

Pox vaccines extend survival for patients with melanoma, ovarian cancer

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An immunotherapy regimen incorporating poxviruses and targeting a particular tumor antigen, NY-ESO-1, has shown promise in treating two types of cancers. Kunle Odunsi, MD, PhD, Chair of the Department of Gynecologic Oncology and Director of the Center for Immunotherapy at Roswell Park Cancer Institute (RPCI), Elke Jäger, MD, Head of the Department of Oncology and Hematology at Krankenhaus Nordwest, Frankfurt, and colleagues today published results from two studies testing this approach in *PNAS*, the *Proceedings of the National Academy of Sciences*.

Basing their work on a phase I trial that showed that poxviruses can be safely and effectively incorporated into immune-based [cancer](#) therapies, Dr. Odunsi, Dr. Jäger and their co-authors conducted two parallel phase II clinical studies using modified versions of the smallpox and fowlpox viruses, engineered to express NY-ESO-1, in patients with ovarian cancer and melanoma.

In the two studies, which involved 25 melanoma patients and 22 patients with ovarian cancer, all at high risk for recurrence or progression of disease, participants were injected with a “prime and boost” regimen: the re-engineered smallpox vaccine, followed by a fowlpox booster vaccination. The treatment extended average patient survival several months in both groups, leading the authors to conclude that further evaluation of this approach is warranted in these two patient populations.

“The strategy takes advantage of the fact that the immune system sees the viruses as foreign invaders and mounts an attack against the virus. At the same time the immune system is trying to fight the virus, it also mounts a reaction against NY-ESO-1, so the body develops immunity against this particular protein,” said Dr. Odunsi, noting that the most pronounced effects were seen in those patients who mounted an immune response against NY-ESO-1.

The [ovarian cancer](#) and melanoma trials were part of several cancer immunotherapy studies conducted at RPCI and Krankenhaus Nordwest under the auspices of the Cancer Vaccine Collaborative (CVC). The CVC is an international network of clinical trial sites and immunological monitoring laboratories coordinated and supported jointly by the Cancer Research Institute and the Ludwig Institute for Cancer Research. Through centralized, systematic studies of immune system-based cancer therapies, including NY-ESO-1 vaccines, the CVC and its member investigators are learning how to optimize this new class of cancer treatments. The results from both the RPCI study led by Dr. Odunsi and the Krankenhaus NW study led by Dr. Jäger highlight the potential of prime/boost vaccines targeting the NY-ESO-1 cancer antigen to stimulate robust antigen-specific anti-tumor immune responses.

More information: The study, “Efficacy of vaccination with recombinant vaccinia and fowlpox vectors expressing NY-ESO-1 antigen in ovarian cancer and melanoma patients,” is article 201117208 on the PNAS website, www.pnas.org.

Provided by Roswell Park Cancer Institute

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