Precision Medicine has been called the “Google Maps for health,” in that it integrates all types of data, including an individual’s genetic makeup, to more accurately predict and treat disease.

Launched with a $235 million investment in the President’s 2016 Budget and a research community-studded press conference in January, the Precision Medicine Initiative aims to “pioneer a new model of patient-powered research that promises to accelerate biomedical discoveries and provide clinicians with new tools, knowledge, and therapies to select which treatments will work best for which patients.” Key components of the Initiative include 1) $130 million to the National Institutes of Health (NIH), a portion of which is earmarked to create a research cohort of at least one million volunteers in which to study health and disease; 2) $70 million to the National Cancer Institute (NCI) to study health and disease; and 3) $50 million to the Food and Drug Administration to develop the robust databases necessary to advance research and protect public health, and 4) $55 million to the Office of the National Coordinator for Health Information Technology to support standards for secure data exchange and protect patient privacy.

By providing this broad-based investment in research, development and innovation to tackle complex diseases, the Administration and federal funding agencies are fueling the commitment of academic research institutions to advancing personalized medicine. And the cancer research community is taking the lead. Researchers at the University of Chicago Medicine Comprehensive Cancer Center are poised to capitalize on these investments in precision medicine and continue to push the boundaries of cancer care. In the area of cancer immunotherapy, for example, our physicians and scientists including Tanguy Seiwert, MD, assistant professor of medicine, Thomas Gajewski, MD, PhD, professor of pathology and medicine and Jason Luke, MD, assistant professor of medicine, are expanding the types of cancers that may be amenable to immune-targeted therapy and developing biomarkers aimed at predicting a patient’s response to these treatments. Moreover, their basic science research complements these clinical studies by uncovering the fundamental mechanisms that control interactions between immune and tumor cells with the goal of manipulating the immune system to fight cancer.

Another example of the Comprehensive Cancer Center’s leadership in precision medicine is pharmacogenomics, or the study of how one’s genetic makeup influences their response to a drug. The Comprehensive Cancer Center’s pharmacogenomics team, including Mark Ratain, MD, Leon O. Jacobson Professor of Medicine, and M. Eileen Dolan, PhD, professor of medicine, are identifying genetic variations in the human genome that correlate with the effectiveness, toxicity and appropriate dosing of specific drugs. Translating this work into the clinic, “The 1200 Patients Project” directed by Peter O’Donnell, MD, assistant professor of medicine, aims to bring pharmacogenomics testing and information into routine clinical practice.

Akin to the large cohort of volunteers being established through the Precision Medicine Initiative, the Comprehensive Cancer Center has begun an ambitious project to understand how lifestyle, healthcare-related factors, environment and genetics affect health. The Chicago Multiracial Prevention and Surveillance Study (COMPASS), under the direction of Habibul Ahsan, MBBS, Louis Block Professor of Public Health Sciences, is establishing a first-of-its-kind urban cohort of volunteers to elucidate the risk factors for cancer of urban populations and address why specific individuals or racial, ethnic, or population subgroups have different risks of developing cancer.

The Precision Medicine Initiative represents a resounding commitment by the nation, reinforced by the promising efforts of the cancer research community here and elsewhere, to realize the promise of personalized, effective and targeted care – all the way from cancer prevention through treatment and survivorship.

FROM THE DIRECTOR

At the summer in Chicago brings warmer weather and an influx of tourists to enjoy all that this beautiful city has to offer, it has also ushered in an air of excitement and promise to our cancer research community.

As we describe in this issue of Pathways to Discovery, President Obama announced an ambitious and far-reaching Precision Medicine Initiative that aims to propel discovery and translate it into personalized, effective cancer care that takes into account an individual’s genetic makeup and other unique factors. Precision medicine broadly encompasses disease prevention and treatment strategies that integrate individual variability and risk factors. The Initiative will help drive the biological discoveries, research datasets and computational tools to foster creative approaches to precision medicine and implement them into patient care.

The University of Chicago Medicine Comprehensive Cancer Center is well positioned to leverage this funding commitment and continue to provide leadership in many areas of precision medicine – from immunotherapy to pharmacogenomics to a novel population-based study of cancer risk.

Also in this issue, we present examples of some of the exceptional research advances made by our faculty over the last year, through publications in prestigious scientific journals as well as presentations at annual international conferences of oncologists and cancer researchers. We also highlight some of the activities of our faculty and staff that leave their mark on the local community, as well as the latest news from the University of Chicago Cancer Research Foundation.

