Antibody gives cancer the recognition it deserves

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In concept, the human immune system has the power to destroy cancer cells with great specificity. Therefore, cancer vaccines, like vaccines against influenza or other diseases, offer the hope of enticing the immune system to recognize proteins found on the surface of cancerous cells. The reality, however, is that the immune system rarely takes the bait that these vaccines offer, and that other approaches to stimulating anti-cancer immunity are needed.

Today, researchers at Fox Chase Cancer Center, in collaboration with colleagues at Memorial Sloan-Kettering Cancer Center, have shown that an engineered antibody called DTA-1 led to rejection of 50 to 60 percent of tumors in a mouse model of melanoma. The antibody allows the immune system to overcome its natural reluctance to attack tumor cells, the researchers say.

"Despite the promise of cancer vaccines, it has become clear that a vaccine alone won't necessarily generate an effective immune response, in large part due to suppressive elements within the tumor," says the project's lead researcher Adam D. Cohen, M.D., an oncologist at Fox Chase. "Here we show that we can use DTA-1 to impair regulatory T cells, in effect waking the immune system to the presence of a cancer."

Cohen presents his findings at the 100th Annual Meeting of the American Association for Cancer Research, in Denver, Colorado.

DTA-1 is an antibody designed to stimulate the glucocorticoid-induced

tumor necrosis factor receptor (GITR), a protein found on the surface of many T cells, including the regulatory T cells that suppress immune function and the effector T cells that help carry out an immune response. DTA-1 was developed by Shimon Sakaguchi, M.D., Ph.D., at the Institute for Frontier Medical Sciences in Kyoto, Japan. According to Cohen, their studies show that DTA-1 helps the immune system overcome its natural reluctance to attack tumor cells that it would otherwise have thought of as part of the body.

"Of course, we wouldn't want to completely shut down the immune system's ability to differentiate its own cells, which can lead to autoimmune disease," Cohen says. "Our findings suggest, however, that DTA-1 can temporarily and focally skew the ratio between regulatory and effector T cells in our favor."

According to Cohen, their findings provide further support for the continued development of GITR-targeting antibodies, either alone or in combination with cancer vaccines, as an immunotherapeutic strategy for treating cancer.

Source: Fox Chase Cancer Center (news : web)