Illinois Medicine

volume 25 number 1 winter 2025

From Research to Real-World Impact

Meet the innovators bringing game-changing medical treatments and technologies to patients in need

UIC UNIVERSITY OF ILLINOIS COLLEGE OF MEDICINE

INSIDE G. Stephen Irwin, MD ’77, Res ’82, establishes first named executive deanship | First lady Jill Biden and women’s health activist Halle Berry join UIC women’s health roundtable

mission

To advance health for everyone through outstanding education, research, clinical care, and social responsibility.

vision

Better health and wellness through transformative innovation.

values

- Excellence
- Integrity
- Collaboration
- Accountability
- Diversity, Equity, and Inclusion

dean's message

ONE OF OUR CORE MISSIONS AT THE UNIVERSITY OF ILLINOIS COLLEGE OF MEDICINE is educating and training the next generation of physicians, scientists, and healthcare leaders. Our faculty not only share and pass along their knowledge to our students as teachers and mentors, but also provide world-class clinical care to our communities through our hospital and clinics. And the College's faculty research portfolio is significant, with $209 million in externally sponsored funding awarded to us in fiscal 2023, representing 41% of UIC's total funding of $509 million for the year.

PHOTO: DIANE M. SMUTNY

Through education, we produce physicians and scientists who will impact the world. Through clinical care, we treat and heal the sick in hopes of keeping our communities safe and healthy. We also push to translate research discovery to change the lives of our patients. We explore the process of translating innovations in this edition of *Illinois Medicine*, particularly from the entrepreneurship perspective, where we develop novel diagnostics, therapeutics, and devices. We give you insight into the process of going from idea to marketplace, whether it is a new drug, a new medical device, or new medical software. You'll take a look at our pipeline of medical innovations that are making their way through the development process before—hopefully—hitting the market.

In this edition, we take a deeper dive into several of these discoveries and efforts, including exploring the work of Dr. Bellur Prabhakar supported through a recently launched company, West Loop Innovations, which was formed in partnership with healthcare investment firm Deerfield Management. Dr. Prabhakar's team is developing an innovative therapy that harnesses the body's natural defenses to treat lupus and other autoimmune diseases. We also learn about Dr. Sandeep Jain's groundbreaking dry-eye research that launched a Chicago-based company, Selagine Inc.

Researchers in the laboratory of Dr. Deepak Shukla are developing new ways to fight the herpes virus, while Dr. Bin He and his team are turning a genetically engineered version of the virus into an unlikely ally in the war against cancer. A mental wellness app, developed by Drs. Pauline Maki and Jenna Duffecy, screens pregnant and postpartum women of color from low-income Chicago communities for depression and anxiety while providing them the tools and support they need to thrive. Another app—developed by Drs. Alex Leow, Peter Nelson, and Olusola Ajilore—uses our smartphones to track our mental and cognitive health.

We also teach our students about innovation, which you will read about as we explore our College of Medicine's Innovation Medicine Program. Our students learn to identify a problem, design a product to help solve the problem, and then develop potential commercial solutions.

I hope that you enjoy this edition, and I look forward to your continued engagement with your College of Medicine.

