

THE CANCER INSTITUTES AT NORTHWESTERN MEDICINE

CANCER IMMUNOLOGY INSTITUTE





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The Robert H. Lurie Comprehensive Cancer Center of Northwestern University is launching the **Cancer Immunology Institute** to help support and propel its next phase of breakthroughs in oncology – all for the benefit of patients and families in Chicago and across the globe.

Through the Cancer Immunology Institute, we will have the opportunity to recruit superb, nationally recognized scientists to join our dedicated investigators. Together, they will lead cancer immunology efforts that help to define the immune mechanisms involved in the development (pathogenesis) and progression (pathophysiology) of various forms of cancer.

An Innovative Approach to Fight Cancer

Working in concert with the Lurie Cancer Center's basic science experts in cancer genetics and developmental therapeutics, this Institute has the potential to develop innovative immune therapies that will be effective in stimulating the immune systems of patients to fight different types of cancer. Cell-based targeted immunotherapy is a novel approach that uses a patient's own genetically modified immune cells, known as T-cells. The cells are removed and reprogrammed, potentially allowing them to target and kill malignant cells. Once re-infused into the patient's body, the T-cells recognize and bind to the cancerous cells, activate themselves, and destroy the cancer.

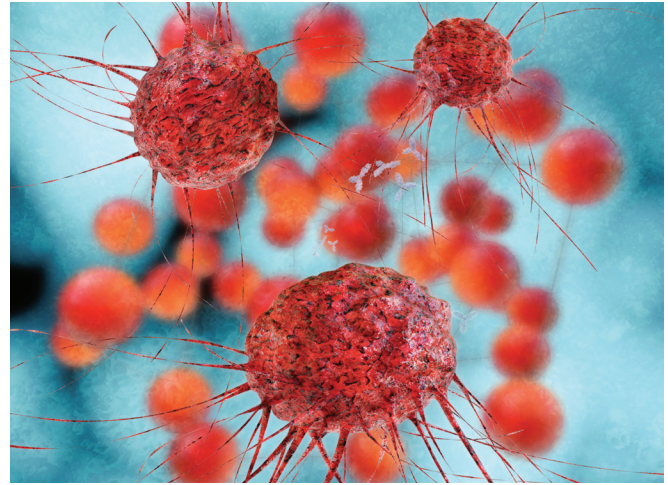
The timing of the Institute is ideal as the Lurie Cancer Center moves forward with bold ambitions for its Northwestern Onco-SET and Translational Bridge programs. Through Northwestern Onco-SET (Sequence, Evaluate, Treat), the Lurie Cancer Center will become the first academic cancer center in the Chicago area and one of a handful of cancer centers in the nation to couple oncology and genomics to provide personalized medicine to patients with tumors, especially those tumors that are resistant to currently available therapies. Onco-SET will contribute to the progress of the Cancer Immunology Institute by obtaining new information about immune targets as it also helps to obtain crucial information about abnormalities in different tumors and their potential drug targets.

The Translational Bridge Program will catalyze the creation of interdisciplinary research teams and their ability to join forces, empowering investigators to address the most urgent questions in the fields of cancer biology and oncology—including cancer immunology—in daring and innovative ways. Through the Bridge Program, teams comprising a senior research scientist, a practicing clinician, and the Bridge Fellow will work together to heighten the impact of bench-to-bedside translational research by focusing on deep and rigorous basic science concepts. Cancer immunology research and its translation to the patient care setting will be the focus of several Bridge teams at Northwestern.



“Through the Lurie Cancer Center’s Cancer Immunology Institute, we will have the opportunity to recruit superb, nationally recognized scientists to join our dedicated investigators in leading cancer immunology efforts that help to define the immune mechanisms involved in the pathogenesis and pathophysiology of various forms of cancer.”

Leonidas Platanius, MD, PhD, Director of the Robert H. Lurie Comprehensive Cancer Center of Northwestern University and Jesse, Sara, Andrew, Abigail, Benjamin and Elizabeth Lurie Professor of Oncology



A Breakthrough Vaccine for Aggressive Brain Cancer

Dr. Andrew Parsa's investigations represent a compelling example of breakthrough cancer immunology efforts at Northwestern Medicine. Dr. Parsa is the Michael J. Marchese Professor of Neurological Surgery and chair of the Department of Neurological Surgery. Through his ingenuity and foresight, Dr. Parsa determined that he could severely weaken a glioblastoma multiforme tumor, a particularly aggressive form of brain cancer, by turning the cancer against itself. This type of brain tumor often returns in patients, even when the tumor is successfully removed. Patients with this type of tumor usually live only a year.

