



In Vitro Effect of Glaucocalyxin A on Proliferation and Apoptosis of Human Non-Small Cell Lung Cancer A549 Cells

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SUMMARY. This study investigated the *in vitro* effect of glaucocalyxin A (GLA) on proliferation and apoptosis of human non-small cell lung cancer (NSCLC) A549 cells. A549 cells were cultured, and were treated with 0 (control), 2.5, 5, 10, 20, and 40 $\mu\text{mol/L}$ GLA, respectively. The proliferation, cycle, apoptosis and mitochondrial transmembrane potential of cells were detected. The survivin and caspase-3 protein expressions in cells were determined. Results showed that, after treated with GLA, the proliferation of A549 cells was obviously inhibited, most cells were arrested in S and G2/M phases, the apoptosis rate of A549 cells was significantly increased, the mitochondrial membrane potential of cells was significantly decreased, and the survivin and caspase-3 protein expression levels in cells were significantly decreased. In conclusion, GLA can inhibit the proliferation of NSCLC A549 cells and promote their apoptosis via down-regulation of the survivin and caspase-3 expressions.

RESUMEN. Este estudio investigó el efecto *in vitro* de la glaucocalyxin A (GLA) en la proliferación y apoptosis de las células A549 de cáncer de pulmón de células no pequeñas (NSCLC) humanas. Las células A549 se cultivaron y se trataron con 0 (control), 2.5, 5, 10, 20 y 40 $\mu\text{mol/L}$ de GLA, respectivamente. Se detectó la proliferación, el ciclo, la apoptosis y el potencial transmembrana mitocondrial de las células. Se determinaron las expresiones de las proteínas survivina y caspasa-3 en las células. Los resultados mostraron que, después de tratarse con GLA, la proliferación de las células A549 fue obviamente inhibida, la mayoría de las células fueron detenidas en las fases S y G2/M, la tasa de apoptosis de las células A549 aumentó significativamente, el potencial de membrana mitocondrial de las células disminuyó significativamente y los niveles de expresión de las proteínas survivina y caspasa-3 en las células disminuyeron significativamente. En conclusión, GLA puede inhibir la proliferación de células NSCLC A549 y promover su apoptosis a través de la regulación negativa de las expresiones de survivina y caspasa-3.

KEY WORDS: apoptosis, caspase-3, glaucocalyxin A, A549, proliferation, surviving.

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