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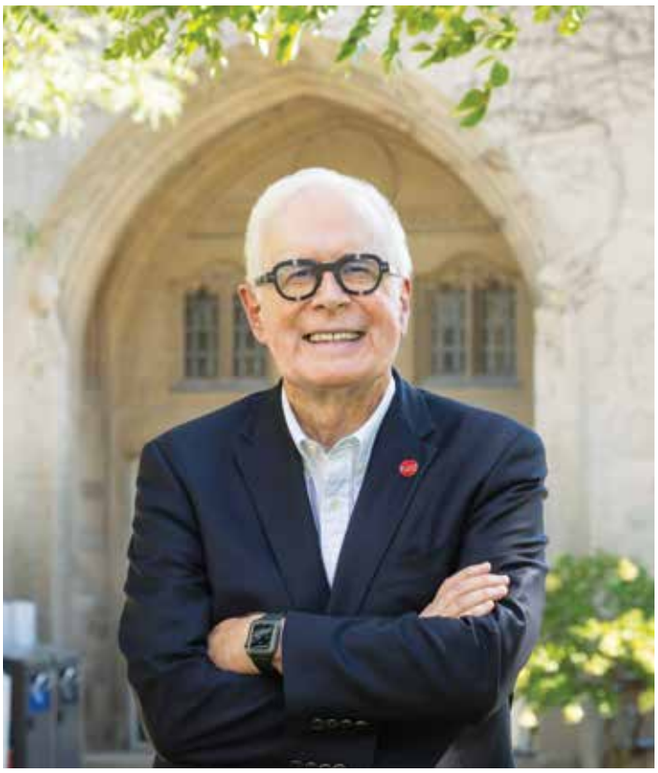

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Closing the Health Research

First lady Jill Biden and actress Halle Berry visited UIC in January 2024 to raise awareness of the recently launched **White House Women's Health Research Initiative**—and learn more about the university's pioneering menopause research.

WOMEN MAKE UP MORE THAN HALF OF THE U.S. POPULATION—yet they have historically been understudied and underrepresented in health research. As recently as 2020, less than 11% of the research funded by the National Institutes of Health (NIH) focused on diseases that affect the health and well-being of women.

In January 2024, UIC hosted first lady Jill Biden and women's health advocate Halle Berry at a press conference and roundtable discussion on women's health. UIC sponsored the event to raise awareness of the challenges that women face within the healthcare system, particularly during menopause, and highlight the need for additional women's health research funding.

During their visit, Biden and Berry discussed the first-ever **White House Women's Health Research Initiative**, an effort led by the first lady and the White House Gender Policy Council. The initiative was launched in November 2023 to change how women's health research is approached and funded and help pave the way for the next generation of discoveries in women's health.

"The White House Initiative will be

Joining forces to eliminate disparities in women's health research: First lady Jill Biden and Halle Berry, an Academy Award-winning actress and women's health advocate, joined Dr. Pauline Maki (far left) at a press conference and roundtable on women's health at UIC's **Illinois Neuropsychiatric Institute** in January 2024.

Gender Gap

transformational to women's health research and therefore transformational to the health of women," noted Pauline Maki, PhD, professor of psychiatry and psychology, as she welcomed the first lady and the actress. "Halle, thank you for using your powerful and informed voice to raise awareness about menopause. You have been instrumental in getting the topic of menopause the attention it deserves."

Dr. Biden and Ms. Berry also showcased the work of Dr. Maki, who is senior director of research at the Center for Research on Women and Gender at UIC.

"Halle and I are here today because the University of Illinois Chicago is doing groundbreaking research on menopause," said Dr. Biden. "Every woman will be affected by menopause, yet there's a stunning lack of information about how to manage and treat its symptoms. UIC is working to change that."

For more than 25 years, Dr. Maki has led a program of NIH-funded research focused on women's mental and cognitive health and the role that sex hormones and reproductive transitions such as the menstrual cycle, pregnancy, and menopause have on women's overall well-being. The broader goal of her work is to improve the lives of women by identifying factors that alter their risk of cognitive decline and affective disorders.

"Because of the support from UIC leadership, including that of Vice Chancellor for Health Affairs Bob Barish and College of Medicine Executive Dean Mark Rosenblatt, we can pursue our research, and we can do so through a diverse lens," said Dr. Maki during the event. "After all, Black and Brown women are more affected by menopause. We at the university's health enterprise, UI Health, have a long-standing commitment to conducting community-engaged research in women's health, particularly for marginalized women around the city and state."

Dr. Maki's research on menopause is urgently needed. Every woman will experience this transition, yet—according to a 2024 article in the journal *Nature Aging*—the effects of menopause on health and cognition are ignored or not properly considered in 99% of studies on the biology of aging.

