IMMUNOTHERAPY GENE THERAPY FOR SOFT-TISSUE TUMORS

A T-cell receptor therapy directed against the NY-ESO-1 antigen causes tumor regression in patients with metastatic melanoma or synovial cell sarcoma, according to new research. “This study shows that cell transfer immunotherapy using T-cell receptor gene modified cells can be effective for the treatment of solid tumors other than melanoma,” explains senior investigator Steven Rosenberg.

NY-ESO-1 is an antigen found in a number of cancers, including up to 50% of metastatic melanomas and 80% of synovial cell sarcomas. Rosenberg’s team investigated the effect of targeting this antigen in a small group of patients with melanoma or synovial cell sarcoma expressing NY-ESO-1 who had failed to respond to standard therapies. The technique, known as adoptive immunotherapy, involved treating patients with their own T cells, which were genetically modified to express T-cell receptors against NY-ESO-1.

The treatment resulted in response rates of 45% in patients with melanoma and 67% in patients with synovial cell sarcoma. Tumor regression was observed in four of the six patients with synovial cell sarcoma and in five of the 11 patients with melanoma. One of the patients with synovial cell sarcoma had a partial response that lasted 18 months. Moreover, complete ongoing regression responses (for at least 20 months) were recorded in two patients with melanoma.

No treatment-related toxic effects were observed. The findings indicate that T-cell receptor-based gene therapies directed against NY-ESO-1 offer an effective method for mediating tumor regression in metastatic melanoma and synovial cell sarcoma. “The NY-ESO-1 antigen targeted in this study is expressed on about 25% of common epithelial cancers and current studies are extending this therapy to patients with additional cancer types,” concludes Rosenberg.

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