

THE RADIOIMMUNOTHERAPY INITIATIVE AT SYLVESTER

The Radioimmunotherapy Initiative at Sylvester Comprehensive Cancer Center is a collaborative research program that brings together world-class radiation oncology treatment and scientific leaders in immunology. Through this Initiative, Sylvester will develop new drugs that dramatically improve on existing anti-cancer therapies.

While radiation therapy is highly effective for treating many cancer types, in some instances, cancer recurs because of cells that were hidden from the radiation treatment beam. If left untreated, a patient can relapse. The immune system plays a vital role in finding and eliminating these harmful cells that could potentially cause cancer to recur. There is emerging evidence that drugs termed antibodies can enhance the body's own immune system to improve on current radiation outcomes. Targeting cells with radiation therapy improves the immune system's ability to identify cancer cells, making it more difficult for these cells to hide from the immune system in other parts of the body. New treatment methods that combine radiation therapy with immunotherapy antibodies to find and kill these hidden cells will substantially improve patient survival.

Radioimmunotherapy is a cutting-edge technology that harnesses the potential of a patient's immune system to fight cancer cells by improving tumor control and limiting the ability of the cancer cells to hide throughout the body.

The goal of the Radioimmunotherapy Initiative is to develop the next generation of novel immunotherapy drugs that can be used with radiation. These drugs represent a quantum leap in technology over existing therapies. Our group is actively developing novel DNA/RNA based agents called "aptamers" that can be used in combination with radiation to target immunotherapy antibodies directly to tumors, avoiding normal organs. This approach is less toxic, faster, and potentially more effective than existing immune stimulating technology. Our team is pioneering research efforts to show that combining these agents with high dose radiation dramatically improves tumor control over existing strategies.

The Initiative aims to rapidly translate these exciting novel agents into the first phase of clinical trials, allowing Sylvester to continue the development of these agents to potentially improve outcomes for all cancer patients.



Adrian Ishkanian, M.D., MSc
Assistant Professor of Radiation Oncology

PROVEN SCIENTIFIC ENTREPRENEUR

Adrian Ishkanian, M.D., MSc, earned his Biology degree at Cornell University, then later focused on genomics research at the University of British Columbia (UBC). This research led to the development of the first DNA microarray with complete coverage of the human genome, as published in *Nature Genetics* in 2004. Dr. Ishkanian completed medical school at UBC while leading the genomic microarray facility at the British Columbia Cancer Research Center. After graduation, Dr. Ishkanian moved to Toronto for his residency where he worked in the laboratory of Dr. Robert Bristow, a world leader in prostate cancer research. This work led to the development of a prognostic test for risk stratification in prostate cancer, which was published in the prestigious journal *Lancet Oncology* in 2014.

Dr. Ishkanian's current work at the University of Miami Miller School of Medicine and Sylvester Comprehensive Cancer Center in collaboration with Dr. Eli Gilboa, is pioneering the use of aptamer technology for delivery of monoclonal antibody based immunotherapy. He believes this work has great potential to improve outcomes for cancer patients by improving the efficacy and reducing toxicity of these agents. Dr. Ishkanian has an exceptional aptitude for and interest in research and treatment of both lung and prostate cancer.

"Radiation Oncology is a discipline that grants its practitioners the rich opportunity to do both clinical work and research. The ability to maintain relationships with patients from diagnosis through remission and for years afterwards makes our specialty truly rewarding. Having a lasting connection with patients is the most important part of my practice." - Dr. Ishkanian

BECOMING A LEADER IN INNOVATION AND DISCOVERY

The Radioimmunotherapy Initiative will carry forward Sylvester's strong tradition of excellence in research and clinical care. In fact, Sylvester's care outperforms the national average in terms of patient outcomes and keeps pace with the nation's top cancer centers in New York and Texas.

Behind the statistics stands a dedicated team of physicians and clinical researchers such as Dr. Ishkanian and Dr. Gilboa. Under their leadership in the areas of Radiation Oncology, Interdisciplinary Immunotherapy, Tumor Immunology, and Microbiology & Immunology, the Initiative will accelerate the discovery, development, and delivery of more effective treatment options for our patients.

To realize this ambitious goal, Sylvester must invest in the basic science and translational research. Strategic philanthropy will provide start-up capital critical to launching the Initiative - supporting laboratory supplies and pre-clinical testing, the development of lead drug optimization, human grade synthesis, and clinical trial implementation.

A UNIQUE PHILANTHROPIC OPPORTUNITY

Your support will allow Sylvester's researchers to develop the optimal strategies for radioimmunotherapy treatments. Basic research and pre-clinical testing are currently required to validate these findings and position Sylvester to be the first to bring these agents to human clinical trials. If successful, this method will be applied to a broad range of cancers.

Philanthropic partnerships fuel the development and validation of new drugs, filling a vital gap in funding for translational research. Further, they provide "seed" funding for patent applications on this new technology, which can later be licensed for large-scale clinical application. Generous donations will allow us to build a foundation for future immunotherapy trials, secure better outcomes, and renew hope for many of Sylvester's cancer patients.

Over the next four years, Sylvester Comprehensive Cancer Center will require approximately \$3.8 million to take this research from the bench to the bedside.



For more information, please contact:

Sylvester Comprehensive Cancer Center
University of Miami Miller School of Medicine
Office of Advancement

Yolanda Hernandez
Development Director, Major Gifts

305-243-9146

