

عنوان مقاله:

The effect of resveratrol on expression of matrix metalloproteinase 9 and its tissue inhibitors in vascular smooth muscle cells

محل انتشار:

مجله آریا آترواسکلروز، دوره 14، شماره 4 (سال: 1397)

تعداد صفحات اصل مقاله: 6

نویسندگان:

Effat Farrokhi - Assistant Professor, Department of Molecular Medicine, School of Advanced Technologies, Shahrekord University of Medical Sciences, Shahrekord, Iran

Keihan Ghatreh-Samani - Associate Professor, Cellular and Molecular Research Center, Basic Health Sciences Institute, Shahrekord University of Medical Sciences, Shahrekord, Iran

Najmeh Salehi-Vanani - Clinical Biochemistry Research Center, Basic Health Sciences Institute, Shahrekord University of Medical Sciences, Shahrekord, Iran

Amin Mahmoodi - Clinical Biochemistry Research Center, Basic Health Sciences Institute, Shahrekord University of Medical Sciences, Shahrekord, Iran

خلاصه مقاله:

BACKGROUND: Matrix metalloproteinase 9 (MMP-9) is involved in extracellular matrix degradation and remodeling. An increase in MMP-9 expression by vascular component cells plays an important role in atherosclerotic plaque formation and rupture. Resveratrol, a polyphenolic substance, was suggested to play a role in preventing the progress of atherosclerotic disease. The aim of this study was to investigate the effect of resveratrol on MMP-9 and tissue inhibitors of metalloproteinases (TIMPs) in vascular smooth muscle cells (VSMCs) after treatment with H₂O₂. **METHODS:** Cultured VSMCs were pre-treated with 0.2 mM of H₂O₂ before stimulation with different concentration of resveratrol. Expression of MMP-9, TIMP-1, and TIMP-3 genes were measured using real-time polymerase chain reaction (PCR) method, and MMP-9 protein level was detected using western blot analysis. **RESULTS:** Resveratrol at 120 μmol/l concentration reduced the elevated level of MMP-9 induced by H₂O₂ in VSMCs as 1.85 ± 0.35 folds (P < 0.05) and 8.70 ± 1.20 folds (P < 0.05) after 24 and 48 hours, respectively. Resveratrol increased the diminished level of TIMP-1 induced by H₂O₂ as 2.5 ± 0.48 folds following the treatment with 120 μmol/l after 48 hours (P < 0.05). **CONCLUSION:** Resveratrol as an antioxidant can decrease MMP-9 production, not only by suppressing MMP-9 expression, but also by augmenting TIMP-1 production. Altogether, resveratrol as an antioxidant can regulate the MMP-9/TIMP-1 balance, and may be considered as a preservative agent in the treatment and prevention of atherosclerosis.

کلمات کلیدی:

Matrix Metalloproteinase 9, TIMPS, Resveratrol, Vascular Smooth Muscle

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1504696>

— — —

