

Evaluation of polysaccharopeptide effects against C6 glioma in combination with radiation.

XW Mao, LM Green, DS Gridley.

Department of Radiation Medicine (Radiobiology Program), Loma Linda University and Medical Center,
Loma Linda, Calif. 92354, USA. xmao@dominion.llumc.edu

Long-term control of high-grade brain tumors is rarely achieved with current therapeutic regimens. The major goal of this study was to determine whether polysaccharopeptide (PSP), a crude polysaccharide peptide extract derived from *Coriolus versicolor*, a fungus, could enhance the effects of radiation against glioma cells in culture and in xenografted tumors in vivo. PSP significantly augmented radiation-induced damage to C6 rat glioma cells in vitro. Nude mice injected subcutaneously with the C6 cells were treated with PSP (injected intraperitoneally at 2 mg/injection) and radiation (2 Gy/fraction, 8 Gy in total) using three different time-dose protocols. Tumor volumes were consistently smaller in all treated groups compared to the non-treated tumor-bearing controls except in one group which received PSP prior to tumor implantation. The administration of radiation alone resulted in the slowest tumor progression, whereas PSP alone had no effect. Furthermore, PSP in combination with radiation treatment did not increase radiation efficacy. Natural killer cell, lymphocyte and granulocyte counts in blood and spleen were significantly higher in PSP-treated animals, demonstrating that PSP has protective effects on immunological function. Collectively, these results warrant further investigation to determine if PSP can be effectively utilized to upregulate immune responsiveness in case of neoplasia and other diseases in which immunosuppression is a prominent feature.