

Effect of *Ganoderma lucidum* (Curt.: Fr.) P. Karst. and *Coriolus versicolor* (L.: Fr.) Quél. on Immunostimulation and Inhibition of Tumor Growth

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Medicinal fungal extracts from fruiting bodies of *Coriolus versicolor* (L.: Fr.) Quél. and *Ganoderma lucidum* (Curt.: Fr.) P. Karst. were fractionated by different chromatographic steps. About 40 fractions were obtained. All fractions were screened for their capacity to inhibit the growth of tumor cells and to stimulate the proliferation of lymphocytes. It was found that (1) YZ-3-1-b from *Coriolus versicolor* was composed of glucose only in its sugar moiety, whereas LZ-3-1-a-1 from *Ganoderma lucidum* consisted of eight different monosaccharides. The main monosaccharides in LZ-3-1-a-1 were Gal, Glu, and Man in a ratio of 1:3.8:1. LZ-2-2 from *Ganoderma lucidum* is also made up of eight monosaccharides. Glu and Man in a ratio of 8:1 are the main monosaccharides in this fraction. (2) LZ-2-2 and LZ-DW-2-a-3 from LZ inhibited the

proliferation of SW620 tumor cells *in vitro*. They induce apoptosis of SW620 cells. (3) LZ-3-1-a-1 and YZ-3-1-b separated from LZ and YZ, respectively, significantly stimulated the proliferation of mouse spleen lymphocytes from normal or tumor-bearing mice. On analysis by flow cytometry, it was found the most of the activated cells in mouse spleen lymphocytes from normal or tumor-bearing mice by LZ-3-1-a-1 and YZ-3-1-b were B cells. (4) Interleukin-2 (IL-2) production was increased after mouse spleen lymphocytes from normal or tumor-bearing mice were stimulated by LZ-3-1-a-1 and YZ-3-1-b. The active fractions LZ-3-1-a-1 and YZ-3-1-b did not influence intracellular Ca^{2+} concentration. However, the LZ-3-1-a-1 advanced the expression of PKCa and PKCg, but did not affect the expression of PKCz.