Antitumor Effect of Polysaccharide Peptide of Coriolus versicolor (PSP) and its Mechanism

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Abstract

Polysaccharide peptide of Coriolus versicolor (PSP) is a new anti-tumor and immunomodulating drug. In this paper PSP showed direct inhibition on the cell proliferation of sarcoma 180 in vitro and inhibitory effect on the growth of murine sarcoma 180 in vivo. Owing to its direct cytotoxic effect was not strong, but at lower concentrations (10-20ug/ml) of PSP promoted the proliferation of T and pre-T cells of mouse thymus, increased the thymus weight, provided more number of lymphocytes, prevented the involuation of thymus in tumor bearing mice and antagonized the anti-tumor action of PSP combined with antilymphocyte serum. It is suggested the principal mechanism of anti-tumor activity of PSP was T-cell mediated cytotoxicity.

It has been known that some polysaccharides and polysaccharide peptide isolated from various natural sources, especially isolated from Basiodiomycetes have certain anti-tumor activities. The polysaccharide contained a main chain of an alpha and beta (1-4) glucan and a tightly bound 15-38% polypeptides (PSP) isolated from Coriolus versicolor (Fr) Quel. (Cov-1) by Professor Qing-yao Yang also exhibited antitumor action against mouse sarcoma 180 in vitro and in vivo. Recent experiments suggest three possible mechanism by which these PSP might act: (1) Potentiating of T-cell mediated cytotoxicity which killed more number of target-tumor cells. (2) Definite concentration of PSP produced direct cytotoxic activity in vitro. (3) Induction of tumorcidal macrophages killed more cancer cells. In this paper the antitumor action of PSP and its possible mechanism are reported.