

# Chemotherapy might help cancer vaccines work

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Chemotherapy given in conjunction with cancer vaccines may boost the immune system's response, potentially improving the effectiveness of this promising type of cancer therapy, according to a study by researchers in the Duke Comprehensive Cancer Center.

“Chemotherapy first knocks out T regulatory cells that suppress immune function and we speculated that this might have a complementary effect when used in conjunction with vaccines, which work by boosting immune function,” said Timothy Clay, Ph.D., a researcher at Duke and a lead investigator on this study. “We tested this theory both pre-clinically and in patients who were part of a vaccine trial at Duke for gastrointestinal cancers, and found that our hypothesis seemed to be true.”

The researchers will present their findings at the annual American Society of Clinical Oncology meeting in Chicago, on May 31. The study was funded by the National Cancer Institute.

Researchers used a drug called denileukin diftitox (ONTAK) for this study; the drug is routinely used to treat a type of lymphoma and is known to deplete certain types of immune cells including the T regulatory cells that “put the brakes” on immune function. They speculated it might facilitate better immune responses to a cancer vaccine.

“In the lab work, we definitely saw a heightened immune response when

we used the denileukin diftotox in conjunction with the vaccine. The vaccine we used targets a protein found in gastrointestinal tumors and works by boosting immune response to the cells carrying that protein,” Clay said. “From there, we gave the drug to 15 patients in a phase I study using the vaccine.”

The researchers found that when multiple doses of the denileukin diftotox were given, immune response to the vaccine was enhanced in these patients.

“This is encouraging. The next step will be to develop better drugs that support vaccines by enhancing the immune response they depend on to work,” Clay said. “It’s a concept that can be applied to any type of solid tumor, which has huge implications for cancer research.”

Vaccines are being used in clinical trials across the country to treat many malignancies, including lung cancer, brain tumors and colorectal cancer.

Source: Duke University Medical Center

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