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For immediate release:

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Editors note: Research, new techniques and improved facilities by Philadelphia International Medicine hospitals and physicians may lead to new ways to treat some of our most challenging diseases. Below are just some examples from our hospitals.

Internationally Renowned Transplant Surgeon Yoshiya Toyoda, MD, PhD, Joins Temple

Philadelphia—Yoshiya Toyoda, MD, PhD, has joined Temple University Hospital as vice chief of Cardiothoracic Surgery, surgical director of Heart and Lung Transplantation, and surgical director of Mechanical Circulatory Support. He has also been named professor of surgery at Temple University School of Medicine.

Dr. Toyoda comes to Temple from the University of Pittsburgh School of Medicine, where as the division chief of Cardiothoracic Transplantation, he oversaw one of the largest and most successful heart and lung transplant programs in the country.

Over the past eight years, Dr. Toyoda has performed more than 450 heart, lung and heart-lung transplants. He pioneered the antero-axillary approach in lung transplantation, a new minimally invasive form of surgery that avoids many complications of the standard double-lung procedure. He also helped to perform the first beating heart transplant in the U.S., a technique involving ex-vivo perfusion of the donated heart, and he has also reported on many innovative combination procedures during transplant to help patients avoid common complications or to manage concomitant diseases.

“Dr. Toyoda's nationally renowned talent and experience as a transplant surgeon make him ideally suited to help lead the reactivation of both the lung and heart transplant programs here at Temple,” said T. Sloane Guy, MD, MBA, associate professor of Surgery and chief of Cardiothoracic Surgery at Temple University Hospital, in announcing his appointment. “I am confident that his clinical and research expertise will prove invaluable in the reactivation and long-term success of both of these important clinical programs.”

“I am excited to join the Temple surgical team where I plan to offer a compassionate, collegial, multidisciplinary team approach together with the existing faculty, and the cutting-edge surgical techniques to our patients with advanced cardiopulmonary diseases,” Dr. Toyoda said. “My initial focus will be on reactivating the Heart and Lung Transplant programs. My team and I are looking forward to working with the cardiologists, pulmonologists, cardiac anesthesiologists, perfusionists, nurses and coordinators to develop an excellent program where we offer highest quality patient care for end-stage cardiopulmonary diseases.”

Dr. Toyoda began his academic career at the University of Pittsburgh as a clinical instructor of Cardiac Surgery, rising through the ranks to eventually become the division chief of Cardiothoracic Transplantation.

He earned his medical degree and his doctorate at Kobe University School of Medicine in Japan. He then completed his general surgery and cardiothoracic surgery residency at Kobe University Hospital, followed by a year as pediatric cardiac surgeon at Kobe Children’s Hospital.

Dr. Toyoda then embarked on a cardiothoracic surgery research fellowship and a clinical fellowship at Harvard Medical School before finishing a fellowship in cardiothoracic transplant/ventricle assist device at the University of Pittsburgh School of Medicine.

He has written several book chapters and has published over 300 abstracts and articles in peer-reviewed publications. He has mentored over 40 cardiothoracic residents, fellows, researchers and observers from all over the world.

Dr. Toyoda is a member of numerous professional societies, including the American Association for Thoracic Surgery, Association for Academic Surgery, American Society of Transplantation, American Society of Transplant Surgery, American Thoracic Society, International Society for Heart and Lung Transplantation, Society of Thoracic Surgeons, American Heart Association – Council on Cardio-Thoracic and Vascular Surgery, Japanese Association for Thoracic Surgery, and the Japanese Surgical Society.

Circulating Tumor Cells Not Linked to Survival in Women Newly Diagnosed with Inflammatory Breast Cancer

The presence of circulating tumor cells in the blood appears to have no relationship to survival in women who have just been diagnosed with inflammatory breast cancer, according to new research from Fox Chase Cancer Center. The research shows however, that these stray tumor cells may signal that the disease has spread to other parts of the body, even before imaging reveals any metastases.

If a woman is diagnosed with inflammatory breast cancer, a particularly fast-growing form of the disease, doctors should consider close imaging to monitor and possibly continue aggressive treatment if

she also has circulating tumor cells (CTCs), regardless of what imaging shows, recommends study author Massimo Cristofanilli, MD, FACP, chair of the department of Medical Oncology at Fox Chase. “You should be careful before stopping treatment in someone who has evidence of circulating cells, particularly when dealing with a disease like inflammatory breast cancer, which can progress rapidly.”

Previous research by Dr. Cristofanilli and his colleagues found that the number of stray cancer cells circulating in the blood is the best predictor of both how long a woman with metastatic breast cancer will live and the amount of time until her cancer progresses. But the researchers have also found that the presence or lack of CTCs has little to say about prognosis in women with metastatic inflammatory breast cancer, an aggressive disease with extremely poor outcomes in spite of multidisciplinary modality treatment.

