenon B, sanggenon D and kazinol B inhibited COX-2 activity (IC50 = 73 - 100 uM), but the potencies were far less active than NS-398 (IC50 = 2 uM). In contrast, many prenylated flavonoids such as kuraridin, kuwanon C and sophoraisoflavanone A inhibited COX-1 activity, among which kuraridin, kurarinone and sophoraflavanone G having C-8 lavendullyl moiety showed potent and comparable activity (IC50 = 0.1-1 uM) with indomethacin (IC50 = 0.4-1.3 uM). Most prenylated flavonoids tested inhibited 5-LO activity, but only kuwanon C, papyriflavonol A and sophoraflavanone G showed the inhibitory activity against 12-LO at low concentration. Our results suggest that the position and nature of prenyl substitution greatly influence in vitro biological activities of these molecules.