H-2 Haplotype-Dependent Serum IL-12 Production in Tumor-Bearing Mice Treated with Various Mycelial Extracts

Yagita A, Maruyama S, Wakasugi S, Sukegawa Y.

Institute of Immunotherapy for Cancer, Kinki University Hospital, 377-2, Ohnohigashi, Osakasayama-city, Osaka 589-8511, Japan.

IL-12 is considered to be one of the most important cytokines in anti-cancer therapy. We have demonstrated that substances derived from Basidiomycetes, such as active hexose-correlated compound (AHCC) and PSK induce the production of IL-12. In this study, the MHC dependency of IL-12 production induced by various mycelial extracts, PSK, AHCC and IL-X, was examined. During tumor-bearing, higher serum IL-12 levels were observed in H-2a and H-2b mice as compared to H-2d mice. Concerning the effect of genetic background of mice on response to mycelial extracts, AHCC administration enhanced the serum IL-12 level in H-2b mice but not in H-2d mice, while PSK administration increased the serum IL-12 level in H-2d mice but not in H-2b mice. IL-X, components derived from the same Basidiomycetes, also enhanced the serum IL-12 level in H-2b mice in the early stage of tumor like AHCC, and maintained serum IL-12 at a level higher than the normal value accompanying tumor growth, whereas AHCC did not restore the lowered serum IL-12 level accompanying tumor growth. These results showed that AHCC or IL-X is effective in a genetically Th1-dominant individual whereas PSK is effective in a genetically Th2-dominant individual or Th2-dominant status in advanced cancer patients. So we propose that the suitable combinations of various mycelial extracts may be effective methods of endogenous IL-12 induction for cancer patients of all stages, which is important as a cancer therapy that is relatively free from adverse reactions and which emphasizes the QOL in individual patients.

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