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Ganoderma Lucidum Polysaccharide, an Extract from Ganoderma Lucidum, Exerts Suppressive Effect on Cervical Cancer Cell Malignancy through Mitigating Epithelial-Mesenchymal and JAK/STAT5 Signaling Pathway

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Abstract

Background/aims: We aimed to explore whether ganoderma lucidum polysaccharide (GLP) exhibits antitumor effect on cervical cancer cells.

Methods and results: Different concentration of GLP was used to treat cervical cell. The data from cell counting kit-8 assay proved that the optimal working concentration and time of GLP were 200 µg/mL and treated for 48 h. The transwell assay demonstrated that GLP could attenuate the invasion and migration abilities of cervical cancer cells. Moreover, flow cytometry illustrated that GLP could promote the apoptosis of cervical cancer cells and limit the cycle of cervical cancer cells. Western blot assay discovered that the expression of proapoptosis proteins including Bax, Cleaved Caspases 3 and 9 increased and the antiapoptosis protein Bcl-2 decreased after treated with GLP. Moreover, we found that the expression of E-cadherin was increased, and N-cadherin, Vimentin, and Slug were decreased. Meanwhile, the expression of phosphorylated-JAK and phosphorylated-STAT5 was also decreased in cervical cancer cells treated by GLP, suggesting the inhibitory effect on JAK/STAT5 pathways.

Conclusions: All of these data illustrated that GLP could alleviate the activity and aggressiveness, block the cell cycle, and promote the apoptosis of cervical cancer cells, which were possible via inhibiting epithelial-mesenchymal and JAK/STAT5 pathways.

Keywords: C-33A; Epithelial-mesenchymal; Ganoderma lucidum polysaccharide; HeLa; JAK/STAT5.

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