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Selective induction of apoptosis in human mammary cancer cells (MCF-7) by pycnogenol.

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Breast cancer is the second leading cause of cancer death in women in the United States. The 1999 Cancer Facts and Figures, published by the American Cancer Society, estimates that almost 43,700 women and men will die of breast cancer in the United States. In this study, we compared the response of human breast cancer cells (MCF-7) and normal human mammary cells (MCF-10) to apoptosis in the presence of pycnogenol. Pycnogenol is a mixture of flavonoid compounds extracted from the bark of pine trees. MCF-7 and MCF-10 cells were plated out in culture dishes and grown in medium containing 0, 40, or 80 micrograms pycnogenol/ml culture medium. Cells were harvested at confluency, incubated with DAPI for 15 min and viewed microscopically for evidence of apoptosis. Apoptosis is detectable by morphology, chromatin condensation, nuclear DNA fragmentation, DNA strand breakage or apoptotic bodies. DAPI is a DNA-binding fluorescent dye used to visualize DNA fragmentation. Apoptosis, as detected by DAPI staining, was significantly higher in MCF-7 cells treated with pycnogenol than the untreated cells. The presence of pycnogenol did not significantly alter the number of apoptotic cells in MCF-10 samples. These results suggest that pycnogenol selectively induced death in human mammary cancer cells (MCF-7) and not in normal human mammary MCF-10 cells.