

Dendritic cell vaccine for relapsed neuroblastoma patient induces complete remission

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One year after his last treatment, a six-year-old boy with recurrent neuroblastoma is in complete remission for his high-risk metastatic cancer. Doctors reported this case study in the January 2013 issue of *Pediatrics*, the journal of the American Academy of Pediatrics, which was funded in part by a joint grant from the Andrew McDonough B+ Foundation, Pierce Phillips Charity and Solving Kids' Cancer.

Current treatments for high-risk neuroblastoma patients include chemotherapy, radiation therapy, surgery, [stem cell transplant](#), and immunotherapy. Less than half of the children survive in spite of the intensive and toxic standard therapy. Long term survival after a relapse is less than 5%.

Previous clinical trials in adult solid tumors have successfully used cancer-specific targets (NY-ESO-1, MAGE-A1, and MAGE-A3) to kill [cancer cells](#). Now, scientists at the University of Louisville have used these same targets for neuroblastoma by creating a vaccine that causes the body's own immune system to attack the [tumor cells](#). [Dendritic cells](#) are [immune cells](#) collected from the patient and grown in cultures after they are exposed to specific antigens. The dendritic cells "teach" the patient's T-cells to seek out and kill the cancer cells after they are returned to the patient through a series of injections.

Cancer treatment vaccines differ from other vaccines in that they treat

active cancers or help to prevent recurrence. The principal investigator for this study, Kenneth Lucas, M.D., is the division chief of Pediatric Hematology-Oncology and [Stem Cell Transplantation](#) at the University of Louisville Department of Pediatrics. The funding provided critical support to further Dr. Lucas' ongoing work to find new treatments for neuroblastoma and other deadly [childhood cancers](#).

In the case study, one year after the patient's last vaccination, the tumors cells that were located in the boy's bone marrow disappeared and he now shows no evidence of disease.

The study includes children with sarcomas as well as neuroblastoma, and will be completed in 2013.

For patients with relapsed neuroblastoma, there are few promising treatment options in clinical trials. More effective and less toxic treatments are desperately needed.

"This research builds on five years of pre-clinical research, which identified three new immunological targets that are specific to this pediatric cancer," said Scott Kennedy, the Executive Director of Solving Kids' Cancer. "The case study highlights the potential therapeutic progress that can be made against neuroblastoma, and brings hope to patients and their families in finding a lasting cure."

Provided by Solving Kids' Cancer

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