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## **Novel Immune System-Based Gene Therapy Holds Promise Against Melanoma, Sarcoma [1]**

*JCO Research Round Up*  
*January 31, 2011*

Researchers have shown a form of personalized gene therapy that uses a patient's own immune cells could treat metastatic melanoma and synovial cell sarcoma tumors, representing a potentially new therapeutic approach against these and other cancers.

The technique, called adoptive immunotherapy, works by harnessing the body's immune system to fight cancer. In the process, cancer-fighting immune cells called lymphocytes are removed, genetically modified, increased in number, and given back to the patient. In this small, early study, 17 patients with metastatic melanoma or metastatic synovial cell sarcoma that was resistant to standard treatments received the therapy, which engineered protein receptors to attach to specific protein antigens on the cancer cell, making them capable of finding and attacking the cancer.

The antigen that was targeted - NY-ESO-1 - is present in one quarter to one third of common epithelial cancers such as those of the breast, kidney, esophagus and other cancer types, and in about 80 percent of synovial cell sarcomas. The treatment resulted in tumors shrinking in 45 percent of melanoma patients and 67 percent of patients with synovial cell sarcoma.

Because the antigen is present on many different tumor types, researchers are optimistic that these results may bode well for the development of similarly designed therapies for a wide range of antigens and cancers, though further study is needed.

## What this Means for Patients

Investigators have used patients' own immune systems to treat two types of treatment-resistant metastatic tumors, representing a promising new therapeutic approach. It is the first time that a cancer other than melanoma has been treated this way, and while more research is needed, the therapy may eventually be applicable to a wide array of cancers.

## Helpful Links

[Understanding Immunotherapy](#) [2]

[Cancer.Net Guide to Melanoma](#) [3]

[Cancer.Net Guide to Sarcoma](#) [4]

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## Links

[1] <http://www.cancer.net/novel-immune-system-based-gene-therapy-holds-promise-against-melanoma-sarcoma>

[2] <http://www.cancer.net/patient/All+About+Cancer/Cancer.Net+Feature+Articles/Treatments%2C+Tests%2C+and+Procedures/Understanding+Immunotherapy>

[3] <http://www.cancer.net/patient/Cancer+Types/Melanoma>

[4] <http://www.cancer.net/patient/Cancer+Types/Sarcoma>