

*Perspective***A brief description on immune system in cancer****Toshi Arki\***

Department of Immunology, Harvard University, Cambridge, USA.

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**DESCRIPTION**

Cancer can weaken the immune system by spreading to the bone marrow. The bone marrow produces blood cells that help fight infections. This often happens in leukemia or lymphoma [1], but it can also occur in other cancers. Cancer can stop the bone marrow from making so many blood cells [2].

With the death toll from infectious diseases declining in Western lands, cancer has become the second leading cause of death, surpassing only for heart disease. Current estimates predict that half of all men and one in three women in the United States will develop cancer at some point in their lives, and one in five will die from it. From an immunologic point of view, cancer cells can be considered to be genetically modified cells that escape normal growth processes. The immune responses that grow against cancer cells, as well as how cancer is able to escape those responses [3]. The final phase evaluates current clinical immunotherapies and cancer screening. In many organs and tissues of a mature animal, a balance is maintained between cell regeneration and cell death [4]. Different types of mature cells in the body have a given life span. As these cells die, new cells are produced by the proliferation of different types of stem cells. This cell growth and proliferation are important in wound healing and homeostasis [5]. Under normal adult conditions, new cell production is regulated so that the value of any particular type of cell remains stable. Occasionally, however, cells appear to be less responsive to normal growth control mechanisms. These cells multiply uncontrollably, causing cancer. In the following sections, we will first discuss some common cancer-related terms, and then discuss ways that can lead to this uncontrolled cell growth.

Cells that produce clones of cells that can grow out of control will produce a tumor or neoplasm. A cell that can grow indefinitely and that does not invade healthy surrounding tissues is called Cancer. Cancerous tumors may also be

called malignant tumors. In addition to uncontrolled growth, malignant tumors show metastasis, in which small clusters of cancerous cells emerge from the original tumor, invading blood or lymphatic arteries, and transporting to other distant tissues, where they live and continue to multiply. In this way, the primary tumor in one area can create a second tumor in another. The harmful or cancerous growths are classified according to the embryonic tissue of the tumor. Skin cancer and most cancers of the colon, breast, prostate, and lung are carcinomas. Leukemias, lymphomas, and myelomas are malignant tumors of hematopoietic cells found in the bone marrow and cause about 9% of cancer cases in the United States. Leukemias multiply as isolated cells, while lymphomas and myelomas tend to grow as tumor masses [6]. Sarcoma, which occurs slowly (about 1% of cancer cases in the United States), is found in mesodermal related tissues, such as bone, fat, and cartilage. Historically, leukemias were classified as malignant or chronic depending on the clinical course of the disease. Acute leukemias developed spontaneously and progressed rapidly, while chronic leukemia was aggressive and slowed down like a mild, symptomatic disease. Since clinical differences apply to untreated leukemia with current medications, acute leukemia often has a positive prediction, and permanent remission is possible. Now the main difference between acute and chronic leukemia is the maturation of the cell involved.

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\*Corresponding author. Toshi Arki, E-mail: [arki@res.agr.hdi.ac.com](mailto:arki@res.agr.hdi.ac.com).

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