"All women deserve to enter their later years with the healthiest brain possible, one that is resistant to dementia," said Dr. Maki. "With greatly expanded funding and historic leadership from the president and the White House in this area, we can finally help women get the answers they deserve."

PHOTOS: ANTHONY VAZQUEZ, CHICAGO SUN-TIMES

> "Halle and I are here today because the **University of Illinois Chicago is doing groundbreaking research on menopause.** Every woman will be affected by menopause, yet there's a stunning lack of information about how to manage and treat its symptoms. **UIC is working to change that.**"
>
> **First lady Jill Biden**




White Coated!

In August, more than 300 incoming College of Medicine students in Chicago, Peoria, and Rockford received their white coats at the College's **2024 White Coat Ceremony**—a rite of passage that welcomed them to the medical profession and emphasized the importance of humanistic patient care.

"The White Coat Ceremonies were started by the Arnold P. Gold Foundation in 1993 as a way to emphasize humanism in medicine from the very start of one's medical education," noted Raymond H. Curry, MD, FACP, senior associate dean for educational affairs, in his opening remarks at the Chicago campus.

The theme of humanism continued as UIC Chancellor Marie Lynn Miranda, PhD, urged the 181 M1 students starting their medical studies in Chicago to "remain strong advocates to improve the public good, and to remain grounded in our values of kindness to others, compassion for those in need, and justice for those who continue to face structural impediments to a better quality of life."

In her keynote address, Sarah Messmer, MD, assistant professor of clinical medicine and pediatrics, noted that the white coat represented many beautiful things about healing. "In your training, you will experience the vastness of human experience," she said. "You will deliver babies. You will deliver bad news. You will hold the hands of patients as they navigate the end of life. It is not a privilege to be taken lightly."

Regional Dean Meenakshy Aiyer, MD, MACP, MHPE, encouraged the 65 first-year students at the Peoria campus to reflect on the significance and gravity of the white coat. "As you don this white coat today, recognize that [many] people are placing their trust in you. Bear it with humility, the courage to do the right thing, compassion, empathy, integrity, and a commitment to your lifelong journey as a physician."

Rockford keynote speaker James Girardy, MD, clinical professor in the Department of Surgery and Surgical Specialties, described the day as transformative. "Today formally marks your transition into the medical profession," he told the 57 first-year medical students gathered before him. "But the real transition to becoming a physician occurs slowly, almost imperceptibly. … Practice being a keen, quiet listener and an intently focused observer. … The ability to still oneself is the best starting point to understanding your patients, your colleagues, and perhaps yourself."

> "The white coat represents so many beautiful things about **healing**."
>
> **Keynote speaker Sarah Messmer, MD**, *at the College of Medicine's Chicago White Coat Ceremony*

A rite of passage: *A Chicago M1 student beamed with joy as he donned his white doctor's coat with the help of College of Medicine community members.*

PHOTOS: UIC CREATIVE AND DIGITAL SERVICES

PHOTOS: DIANE M. SMUTNY

From the dawn of the COVID-19 pandemic to commencement day: *The 267 members of the College of Medicine's Class of 2024 entered medical school in 2020 during the first phase of the COVID-19 pandemic, before the development of treatments or vaccines. Confronted with unprecedented challenges, they adapted, persevered, and achieved their dreams of becoming MDs. Their remarkable fortitude and resilience will serve them well throughout their medical careers!*

Newly Minted **MDs**

College of Medicine Honors **Class of 2024** *at 142nd Commencement*

ON MAY 3, the College of Medicine celebrated the achievements of one of the largest and most diverse graduating classes in the nation. The ceremony honored 267 graduating students from its various degree programs, including 155 MDs from the Chicago campus, 60 from Peoria, and 52 from Rockford. These newly minted MDs will continue their professional training in one of 28 medical specialties across 33 states, and 109 will be entering residency programs in Illinois.

