

Novel brain tumor vaccine acts like bloodhound to locate cancer cells

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A national clinical trial testing the efficacy of a novel brain tumor vaccine has begun at Wake Forest Baptist Medical Center, the only facility in the Southeast to participate.

The vaccine will be tested in patients with newly diagnosed glioblastoma multiforme (GBM), the most aggressive and highest grade malignant glioma. Wake Forest Baptist will treat a minimum of 25 patients in this randomized, placebo-controlled phase II clinical trial of ICT-107. A total of 20 sites across the country are participating in the trial to test the safety and efficacy of this novel [cancer vaccine](#).

All patients enrolled in the study will receive the current standard treatment for GBM, which includes surgery followed by radiation and chemotherapy. Two thirds of the participants will then also get the [experimental vaccine](#) treatment, which will be administered in the post radiation phase of treatment, while the others will get a "dummy," or placebo vaccine in addition to standard therapy.

"This vaccine is for newly-diagnosed patients," said Glenn Lesser, M.D., a professor of [internal medicine](#), hematology-oncology, at Wake Forest Baptist and principal investigator for the study. "Scientifically, it's a very well designed study and we are excited to participate in this clinical trial. We've been asked to participate based on our reputation as an outstanding brain tumor center and the expertise our center has with bringing novel therapies and novel therapeutics to patients."

The approach with this particular vaccine is unique, Lesser added, because it is targeting the antigens or proteins that are present on glioma stem cells, whereas other treatment approaches mostly target differentiated [tumor cells](#).

"The antigens used in this vaccine target the tumor stem cells – the handful of cells that keep the tumor alive and dividing. Most of the cells we kill with standard treatment are likely not the ones driving the tumor growth. If the [stem cells](#) aren't targeted, they keep generating more tumors."

According to the biotechnology company that is conducting the trial, the Phase I clinical study of ICT-107 in GBM involved 16 newly-diagnosed patients who received the vaccine in addition to standard therapy – surgery, radiation and [chemotherapy](#). Those patients demonstrated a one-year overall survival of 100 percent and a two-year survival of 80 percent. Although only a small number of patients were treated, these results compare favorably with historical 61percent one-year and 26 percent two-year survival with standard care alone.

Vaccines for [brain tumors](#) are new and experimental, said Lesser, but are gaining more attention in the glioma world.

"Vaccines are a way to harness the body's own defenses – which are usually used to ward off or control infections like the flu – to fight [cancer cells](#) instead," Lesser explained. "It is a way of presenting [antigens](#) or proteins normally found on the surface of the cancer cells to the immune system so that immune cells can seek out and kill those cancer cells anywhere in the body. This is not unlike giving a piece of clothing to a bloodhound and then letting it loose to find a missing person."

Wake Forest Baptist is also involved in another brain [tumor vaccine](#) trial

for patients with low-grade or slower growing gliomas. Among the targets of both of these vaccines is a new protein found on the surface of glioma cells discovered by Waldemar Debinski, M.D., Ph.D, director of the Wake Forest Baptist Brain Tumor Center of Excellence.

"Early studies of vaccines for patients with brain tumors are showing promising results," Lesser said. "We want to help definitively determine how good these novel therapies really are for patients."

Provided by Wake Forest Baptist Medical Center

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