

Ganoderma lucidum. Novo polissacarídeo isolado do Ganoderma enriquecido com selênio induz apoptose no câncer de mama

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A novel polysaccharide from Se-enriched Ganoderma lucidum induces apoptosis of human breast cancer cells.

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Source

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Abstract

The novel polysaccharide SeGLP-2B-1 isolated from Se-enriched Ganoderma lucidum, showed anti-proliferative activity towards several cancer cell lines in vitro. To investigate the antitumor mechanisms, the apoptotic effects of SeGLP-2B-1 in human breast cancer cells were studied, and the mechanism of this action was further elucidated. Cell apoptosis was detected by Annexin V/PI staining. Caspase activity was assayed using a caspase apoptosis detection kit. Western blot analysis was used to evaluate the levels of pro-caspase-3, -8, -9, PARP and cytochrome c expression. The results showed that SeGLP-2B-1 inhibited the growth of MCF-7 cells in a time- and dose-dependent manner. Typical characteristics of apoptosis were observed, including morphological changes, sub-G1 cells and DNA ladder formation. Further analysis showed that SeGLP-2B-1 treatment disrupted the mitochondrial membrane potential followed by an increase in the cytochrome c cytosolic levels. Sequentially, SeGLP-2B-1 increased the activities of caspase-9, -3 and poly (ADP-ribose) polymerase in a time-dependent manner; however, no obvious activation of caspase-8 was observed. Caspase-9 and caspase-3 inhibitor prevented SeGLP-2B-1-induced apoptosis, and the activities of caspases-3, -9 were significantly up-regulated by SeGLP-2B-1. Our studies suggest that SeGLP-2B-1 induces apoptosis via a mitochondria-mediated pathway.

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