The College also awarded 35 doctorates and 62 master's degrees in a range of fields, including public health, medical physiology, health professions education, physiology, patient safety leadership, and clinical translational sciences.

"Today marks the beginning of your careers as proud alumni of the University of Illinois College of Medicine, one of the premier medical schools in the nation," Executive Dean Mark I. Rosenblatt, MD, PhD, MBA, MHA '19, told the graduating students. "This is a special day and a proud achievement. I am confident that the foundation in science, medicine, and service to the community that you have received at this college has prepared you for your continued future achievements. I know that each of you has worked diligently to reach this day, and you should take great satisfaction in your accomplishments."

267

Number of MDs in the College of Medicine's Class of 2024

"I remember feeling both excitement and, I must admit, apprehension when I reached this milestone myself," said commencement speaker David J. Skorton, MD, president and CEO of the Association of American Medical Colleges. "It's intimidating to step into the unknown, and your generation faces headwinds that mine did not half a century ago. We need your ideas, innovation, and care. When I look out into the audience today, I am filled with optimism."

Dr. Rosenblatt also honored Dean's Distinguished Service Award recipients Charles Ray, MD, and Evelyn Figueroa, MD; Dean's Award for Excellence in Healthcare Leadership recipient Sarah Unterman, MD; and Faculty of the Year Award recipient David Pinson, DVM, PhD. Amanda Osta, MD, associate dean for medical education at the Chicago campus, recognized 2024 William J. Grove Outstanding Student Award recipient Matthew Grande, MD, and 2024 Golden Apple Award recipients Mahesh Patel, MD, Ananya Gangopadhyaya, MD, and Pavan Srivastava, MD.

Commencement

The Big **Reveal**

M4s meet their matches at 2024 Match Day

AS THE CLOCK STRUCK NOON on March 15, more than 260 fourth-year medical students at the College of Medicine's Chicago, Peoria, and Rockford campuses tore open their envelopes and got the life-changing news: Which residency program had they matched with—and where would they be living and training for the next three to seven years?

Conducted by the National Resident Matching Program—a computerized system that matches the preferences of applicants with the preferences of residency programs at U.S. teaching hospitals—Match Day is a coordinated national event for graduating medical students around the country. The ritual takes place at the same time on the same day for all graduating U.S. medical students.

During this emotionally charged, suspense-filled ceremony, members of the College of Medicine's Class of 2024 learned that they had matched at residency programs in more than 30 states across the nation and as far away as Honolulu. Internal medicine was the top-matched specialty of 2024, followed by psychiatry, emergency medicine, pediatrics, and diagnostic radiology.

"This is perhaps the most exciting day for our students at the College of Medicine," Executive Dean Mark Rosenblatt, MD, PhD, MBA, MHA '19, told the graduating seniors at the Chicago campus. "Congratulations to you, Class of 2024. You have

