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Fundamental Science Can Transform Cancer Care Worldwide

By Fadlo R. Khuri, MD, Deputy Director, Winship Cancer Institute of Emory University

The theme of this year's World Cancer Day (Feb. 4), "Not Beyond Us," highlights solutions that are within our reach. In that spirit, we celebrate 2014 as a landmark year for cancer research, discovery, treatment and prevention. Important progress was made in a number of areas: screening and prevention of cancers, development of novel targeted therapies for cancers, and immunotherapy of a number of previously resistant diseases. Over the past year, we saw at least a half dozen new approvals by the U.S. Food and Drug Administration (FDA) and the European Medicines Agency (EMA) of new, improved, potent targeted therapies, chemotherapies, and immunotherapies for cancer, whose impact is most acutely felt in societies in North America, Europe, Eastern Asia, Australia and South America. Our therapeutic resources have been significantly advanced by these discoveries, all of which spring from major biologic breakthroughs in the laboratory. What should the next steps be in ensuring that the powerful tools of genomic medicine, immunology, and molecular imaging continue to flourish and impact cancer patients worldwide? How do we make sure that personalized, precision medicine can be practiced to benefit oncology patients globally?

Fundamental to progress in cancer diagnosis, treatment and prevention is continued investment in fundamental cancer research. In a decade in which the growth of real federal funding for basic and translational research in cancer has slowed noticeably in the United States, this challenge has been counterbalanced on some levels by substantial increases in investment in basic and translational research in Asia (China and India in particular), Europe (Germany and Great Britain in particular), and Australia. Nonetheless, research conducted in United States laboratories remains the major driver of cancer discovery in the areas of genomics, immunology, and prevention, and in the translation of these discoveries from the bench to the bedside, aided by accelerated developments in the biotech and pharmaceutical world. Ongoing support for researchers in the fundamental sciences will ensure that these new discoveries will continue to substantially enhance our therapeutic and preventive arsenal against cancer. Fundamental science is vital to the global war against cancer.

As discoveries accelerate, and increasing numbers of affordable new treatment modalities are brought into the clinic, making an impact on diseases from Africa and Australia, through Asia and Europe, and all the way to the Americas, we must continue to support, guard, and mentor our treasure trove of outstanding scientists and clinical investigators. Over the next several decades, these individuals will be the key to sustaining and accelerating the major advances that are being made against cancer. Discoveries in the labs of outstanding scientists in basic immunology, genomics, glycomics and metabolomics, and in understanding the biologic behavior of normal, pre-malignant, and cancerous cells, pave the way for clinical translations that improve the prevention and therapy of our global population as a whole.



Fadlo R. Khuri, MD, chair of the Department of Hematology and Medical Oncology and deputy director of Winship Cancer Institute, will serve as Emory University School of Medicine's next executive associate dean of research. Khuri, who earned his medical degree from Columbia, holds

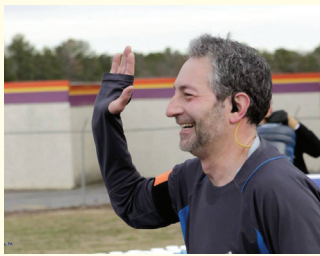
the Roberto C. Goizueta Distinguished Chair for Cancer Research and is Editor-in-Chief of the journal *Cancer*.

A leading researcher and physician in the treatment of lung and head and neck cancers, Khuri has conducted seminal research on oncolytic viral therapy, developed molecular-targeted therapeutic approaches for lung and head and neck tumors combining signal transduction inhibitors with chemotherapy, and has led major chemoprevention efforts in lung and head and neck cancers. Khuri's clinical interests include thoracic and head and neck oncology. His research interests include development of molecular, prognostic, therapeutic, and chemopreventive approaches to improve the standard of care for patients with tobacco related cancers. His laboratory is investigating the mechanism of action of signal transduction inhibitors in lung and aerodigestive track cancers.