Using the latest approaches in cancer immunology, Dr. Parsa began working on a vaccine based on isolating specific antigens in a surgically removed specimen of the patient's tumor. Antigens are toxins or other foreign substances that induce an immune response in the body. According to Dr. Parsa, there was really no vaccine in existence that was made from a specimen taken directly from the patient. Previous vaccines were created artificially in petri dishes. This difference is what makes Dr. Parsa's vaccine effective. "You can actually see activated T-cells [white blood cells that help fight disease] that didn't exist there before. For me, that was a big 'aha' moment. I literally could not believe no one else had done this before," said Dr. Parsa in a Chicago Magazine interview (January 2015). In a trial of his vaccine, half of the patients lived for two years—a tremendous improvement.

The National Cancer Institute has awarded significant funds to Dr. Parsa and his team to support the largest

randomized clinical trial of a brain tumor vaccine in the organization's history. The challenge now is to address the reality that the supply of the patient-specific vaccine is eventually depleted. "The next step is trying to figure out how to make the vaccine last for as long as the patient would normally live. In the next 10 years, what I'd love to see is that any patient who has a tumor removed at Northwestern get a vaccine made out of that tumor, and within two weeks have that vaccine given back to them," Dr. Parsa said. "Any patient—breast cancer, colon cancer, pancreatic cancer, prostate cancer, any cancer. That's my goal."

Measures of Success

The Cancer Immunology Institute and its members will measure their impact and success by the quality and number of clinical trials the Institute develops and leads nationally in the realm of cancer immunology. The goal is to receive competitive awards for these groundbreaking studies from the National Cancer Institute and other funders and to offer patients hope through these newly available piloted approaches to treatment.

As a priority and centerpiece for the future of the Lurie Cancer Center, the Cancer Immunology Institute will be provided dedicated space for the Institute's director and team within the Robert H. Lurie Medical Research Center as well as the planned Biomedical Research Building on our Chicago campus. With the reach of the Translational Bridge program, laboratories across Northwestern University will pursue the latest in cancer immunology studies to accelerate discoveries.

THROUGH NORTHWESTERN MEDICINE, WE ARE CREATING A NATIONAL EPICENTER FOR HEALTHCARE, EDUCATION, RESEARCH, COMMUNITY OUTREACH, AND ADVOCACY.

NORTHWESTERN MEDICINE

Northwestern Memorial HealthCare and Northwestern University Feinberg School of Medicine are seeking to impact the health of humankind through Northwestern Medicine. Our commitment to transform healthcare and to be among the nation's top academic medical centers will be accomplished through innovation and excellence. At the Lurie Cancer Center, we recognize that every positive contribution we have made to cancer care, research, and education has been made possible by generous donors who have entrusted us with their philanthropic support. We invite loyal donors and interested friends to join us in advancing our Cancer Immunology Institute vision. Your gifts of outright support and endowment will provide the resources we need to introduce breakthroughs that will improve the diagnosis and treatment of people living with cancer today and in the future.

About the Lurie Cancer Center

- The Robert H. Lurie Comprehensive Cancer Center of Northwestern University—one of 50 National Cancer Institute-designated Comprehensive Cancer Centers in the nation—is committed to being a national leader in the battle to overcome cancer.
- Recognized as a national leader in cancer treatment, the Lurie Cancer Center supports care for a broad range of cancer types through comprehensive research; distinguished and dedicated faculty and staff; a world-class teaching program; and ongoing advances in medical, surgical, radiation, and interventional oncology.
- We are a founding member of the National Comprehensive Cancer Network (NCCN): an alliance of 27 of the nation's leading cancer centers dedicated to improving the quality, effectiveness, and efficiency of cancer care so that patients can live better lives.
- Northwestern's Lurie Cancer Center is a founding member of the Big Ten Cancer Research Consortium, which collaborates on oncology clinical trials that leverage the scientific and clinical expertise of the Big Ten universities.
- The Lurie Cancer Center has established major research strengths in breast, genitourinary, gastrointestinal, aerodigestive, neurologic, and gynecologic cancers; hematologic malignancies, sarcoma, melanoma, cutaneous lymphoma, and pediatric oncology.
- Our research programs in hormone action/signal transduction, angiogenesis, gene regulation, biologic therapies, mathematical modeling, and nanotechnology are nationally and internationally recognized.
- Our outstanding basic, translational, and clinical research complements a full range of prevention, early detection, treatment, rehabilitation, and palliative care programs for all types of cancer.
- Our nationally recognized supportive oncology programs and survivorship specialty clinics include fertility preservation services for young adult cancer survivors.



Learn more about the Lurie Cancer Center's patient care, services and programs, research and education, clinical trials, and faculty at cancer.northwestern.edu.