ceremonies

CHICAGO MATCH DAY PHOTOS: UIC CREATIVE AND DIGITAL SERVICES

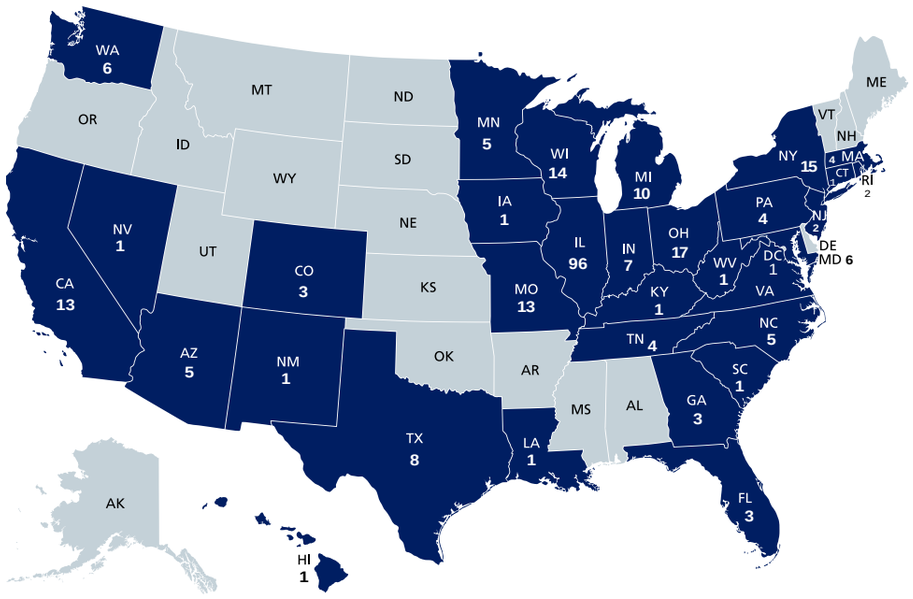
devoted long hours to studying medical science, learning the art of speaking to and examining patients, preparing for many examinations, and learning about various specialties before choosing your own. We have certainly learned through our experience with the pandemic that the world needs you. Today you will see the reward of your dedication and labor. I wish you success in your practice of medicine and all of your endeavors."

"Few days compare to the excitement of Match Day in a medical student's journey," said Rockford Regional Dean Alex Stagnaro-Green, MD, MHPE, MHA. "In Rockford, we start with a class breakfast and a toast to the students at Anderson Japanese Gardens. The students then come back to campus where their family, friends, faculty, staff, and other medical students are gathered together to find out where this class will be headed for residencies around the nation."

"Match Day marks a milestone in the life of a physician," said Peoria Regional Dean Meenakshy Aiyer, MD, MACP. "Today, we celebrate these future physicians as they learn where they will spend the next phase in their training and careers. Our faculty and staff are filled with pride to have walked alongside these students during this transformational journey toward their futures in medicine."

Match Day by the Numbers

Members of the College of Medicine's Class of 2024 matched at residency programs in more than 30 states across the nation and as far away as Honolulu.



153 from Chicago

58 from Peoria

50 from Rockford

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New Haven, CT

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Chicago, IL

Lubna Ziauddin (C)
University of Texas Southwestern Medical School
Dallas, TX

Internal Medicine – Emergency Medicine

Kevin Cao (C)
Hennepin County Medical Center
Minneapolis, MN

Internal Medicine / MD Scientist

Adam Szmelter (C)
University of Chicago Medical Center
Chicago, IL

Internal Medicine / Physician Scientist

Trevor Leonardo (C)
University of Colorado School of Medicine
Aurora, CO

Internal Medicine – Preliminary (PGY-1)

Ishita Aggarwal (C)
Ascension Saint Joseph
Chicago, IL

Arthi Bharadwaj (C)
Case Western Reserve University
Cleveland, OH

Timothy Bullock (C)
Advocate Illinois Masonic Medical Center
Chicago, IL

Daniel Corbier de Lara (C)
Advocate Illinois Masonic Medical Center
Chicago, IL

Samuel Cubillos (C)
The Ohio State University Medical Center
Columbus, OH

Morgan Greenwood (C)
University of Illinois College of Medicine Chicago
Chicago, IL

Quentin Howlett-Prieto (C)
University of Chicago Medical Center
Chicago, IL

Helena Yan (C)
Icahn School of Medicine at Mount Sinai
New York, NY

Medicine – Pediatrics

Phylicia Abraham (C)
Albany Medical Center
Albany, NY

Thomas Blackwell (C)
University of Illinois College of Medicine Peoria
Peoria, IL

