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Dimethyl Sulfoxide Decrease Type-I and -III Collagen Synthesis in Human Hepatic Stellate Cells and Human Foreskin Fibroblasts (Abstract)

Xin Zeng

Chuanke Zhao

Hui Wang

Shiyou Li
Stephen F Austin State University, Arthur Temple College of Forestry and Agriculture, lis@sfasu.edu

Yan Deng

See next page for additional authors

Authors
Xin Zeng, Chuanke Zhao, Hui Wang, Shiyou Li, Yan Deng, and Zhiyang Li

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Abstract

Bioassay-guided fractionation from the herbal plants is an important way in identification of active compound. Dimethyl sulfoxide is widely used to dissolve hydrophobic compounds in pharmacology research. This study aimed to elucidate the effect of dimethyl sulfoxide on extracellular matrix-associated genes expression in human hepatic stellate cells and human foreskin fibroblasts. Effects of dimethyl sulfoxide on the expression of extracellular matrix-associated genes in human hepatic stellate cells and human foreskin fibroblasts were measured by real-time quantitative polymerase chain reaction. Cell cytotoxicity of dimethyl sulfoxide was checked by 3-(4,5-dimethylthiazol-2-yl)-5-(3-carboxymethoxyphenyl)-2-(4-sulfophenyl)-2H-tetrazolium assay. Dimethyl sulfoxide down-regulated type I and III collagen gene expression in human hepatic stellate cells and human foreskin fibroblasts under time- and dose-dependent manner. The half maximal inhibitory concentrations of dimethyl sulfoxide were 2.1% and 2.2% (v/v) in human hepatic stellate cells and human foreskin fibroblasts, respectively. Dimethyl sulfoxide presented low-toxicity to human hepatic stellate cells and human foreskin fibroblasts when the cells were cultured in the presence of 2% dimethyl sulfoxide or below. Since dimethyl sulfoxide decreased the expression of type I and III collagen gene, it is necessary to analyze the influence of dimethyl sulfoxide on extracellular matrix-associated genes before using this solvent.