NON-TECHNICAL ABSTRACT

High Dose chemotherapy (HDCT) and autologous bone marrow transplantation (BMT) is frequently used to treat patients with metastatic cancer including breast cancer and neuroblastoma. However, the bone marrow of such patients is often contaminated with tumor cells. Recently, we have found that a recombinant adenovirus vector that contains expresses a protein named bcl-x_s, called the bcl-x_s adenovirus, is lethal to cancer cells arising from solid tissues such as breast cancer and neuroblastoma , but not to normal human blood and blood making cells. When breast cancer cells mixed with blood-making cells were infected with the bcl-x_s adenovirus, cancer cells were selectively killed by the suicide adenovirus. Blood-making cells exposed to the suicide vectors were able to save mice exposed to lethal doses of x-rays. These studies suggest that adenovirus suicide vectors may provide a simple and effective method to selectively eliminate breast cancer cells and neuroblastoma cells that contaminate bone marrow to be used for autologous BMT. We therefore propose to initiate a phase I clinical trial to test the safety of this virus in women with breast cancer undergoing high does chemotherapy and autologous BMT.