Sara Cooper (C)
University of Chicago Medical Center
Chicago, IL

Taylor Ellebb (C)
University of Chicago Medical Center
Chicago, IL

Dylan Klingler (R)
Indiana University School of Medicine
Indianapolis, IN

Joseph Polanco (C)
University of Southern California
Los Angeles, CA

Medicine – Preliminary Year

Christina Bloomfield (R)
University of Cincinnati Medical Center
Cincinnati, OH

Alexandria Choi (R)
Zucker School of Medicine
Great Neck, NY

Hamzah Malik (R)
Loyola University Medical Center
Maywood, IL

Katherine Perlman (P)
Advocate Illinois Masonic Medical Center
Chicago, IL

David Qi (P)
Icahn School of Medicine at Mount Sinai Morningside West
New York, NY

Taylor Rager (R)
University of Illinois College of Medicine Chicago
Chicago, IL

Medicine – Primary

Tatiana Betancur Giraldo (R)
NYU Grossman School of Medicine
New York, NY

Neurology

Cecelia Barry (C)
University of Colorado School of Medicine
Aurora, CO

Emily Bazi (R)
University of Arizona College of Medicine
Tucson, AZ

Abby Brown (R)
University of Wisconsin Hospitals and Clinics
Madison, WI

Quentin Howlett-Prieto (C)
University of Chicago Medical Center
Chicago, IL

Bridget Morgan (R)
University of Wisconsin Hospitals and Clinics
Madison, WI

Trevor Simmons (C)
University of Iowa Hospitals & Clinics
Iowa City, IA

Grant Williams (P)
Rush University Medical Center
Chicago, IL

Helena Yan (C)
Icahn School of Medicine at Mount Sinai
New York, NY

Obstetrics and Gynecology

Addie Billington (R)
University of Arizona College of Medicine
Phoenix, AZ

Danielle Cannady (C)
Rutgers Health – Robert Wood Johnson Medical School
New Brunswick, NJ

Alexandria Choi (R)
Zucker School of Medicine
Great Neck, NY

Elana Gordy (C)
Zucker School of Medicine – Northwell Lenox Hill Hospital
New York, NY

Matthew Grande (C)
McGaw Medical Center of Northwestern University
Chicago, IL

Ajoke Iromini (P)
Good Samaritan Hospital
Cincinnati, OH

Vanessa Orlando Castellanos (C)
Loyola University Medical Center
Maywood, IL

Maya Patel (C)
Jefferson Abington Memorial Hospital
Abington, PA

Erin Sondgeroth (R)
University of Illinois College of Medicine Peoria
Peoria, IL

Sydni White (R)
University of Minnesota Medical School
Minneapolis, MN

Rachel Zussman (P)
University of Missouri Kansas City
Kansas City, MO

Ophthalmology

Arthi Bharadwaj (C)
Case Western Reserve University
Cleveland, OH

Christina Bloomfield (R)
University of Cincinnati Medical Center
Cincinnati, OH

Samuel Cubillos (C)
The Ohio State University Medical Center
Columbus, OH

David Qi (P)
New York Eye & Ear Infirmary
New York, New York

Otolaryngology

Suffia Alvi (C)
Wayne State University School of Medicine
Detroit, MI

Claire Roesler (R)
University of Illinois College of Medicine Chicago
Chicago, IL

Pathology – Anatomic and Clinical

Christopher Dennis (C)
University of Chicago Medical Center
Chicago, IL

Akeem Giles (C)
University of Washington
Seattle, WA

Michael Metrick (C)
University of California San Francisco
San Francisco, CA

Pediatrics

Chukwuemeka Ajaleo (C)
UCSF Benioff Children's Hospital Oakland
Oakland, CA

Kelly Cho (C)
University of California Irvine Medical Center
Orange, CA

Alejandra Diaz (R)
Nationwide Children's Hospital
Columbus, OH

Madison Hoenle (R)
Nationwide Children's Hospital
Columbus, OH

Tyler Kalinich (P)
Lurie Children's / McGaw Medical Center of Northwestern University
Chicago, IL

Rachel Kim (R)
NewYork-Presbyterian Hospital – Weill Cornell Medical Center
New York, NY

