New anti-tumor cell therapy strategies are more effective

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Targeted T-cells can seek out and destroy tumor cells that carry specific antigen markers. Two novel anti-tumor therapies that take advantage of this T-cell response are described in articles published in *Human Gene Therapy*, a peer-reviewed journal from Mary Ann Liebert, Inc., publishers. The articles are available free on the *Human Gene Therapy* website.

Richard Morgan and colleagues from the National Cancer Institute (NCI), National Institutes of Health (NIH), Bethesda, MD, and Duke University Medical Center, Durham, NC, used engineered T-cells to attack glioma stem cells, which are one of the cell types present in glioblastoma, an aggressive and fatal type of brain cancer. There is no curative treatment for glioblastoma, and patients usually live less than two years from diagnosis. In the article "Recognition of Glioma Stem Cells by Genetically Modified T Cells Targeting EGFRvIII and Development of Adoptive Cell Therapy for Glioma," the authors describe how targeting tumor stem cells, in combination with traditional therapies aimed at killing other types of glioma tumor cells, could improve the effectiveness of treatment and reduce tumor recurrence.

In a related article, Karen Kaluza and coauthors, Mayo Clinic, Rochester, MN, conducted a study using T-cells capable of recognizing two different antigens simultaneously and showed that this dual targeting strategy could be more effective at clearing tumor cells and reducing the risk of "tumor escape" and cancer recurrence. In "Adoptive Transfer of Cytotoxic T Lymphocytes Targeting Two Different Antigens Limits Antigen Loss and Tumor Escape," the authors conclude that T-cell therapies targeting two or more antigens will have significant added value compared to single-antigen therapies.

"These studies represent important advances in the development of novel treatments for cancer that combine the power of gene transfer and cell transplantation," says James M. Wilson, MD, PhD, Editor-in-Chief, and Director of the Gene Therapy Program, Department of Pathology and Laboratory Medicine, University of Pennsylvania Perelman School of Medicine, Philadelphia.

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