

Creating new life forms that may help eradicate cancer affecting women

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Instead of using the usual cancer-fighting modalities, surgery, chemotherapy, or radiation, researchers from a drug development company called Advaxis, have embarked on a novel approach to fighting cancer: Engaging the immune system to attack cancer in the same the way it would a flu vaccine, by creating new life forms.

Dr. Vafa Shahabi, Advaxis' Director of Research and Development, reports that because the human immune system is not designed to fight cancer on its own, she and her colleagues are trying to harness its power through a new kind of life form: specifically a family of vaccines, which they call Lovaxin. The vaccines are comprised of new strains of bacteria created in Advaxis' laboratory that are programmed to kill off specific cancers.

The Key: A Microbe Found in Dairy Products

Central to this startling discovery is the microbe *Listeria monocytogenes*, a common bacterium found in milk, cheese and other dairy products. This microorganism apparently aids in fighting cancer by activating the body's own killer (cytotoxic T) cells to elicit a stronger than normal immune response to the presence of cancer cells. The vaccines "teach" the immune system to mount a specialized, targeted response that is lethal to cancer.

When *Listeria* is introduced in the body, it has a powerful, direct

stimulatory effect on the activities of tumor-killing T cells. "Essentially the modified *Listeria* vaccines harness the power of the immune system against this infectious agent," explains Dr. Shabahi, "and then directs it to successfully attack cancer cells. The bacterium in effect then becomes a cancer-fighting 'Trojan horse,' with the enemy tucked inside."

For breast cancer, Dr. Shababi's team fused *Listeria* with a tumor-associated protein, HER-2/Neu, to immune cells, to create a vaccine called Lovaxin B. What these cells do is enlist killer T cells to seek and destroy tumor cells that over-express the HER-2/Neu molecule. This is significant because HER-2/Neu is over-expressed in 20%- 40% of all breast cancers.

Source: Advaxis, Inc.

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