Title: Icariin induces apoptosis in acute promyelocytic leukemia by targeting PIM1

Authors: Hong Zhang, Ping Li, Jing Li, Tongguo Song, Lin Wang, Enze Li, Jiao Wang, Luning Wang, Na Wei, Zhi Wang

PII: S1734-1140(17)30286-4
DOI: http://dx.doi.org/doi:10.1016/j.pharep.2017.06.005
Reference: PHAREP 744

To appear in:

Received date: 19-4-2017
Revised date: 2-6-2017
Accepted date: 13-6-2017

Please cite this article as: Hong Zhang, Ping Li, Jing Li, Tongguo Song, Lin Wang, Enze Li, Jiao Wang, Luning Wang, Na Wei, Zhi Wang, Icariin induces apoptosis in acute promyelocytic leukemia by targeting PIM1 (2010), http://dx.doi.org/10.1016/j.pharep.2017.06.005

Icariin induces apoptosis in acute promyelocytic leukemia by targeting PIM1

Hong Zhang[1], Ping Li[1], Jing Li[1], Tongguo Song[2], Lin Wang[1], Enze Li[1], Jiao Wang[1], Luning Wang[1], Na Wei[1], Zhi Wang[1]*

1. Qingdao University Affiliated Hospital, Qingdao, Shandong, 266071, China

2. Qingdao First Aid Center, Qingdao, Shandong, 266000, China

* For correspondence: Dr. Zhi Wang, E-mail:zhiwangqyfy@163.com

Abstract

Background: Acute promyelocytic leukemia (APL) is one type of acute myeloid leukemia (AML) featured by abnormal, heavily granulated promyelocytes. This study aimed to investigate the antitumor activity of icariin in APL cells.

Methods: APL cell lines (HL-60 and NB4) were used to investigate the effect of icariin *in vitro*. Cell viability was determined by WST-8 proliferation assay, while cell apoptosis was assessed by flow cytometry. The mRNA and protein expression was determined by quantitative real-time polymerase chain reaction and Western blot, respectively. Moreover, small interfering RNA (siRNA) and overexpressing plasmid were used to manipulate the expression of PIM family kinase 1 (PIM1) to examine the role of PIM1 in icariin-induced apoptosis in APL cells.

Results: Icariin could significantly suppress cell growth and induce apoptosis in both model APL cell lines (HL-60 and NB4). It repressed the expression of PIM1 at the molecular level, which was responsible for the antitumor effect of icariin in APL cells.