Lung Cancer Breakthroughs

Checkpoint inhibitors can restore T-cell activity, but they don’t work for everyone.

June 18, 2018 By Liz Highleyman

Immunotherapy for advanced lung cancer was the big news at the American Association for Cancer Research annual meeting in April, with major studies yielding data that researchers called “practice-changing.”

Some tumors can turn off T cells by hijacking immune checkpoints, proteins that regulate immune function. Checkpoint inhibitors can release the brakes and restore T-cell activity. But they don’t work for everyone and experts don’t yet know why.

A combination of two checkpoint inhibitors, the PD-1 blocker Opdivo (nivolumab) and the CTLA-4 inhibitor Yervoy (ipilimumab), delayed cancer progression in previously untreated people with metastatic or recurrent non-small-cell lung cancer (NSCLC) and a high tumor mutation burden, meaning their cancer had accumulated many genetic changes. In the CheckMate-227 trial, 43 percent of participants using the combo were still alive without disease progression after one year, compared with 13 percent of those who used standard chemotherapy.

Other studies showed the benefits of using checkpoint inhibitors together with chemotherapy.

In KEYNOTE-189, people with newly diagnosed metastatic lung cancer who used the PD-1 inhibitor Keytruda (pembrolizumab) with Alimta (pemetrexed) and platinum chemotherapy reduced their risk of death by 51 percent and delayed disease progression by about four months. Estimated one-year overall survival rates were 69 percent for Keytruda recipients versus 49 percent for those who used chemotherapy alone.

IMpower150 showed that first-line treatment with the PD-L1 blocker Tecentriq (atezolizumab) plus Avastin (bevacizumab) and platinum chemotherapy lowered the risk of disease progression or death by 38 percent compared with chemotherapy alone in people with advanced NSCLC.

In all these studies, participants with certain biomarkers saw greater benefits, highlighting the need to learn how to match patients with the treatment that is most likely to work for them.

© 2026 Smart + Strong All Rights Reserved.