Welcome

Binu C. Abraham, MBA, MHA is the new Senior Outreach Liaison. **Pam Bourbo**, MPH is the new Assistant Director of Clinical Trials. **Erin Clemons** is the new Program Coordinator for the Development team. **Stephanie Gitukui** is the new Research Administrative Coordinator.

Save the Date



Jean Khoury, MD at last year's race

The **Charles Harris 10K Run for Leukemia** will take place on Saturday, Feb. 21. Since its inception, the race has raised over \$1,000,000 for leukemia research at Winship. The race will start at Tucker High School and end at Druid Hills Middle School. For more information or to register for this race, please go to charlesharrisrun.com.

The 7th annual **Winship Oncology Nursing Symposium**: Advancing the Possibilities will be held Mar. 13-14 at the Marriott Evergreen Conference Center. For more information or to register please go to winshipcancer.emory.edu/events.

winshipcancer.emory.edu



Winship Research Featured in New ASCO Annual Progress Report



Curran

Ramalingam

Research studies from two Winship Cancer Institute experts are highlighted in the newly released Annual Report on Progress Against Cancer from the American Society of Clinical Oncology (ASCO).

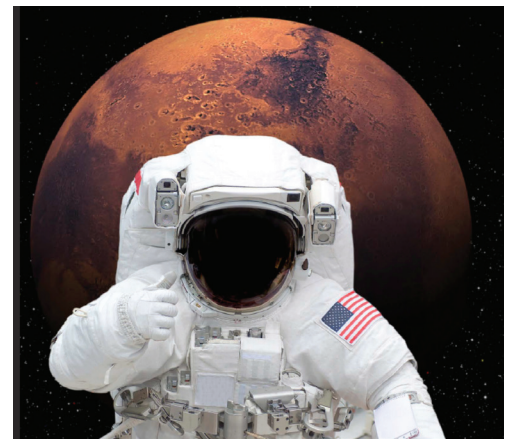
Walter J. Curran, Jr., MD, Winship's executive director and a radiation oncologist, is senior author of a paper featured in the report that shows survival is extended for certain patients with low grade brain tumors who are treated with a combination of chemotherapy and radiotherapy. The study, sponsored by the Radiation Therapy Oncology Group (RTOG, now under NRG Oncology's auspices), was presented last year at the 2014 ASCO Annual Meeting and published in abstract form in the *Journal of Clinical Oncology* (JCO). ASCO notes that combination therapy has proven "enormously effective against many types of cancer."

Suresh S. Ramalingam, MD, co-leader of Winship's Discovery and Developmental Therapeutics program and a lung cancer specialist, is second author of a featured study in the ASCO report that showcases the use and effectiveness of a specific targeted therapy in treating non-small cell lung cancer patients with a specific tumor mutation (EGFR). The results were also presented at the 2014 ASCO meeting and published in the JCO in abstract form. ASCO points out that targeted therapy offers "new hope for overcoming treatment resistance in lung cancer."

ASCO created the annual report ten years ago to document the progress being made in clinical cancer research and highlight emerging trends in the field. ASCO declared the Advance of 2014 to be in gains in the treatment of chronic lymphocytic leukemia (CLL).

Dynan Lab Receives NASA Grant

Winship member **William S. Dynan, PhD** and the Dynan lab have been awarded a 3-year, \$1.15 million NASA grant to investigate "Exosomes and secretory factors as mediators of non-targeted effects of HZE particles." High charge and energy (HZE) particles permeate the cosmos. When HZE particles pass through living cells, they elicit genome instability not only in cells that are directly traversed, but also in non-irradiated bystanders. Such nontargeted effects are an important contributor to radiation carcinogenesis, particularly at low doses and low dose rates. This project will investigate the role of microvesicles (exosomes) and other mechanisms of intercellular communication in explaining the effect. The work is part of a NASA program devoted to understanding and counteracting health issues that may be encountered in multi-year, exploration class missions to Mars or elsewhere in the solar system.



Artwork courtesy of NASA