Regards,
Michelle M. Le Beau, PhD
Director, The University of Chicago Medicine Comprehensive Cancer Center, Arthur and Marian Edelman Professor of Medicine
RESEARCH HIGHLIGHTS

Decline in national prostate cancer screening rates

The results from clinical trials suggest that the risks associated with prostate-specific antigen (PSA)-based prostate cancer screening outweighs its benefits. A recent study published in the Journal of the National Cancer Institute found that, in 2014, the U.S. PSA screening rate decreased to 30.2% from 34.5% in 2011. This decline is attributed to the widespread adoption of the American Urological Association's (AUA) prostate-specific antigen (PSA) guidelines, which recommend against routine PSA screening for the general population. The AUA guidelines are based on the results of multiple clinical trials that demonstrated the lack of benefit and the potential harms of PSA-based screening. These findings are consistent with the recommendations of the U.S. Preventive Services Task Force (USPSTF), which considers the risks associated with PSA screening to outweigh the benefits. The USPSTF recommendations are based on a systematic review of the literature and the results of clinical trials, and are intended to guide clinical decision-making and patient counseling. Increased awareness of these risks and the availability of alternative screening strategies may contribute to the decline in PSA screening rates.
The American Association for Cancer Research Annual Meeting
The 2015 Annual Meeting of the American Association for Cancer Research (AACR) was held in April in Philadelphia and brought together nearly 20,000 scientists, including more than 45 from the University of Chicago Medicine Comprehensive Cancer Center, to share the latest advances aimed at understanding and ultimately conquering cancer. Work from Comprehensive Cancer Center investigators was featured as oral or poster presentations, underscoring the fact that many of our faculty are pre-eminent leaders in their respective fields. Additionally, many of our brightest graduate and medical students, as well as postdoctoral fellows, made a splash on this international stage. Specific research areas covered included tumor immunology, metastasis, epigenetics, breast cancer, clinical trials and targeted therapy. For examples and details, please visit: sciencefocus.uchospitals.edu/2015/04/10/aacr-2015-bringing-cancer-researchers-together/.

COMPREHENSIVE CANCER CENTER NEWS AND UPDATES

Sharing Our Science on the International Stage

The American Society of Clinical Oncology Annual Meeting
The theme of the 2015 American Society of Clinical Oncology (ASCO) Annual Meeting held in Chicago May 29-June 2 was “Illumination and Innovation: Transforming Data into Information.” It is one of the largest scientific conferences focused on oncology, with a reported 37,000 cancer experts in attendance from around the globe. Tumor immunotherapy and the value and economics of cancer care were emerging areas of focus that received considerable attention. Work from dozens of University of Chicago Medicine Comprehensive Cancer Center faculty was presented at the meeting, reinforcing the leadership that our investigators provide to the cancer research community. For additional information, please visit: sciencefocus.uchospitals.edu/2014/06/06/uchicago-leaves-its-imprint-on-the-50th-annual-asco-meeting-2/.

Yamada Leads Fundraising Effort for Ovarian Cancer
A University of Chicago Medicine Gynecologic-Oncology team, led by Diane Yamada, MD, Joseph Bolivar DeLee Professor of Obstetrics and Gynecology, participated in the National Ovarian Cancer Coalition’s 5K Run/Walk on May 2, 2015. The team, with more than 71 team members, well exceeded their goal and raised $12,663.

The Cancer Center Crusaders team takes a group photo during the Relay For Life event.

Relay For Life of the University of Chicago
The Relay For Life of the University of Chicago, organized by the Colleges Against Cancer UChicago Chapter and benefitting the American Cancer Society (ACS), was a great success, raising more than $23,000 for research and patient services. The Comprehensive Cancer Center’s team, the Cancer Center Crusaders, raised nearly $4,000. ACS-funded researcher Megan McNeary, MD, PhD, assistant professor of pathology, spoke at the opening ceremony.

Susan Cohn, MD, professor of pediatrics and dean of clinical research, is the new co-director for the University of Chicago for Translational Medicine (ITM). The ITM is one of 62 medical research institutions composing the National Institutes of Health (NIH) Clinical and Translational Science Awards (CTSA) consortium that helps convert biomedical research into health improvement.

Maciej Lesniak, MD, professor of surgery, neurology, and cancer biology, was awarded an R35 Outstanding Investigator Award from the National Institutes of Health. Lesniak’s application received a perfect score of 10. The award will provide him with $600,000 per year for the next seven years, with a non-peer review renewal option for an additional three years, pending overall progress.

