Letter

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Cancer Immunology and Therapeutic Prospects

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Cancer immunology is an interdisciplinary branch of biology that is concerned with understanding the role of the immune system in the progression and development of cancer; the most well-known application is cancer immunotherapy, which utilises the immune system as a treatment for cancer. Cancer immune surveillance and immunoediting are based on protection against development of tumours in animal systems and identification of targets for immune recognition of human cancer.

Cancer immunology is an interdisciplinary branch of biology concerned with the role of the immune system in the progression and development of cancer; the most well-known application is cancer immunotherapy, where the immune system is used to treat cancer. Cancer immune surveillance is a theory formulated in 1957 by Burnet and Thomas, who proposed that lymphocytes act as sentinels in recognizing and eliminating continuously arising, nascent transformed cells. Cancer immune surveillance appears to be an important host protection process that decreases cancer rates through inhibition of carcinogenesis and maintaining of regular cellular homeostasis. It has also been suggested that immune surveillance primarily functions as a component of a more general process of cancer immunoediting.

Cancer is characterized by genetic and epigenetic instability leading to multiple unique and sometimes common mutations and "ectopic" overexpression of many genes normally not expressed in the tissue of origin. These alterations provide antigens that the adaptive immune system can recognize to distinguish the cancer cell from normal cells. Thus the immune system of a patient with cancer has the potential to selectively recognize his or her cancer.

Since its inception in 1976, Cancer Immunology, Immunotherapy (CII) has reported significant advances in the field of tumor immunology. The journal serves as a forum for new concepts and advances in basic, translational, and clinical cancer immunology and immunotherapy. CII is keen to publish broad-ranging ideas and reviews, results which extend or challenge established paradigms, as well as negative studies which fail to reproduce experiments that support current paradigms, and papers that do succeed in reproducing others' results in different contexts. CII is especially interested in papers describing clinical trial designs and outcome regardless of whether they met their designated endpoints or not, and particularly those shedding light on immunological mechanisms.

Immunotherapy is a type of cancer treatment that helps your immune system fight cancer. The immune system helps your body fight infections and other diseases. It is made up of white blood cells and organs and tissues of the lymph system. Immunotherapy is a type of biological therapy. Biological therapy is a type of treatment that uses substances made from living organisms to treat cancer.

As part of its normal function, the immune system detects and destroys abnormal cells and most likely prevents or curbs the growth of many cancers. For instance, immune cells are sometimes found in and around tumours. These cells, called tumor-infiltrating lymphocytes or TILs, are a sign that the immune system is responding to the tumor. People whose tumors contain TILs often do better than people whose tumors don't contain them.

Even though the immune system can prevent or slow cancer growth, cancer cells have ways to avoid destruction by the immune system. For example, cancer cells may:

1. Have genetic changes that make them less visible to the immune system.

2. Have proteins on their surface that turn off immune cells.

3. Change the normal cells around the tumor so they interfere with how the immune system responds to the cancer cells.