

Innovations in Immunotherapy

A Phase 1 study on customized immunotherapy shows promise for people with lung cancer.

September 14, 2020 By [Liz Highleyman](#)

Promising data on two new types of immunotherapy were presented at the American Association for Cancer Research virtual annual meeting.

A Phase I study by Ben Creelan, MD, of Moffitt Cancer Center in Tampa, evaluated tumor-infiltrating lymphocytes (TILs)—immune cells with known cancer-fighting ability—in people with metastatic non-small-cell lung cancer. The treatment, known as lifileucel, was previously shown to help people with advanced melanoma, but lung cancer has not responded as well to immunotherapy.

Using a process known as autologous adoptive cell transfer, T cells with a natural ability to attack cancer were collected from patients' tumor biopsy samples, multiplied in a lab and infused back into the same individual. Participants also received the checkpoint inhibitor Opdivo (nivolumab) and a cytokine that encourages T-cell proliferation.

Among the 12 evaluable treated patients, 25% saw their lung tumors shrink, including two people with ongoing complete remission for about a year so far. If an additional patient awaiting a follow-up scan also turns out to have a confirmed response, the overall response rate will rise to 33%.

Another Phase I study showed that combining a personalized cancer vaccine with the checkpoint inhibitor Tecentriq (atezolizumab) led to tumor-specific immune responses in a majority of patients with various solid tumors, including non-small-cell lung cancer, melanoma, triple-negative breast cancer and bladder cancer.

To produce the vaccine, dubbed RO7198457, a patient's tumor and blood samples are sequenced and up to 20 tumor-specific proteins known as neoantigens are identified. Messenger RNA from these proteins is then administered to the same individual to trigger an immune response against their cancer.

Blood tests from a subset of study participants found that nearly three quarters showed T-cell responses against the neoantigens in their customized vaccines. Among the 108 patients who had at least one tumor assessment, nine (8%) responded, including one colorectal cancer patient with a complete response. Another 49% had stable disease without further progression.

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