Current Issue
Browse Issues
Search
About this Journal
Instruction to Authors
Online Submission
Subscription
Contact Us
RSS Feed

Acta Medica Iranica
2009;47(4) : 1-8

Pattern secretion of matrix Metalloproteinases and their biological tissue inhibitors by human glomerular mesangial cells in culture

"Hosseini R, Hampel G, Jung K "

Abstract:

The glomerular mesangial cells (GMC) play a central role in the synthesis and turnover of the glomerular mesangial matrix. The breakdown of the matrix likely depends on the balance between of a variety of proteinases including matrix metalloproteinases and their biological inhibitors secreted by the GMC, and any disturbance in the balance may result in appearance of various pathological states such as glomerulosclerosis. We therefore studied pattern secretion of matrix metalloproteinases (MMPs), MMP-1, MMP-2, MMP-3, MMP-9 and their biological tissue inhibitor of matrix metalloproteinases (TIMPs), TIMP-1 and TIMP-2 by cultured human GMC. We also measured MMP-1/TIMP-1 complex level in the cell culture supernatants. For this purpose, the GMC were incubated under serum-free conditions with medium (RPMI-1640) alone or in combination with TNF-α (30 ng/ml) or phorbol myristate acetate (PMA) (50 ng/ml) for exactly 24, 48 and 72 hours. The above parameters were assayed by established ELISA techniques. Our results showed that the lowest and largest secretions were related to MMP-9 and MMP-2, respectively. The results indicated that the MMPs and TIMPs secretion were increased by TNF-α (MMP-1, MMP-2, TIMP-1 and TIMP-2) and PMA (MMP-2, TIMP-1 and TIMP-2), significantly ($P<0.05$). These results suggest that the GMC can synthesis and release various MMPs and their inhibitors (TIMPs) that, in part, control turnover of extracellular matrix proteins.

Keywords:

Metalloproteinases ، Mesangial cell ، Glomerulosclerosis

TUMS ID: 1286

Full Text HTML Full Text PDF 1559 KB

top ▲