Since the start of the 20th century, scientists have sought ways of harnessing the immune system to attack cancer cells. The challenge has been enormous. The immune system is designed to destroy foreign elements such as bacteria and viruses. Cancer cells are not sufficiently different from their normal counterparts to elicit an immune response; when there are differences, the cancer cells “learn” ways to block an immune response. So the goal is to teach the immune system to attack the cancer without attacking normal tissues.

This issue of the newsletter describes a novel immunological approach being developed at the Albert Einstein Cancer Center by a group of collaborating scientists, based on a recent exciting finding: the identification of a protein molecule on cancer cells, B7x, that blocks the normal functions of immune cells, thereby protecting cancer cells from immune attack. What makes this approach particularly promising is that B7x is present on many different human cancers but apparently not on normal human tissues. When an antibody, for example, blocks B7x in a tumor-bearing mouse, there is an antitumor effect but little or no damage to normal tissues. These studies by Einstein scientists are a promising step toward achieving what has been an elusive goal in cancer immunotherapy.