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Melanie Bush
Indiana University - Purdue University Fort Wayne

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Melanie Bush
Elliott Blumenthal
Biology
Indiana University-Purdue University Fort Wayne

The motivation for research with berry extracts resulted from the increasing interest in alternative medicines and their effectiveness in treating disease. This research contained several interactive elements and the objectives included: (1) determining if certain berry extracts (provided by the Artemis, Inc. Group) could increase the proliferation of healthy spleen cells (thus increasing the responsiveness of the immune system), (2) comparing the responses of young and old mice to determine if the berry extracts counteract the decrease in immune response with age, and (3) determining any effects of the berry extracts on the growth of a prostate cancer cell line.

Different concentrations of berry extracts were added in vitro to T lymphocyte spleen cells collected from lab mice. By the use of radioactive labeling and counting methods, the amount of spleen cell proliferation was measured. Analysis of the results demonstrated that proliferation was dose-dependent, but indeed promoted by certain berry extracts. I compared the proliferation responses of young (2 months old) and old (14 months old) mice. At certain concentrations, the older mice clearly showed greater proliferation stimulation by the berry extracts than did the younger mice. These results indicate that the decreasing immune response due to age can be significantly reduced by the berry extracts. Additionally, the berry extracts were added to prostate cancer cells and had significant morphological effects, resembling apoptosis as well as inhibiting tumor cell growth. Further experiments are currently under way to determine which biochemical pathway the berry extracts are killing the cancer cells. One potential biochemical pathway that is affected is the signal transduction pathway mediated by PKC. Western Blot analysis has confirmed that PKC levels in the cancer cells are decreased after treatment with certain berry extracts.