During the current study, Dr. Cristofanilli and his team reviewed the records of 84 women who had just learned they have inflammatory breast cancer, either in stage III or stage IV. A total of 64 (76.2%) women had at least 1 CTC and 29 (34.5%) had at least 5. The researchers found that women with no CTCs had comparable survival and spent the same amount of time progression-free as women with one or more CTCs. The results suggest that there is little prognostic value in measuring CTCs in women newly diagnosed with inflammatory breast cancer.

It’s not clear why CTCs appear to be linked to prognosis in some forms of cancer but not others, says Dr. Cristofanilli. Inflammatory breast cancer is already an aggressive disease, he says, so compared to other forms of breast cancer whether or not cells have broken off and entered the blood may say little more about an otherwise already aggressive disease.

Inflammatory breast tumors are typically fast-growing, and travel quickly to lymph nodes and the brain. During follow-up in the current study, which lasted more than twenty-two months for half of patients, more than thirty percent of the entire group had died.

Perhaps “the most important finding from the study,” says Dr. Cristofanilli, is that more than three-quarters of women who just learned they have inflammatory breast cancer had CTCs that can be detected in the blood. In comparison, he adds, only fifteen percent of women with non-inflammatory breast cancer typically have CTCs. “So there is a huge difference in inflammatory breast cancer and other forms of breast cancer.” These stray tumor cells, therefore, may indicate something about inflammatory breast cancer, he reasons, perhaps serving as an early sign that it has already spread. Indeed, only approximately one-third of women with inflammatory breast cancer have detectable metastases at diagnosis, but sixty percent will eventually develop them.

Currently, says Dr. Cristofanilli, doctors primarily measure CTCs in women with metastatic disease, since a decrease in CTCs can signal that treatment is working. But given that most women with inflammatory breast cancer are likely metastatic at the time of diagnosis, this test could serve another

purpose – to guide doctors towards more aggressive and prolonged forms of treatment, says Dr. Cristofanilli. “If women with inflammatory breast cancer have CTCs, perhaps we should continue to treat them as if they have already established metastatic breast cancer, even if imaging does not show metastases.”

When Standard Treatment Fails: Jefferson to Start Unique Immunotherapy for Brain Tumor Patients

Physicians at the [Jefferson Hospital for Neuroscience \(JHN\)](#), the region’s only dedicated hospital for neuroscience, are tackling a particularly aggressive brain cancer that even surgery, chemotherapy and radiation often fail to treat with a promising new immunotherapy to attack a patient’s tumor with their own cancer cells.

Starting as early as January, the first of 12 patients diagnosed with a malignant astrocytoma from a clinical trial led by [David W. Andrews, M.D.](#), co-director of the [Brain Tumor Center of the Kimmel Cancer Center](#) at JHN, will receive a “cancer Trojan horse” that could significantly shrink their tumor and possibly extend their life.

Considering patients with malignant astrocytomas rarely live past four months, a new treatment method is highly needed.

Here’s how the immunotherapy works. The patient’s cancer cells are removed during surgery and then treated with a type of therapy that turns off a growth factor receptor, which plays a critical role in cell survival. Without it, cancer cells die.

Those same cells are then placed in a diffusion chamber (to keep the cells from spreading back into the body), re-implanted back into the patient within a day and then retrieved up to two days later—this is what makes it stand out from other immunotherapies. During their time in the body, those reinserted, extracted tumor cells communicate a message to the other tumor cells to die—and tell the body’s immune system to help do it.

The clinical trial comes off the heels of successful animal research and a [pilot study at Jefferson](#) that uncovered its benefits ten years ago. In that study, eight of ten patients treated with the immunotherapy had significant tumor shrinkage, with regression on a MRI. One man survived for eight years with no further treatment.

“The preclinical work and our own pilot study tell us that this novel treatment could have a significant impact on these cancer patients who don’t have many options,” Dr. Andrews said.

In the procedure, a patient’s glioma cells are treated with an antisense therapy known as “18-mer type 1 insulin-like growth factor receptor antisense oligodeoxynucleotide” before they are placed back in

the body. Antisense therapy is designed to target genes involved in cancer progression and came in to use 10 years ago.

Jefferson's approach differs from other immunotherapy strategies, with many advantages, Dr. Andrew said. In this design, the antigen (the treated cancer cells) is released slowly over a 24-hour period enabling many waves of immune cells known as dendritic cells to take up antigen and migrate to nearby lymph nodes, leaving no antigens for replacement dendritic cells. The most popular current approach involves injecting the patient's own dendritic cells as a single episode of inoculation—a one and done.

“We feel that our approach will yield a very successful immunotherapy for these patients and perhaps other cancer patients as we open this trial,” he said. “The previous data and our new Phase I clinical trial will hopefully guide us towards new standards of care.”

Dr. Andrews will lead the new Phase I clinical trial, which will investigate the safety and feasibility of the immunotherapy, as well as progress in the 12 patients.

Jefferson, which has an annual tumor volume that exceeds 1,000 cases, making it the busiest brain tumor practice in the tri-state area, is known for its leading clinical trials. That includes participation in a national tumor bank devoted to the genetic analysis of brain tumors (the TCGA project) and a slew of trials testing new combinations of chemotherapy and radiation therapy for the treatment of a variety of brain cancers.

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