GMR Genetics and Molecular Research
Online Journal
ISSN:1676-5680

Marsdenia tenacissima extract sensitizes MG63 cells to doxorubicin-induced apoptosis

T. Huang[1], W.H. Gong[2], C.P. Zou[1], X.C. Li[1], G.J. Jiang[2], X.H. Li[2] and H. Qian[1]

[1]Department of Orthopedics,
The First Affiliated Hospital of China Medical University, Shenyang, Liaoning, China
[2]Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA, USA

Corresponding author: T. Huang
E-mail: huangtao@mail.cmu.edu.cn

Genet. Mol. Res. 13 (1): 354-362 (2014)
Received August 9, 2013
Accepted October 28, 2013
Published January 21, 2014
DOI http://dx.doi.org/10.4238/2014.January.21.3

ABSTRACT. *Marsdenia tenacissima* extract (MTE) is a new plate-derived biotechnology product that is frequently used, but occasionally reported, in the field of chemotherapy. In this study, we assessed the antitumor activity and related mechanisms of MTE by various biotechnological methods. The survival rates of MG63 osteosarcoma cells treated with MTE and doxorubicin were measured, individually or jointly, and the changes in cellular shape, apoptotic rates, and Fas expression were observed. The results indicated that combination of MTE and doxorubicin up-regulated Fas expression and induced apoptosis. The survival rate of combined application of 50 mg/mL MTE and 1 µg/mL doxorubicin was significantly lower than that of the individual application ($P < 0.01$). Other biotechnology methods also showed an apoptosis-inducing effect of combined application that was much stronger than individual application. All of these results suggested that MTE may promote the effects of doxorubicin chemotherapy, perhaps related to the up-regulation of Fas expression in tumor cells.

Key words: *Marsdenia tenacissima* extract; Doxorubicin; Apoptosis

