



# IMMUNOTHERAPY

*“THE POWER WITHIN”*

*It might sound obvious:  
Harness the Immune System to fight cancer.*

However, it's not that simple, and believe it or not, immunotherapy is a more recent, cutting edge approach to cancer research that is garnering medical journal and media attention. It is gaining steam based on optimistic results that have led to an infusion of investment from pharmaceutical companies, philanthropists, as well as the federal government's "cancer moonshot" program.

Clinical trials focused on immunotherapy, either alone or in combination with other drugs, now number in the hundreds and are underway for nearly every cancer type.

The immune system is primarily made up of a network of cells and tissues, and its role is to defend the body against viruses, bacteria and other invaders. However, cancer is cunning and often finds ways to hide from the immune system, or block its ability to attack. Immunotherapy is an innovative and exciting approach to fighting cancer because it enhances the immune system's ability to pull cancer out of hiding, and recognize it as a threat. In turn, our bodies become the best fighting machines possible.

One form of immunotherapy that researchers are pursuing removes some of the patient's immune cells, alters them genetically to kill cancer, and then infuses them back into the bloodstream. When standard treatment has failed, this immunotherapy can create long

term remission in adults and children with deadly forms of leukemia or lymphoma.

Another more common approach involves drugs that do not have to be tailored to each patient. These drugs block the mechanisms that are shutting down a patient's immune system. The drugs are called checkpoint inhibitors, and have been approved by the FDA to treat advanced melanoma, Hodgkin's lymphoma and cancers of the lungs, kidneys and bladder. With positive results and highly publicized successes like Jimmy Carter's, patients and doctors alike are hopeful that the approved drugs and those currently in the pipeline will provide an effective weapon for challenging cancer diagnoses.

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There are, of course, still many unanswered questions. Immunotherapy only works in a minority of patients, and the reasons why are still elusive. For many patients, the treatment does not work at all, or it works for a while and then stops. There may be other checkpoints that play a role and have yet to be discovered.

Still, checkpoint inhibitors are becoming more widely explored, and are offering hope for advanced cancers where standard chemotherapy has not been effective. Tower proudly supports researchers investigating "the power within" our own immune system. The investments of today may lead to new treatments tomorrow.