Maryellen Giger, PhD, A. N. Pritzker Professor of Radiology, has been selected as this year’s American Association of Physicists in Medicine’s (AAPM) William D. Coolidge Award recipient. The Coolidge Award is the AAPM’s highest honor, denoting excellence and distinguished contributions to Medical Physics.

UCCC Director Michelle M. Le Beau, PhD, Arthur and Marian Edelstein Professor of Medicine, visited the University of Vermont Cancer Center on March 17 as a part of the J. Walter Jockett Distinguished Lecture Series. More than 50 attendees were on hand for her lecture “Genetic Pathways Leading to Therapy-Related Myeloid Neoplasms.”

David Meltzer, MD, PhD, professor and section chief of hospital medicine, has been elected to the prestigious Association of American Physicians (AAP). This honor recognizes Meltzer’s important contributions as a leader in the theoretical foundations of medical cost-effectiveness analysis and the cost and quality of hospital care.

Mitchell Posner, MD, has been named the University of Chicago Medicine Comprehensive Cancer Center’s first physician-in-chief. In this position, Posner will work with clinical department chairs and faculty as well as UChicago Medicine senior leadership to implement strategies designed to further enhance clinical programs and research efforts in the Comprehensive Cancer Center.

Scott Eggenger, MD, associate professor of surgery, has received the Society of Urologic Oncology’s 2015 Young Investigator Award for his contributions to the field.

R. Stephanie Huang PhD, assistant professor of medicine, has received a $300,000 research grant from the Avon Foundation to examine drug repurposing for metastatic breast cancer.

Ernst Lengyel, MD, PhD, Arthur L. and Lee G. Herbst Professor of Obstetrics and Gynecology, and Diane Yamada, MD, Joseph Bolivar DeLee Professor of Obstetrics and Gynecology, got ready to walk for the Cancer Coalition 5K Run/Walk on May 2, 2015. The team, with more than 71 team members, well exceeded their goal and raised $12,663.

Committee on Cancer Biology PhD students Maya Springer, Payal Tiwari, and Ali Youssifan presented their research at the AACR Annual Meeting.

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Pathways to Discovery

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1. Precision Medicine Initiative set to transform cancer care
2. Dr. Jedd Wolchok delivers Dr. Melvin L. and Dr. Sylvia F. Griem Lecture in Molecular and Cellular Oncology
3. University of Chicago cancer researchers share science on international stage
4. Faculty and staff participate in American Cancer Society and National Ovarian Cancer Coalition events

SAVE THE DATES!

The University of Chicago Cancer Research Foundation presents a list of upcoming fundraising events:

**WOMEN’S BOARD**
- **Chicago Hunter Derby**
  - Sunday, September 6, 2015
  - Annali Farms, Antioch, IL

**BOARD OF TRUSTEES**
- **Simon M. Shubitz Award Ceremony and Annual Foundation Dinner**
  - Monday, October 5, 2015
  - The Gleacher Center, Chicago, IL

**WOMEN’S BOARD**
- **Ralph Lauren Charitable Shopping Night**
  - Thursday, October 15, 2015
  - Ralph Lauren Michigan Avenue, Chicago, IL

**WOMEN’S BOARD**
- **49th Annual Grand Auction “The Breakthrough Ball”**
  - Saturday, November 14, 2015
  - The Four Seasons Hotel, Chicago, IL

**AUXILIARY BOARD**
- **ALL IN FOR A CURE**
  - Saturday, March 12, 2016
  - Michigan Shores Club, Wilmette, IL

For more information, please contact kcoady@bsd.uchicago.edu.
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**Pathways Summer ’15 FIN.indd**

**The Associates Board’s Fund the Fight Ball Brings the Focus to the Cause**

On April 11, the University of Chicago Cancer Research Foundation Associates Board hosted its annual fundraising gala at the Moonlight Studios in Chicago’s West Loop. More than 200 young philanthropists took part in the fun-filled event, which featured a silent auction. The DJ kept the crowd on the dance floor throughout the evening, while Thomas Gajewski, MD, PhD, professor of pathology and medicine, and Jason Luke, MD, assistant professor of medicine, captivated attendees with conversations about their innovative work on immunotherapy at the Comprehensive Cancer Center.

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**Support cancer research through the UCCRF:**
cancer.uchicago.edu/donations