Margaret Kliebhan (C)
Rush University Medical Center
Chicago, IL

Adam McLuckie (P)
Tripler Army Medical Center
Honolulu, HI

Annastasia Morgan (C)
Lurie Children's / McGaw Medical Center of Northwestern University
Chicago, IL

Jordan Morling (C)
Rush University Medical Center
Chicago, IL

Ryan Parnell (C)
Lurie Children's / McGaw Medical Center of Northwestern University
Chicago, IL

Pediatrics / Research

Hannah Kluger (C)
Nationwide Children's Hospital
Columbus, OH

Physical Medicine and Rehabilitation

Timothy Bullock (C)
University of Michigan Hospital
Ann Arbor, MI

Daniel Corbier de Lara (C)
University of Colorado School of Medicine
Aurora, CO

Joseph Crutison (C)
University of Washington
Seattle, WA

Psychiatry

Ryan Ambroz (C)
McGaw Medical Center of Northwestern University
Chicago, IL

Oluwadamilola Bankole (P)
Baylor College of Medicine
Houston, TX

Ho Chen (C)
The Ohio State University Medical Center
Columbus, OH

Miriam Guzman (C)
Johns Hopkins School of Medicine
Baltimore, MD

David Iverson (P)
Carl R. Darnall Army Medical Center
Fort Cavazos, TX

Vladislav Milanovic (R)
Mount Sinai Medical Center
Miami, FL

Abigail Waltz (C)
The Ohio State University Medical Center
Columbus, OH

Audrey Wildermuth (C)
University of Washington
Seattle, Washington

Chas Young (R)
West Virginia University School of Medicine
Morgantown, WV

Psychiatry – Research

Yishin Chang (C)
Brigham and Women's Hospital
Boston, MA

Radiation – Oncology

Ashwin Ganesh (C)
University of Southern California
Los Angeles, CA

Molly Mary Meister (P)
University of California San Francisco
San Francisco, CA

Radiology – Diagnostic

Eyad Hamad (C)
Sisters of Saint Mary Health / St. Louis University School of Medicine
St. Louis, MO

Hamzah Malik (R)
University of Illinois College of Medicine Chicago
Chicago, IL

Suha Mohiuddin (C)
Cleveland Clinic
Cleveland, OH

Ashley Osuma (P)
Emory University School of Medicine
Atlanta, GA

Radiology – Interventional

Rajangad Gurtatta (C)
UPMC Medical Education
Pittsburgh, PA

Meet Patel (C)
Aurora St. Luke's Medical Center
Milwaukee, WI

John Vandevender (C)
Vanderbilt University Medical Center
Nashville, TN

Surgery – General

Samantha Andersen (R)
University of Illinois College of Medicine Peoria
Peoria, IL

Vanitha Raguveer (C)
Beth Israel Deaconess Medical Center
Boston, MA

Shayan Assaie-Ardakany (C)
Ascension Providence Hospital / Michigan State University College of Human Medicine
Southfield, MI

Betty Chang (C)
NYU Grossman School of Medicine
New York, NY

Dayne Hester (R)
West Virginia University School of Medicine
Morgantown, WV

Jessica Hossa (C)
University of Illinois College of Medicine Chicago
Chicago, IL

Colton Johnson (R)
University of Illinois College of Medicine Chicago
Chicago, IL

Lincoln Johnson (R)
Gundersen Lutheran Medical Foundation
La Crosse, WI

Erik Kerber (R)
Advocate Health Care
Park Ridge, IL

Benjamin Mero (P)
University of Tennessee College of Medicine
Chattanooga, TN

Angeline Rivkin (C)
University of Illinois College of Medicine Chicago
Chicago, IL

Marina Lentskevich (C)
University of Kentucky Medical Center
Lexington, KY

Rachel Schusteff (C)
McGaw Medical Center of Northwestern University
Chicago, IL

Surgery – Neurological

Elsa Nico (C)
University of Wisconsin Hospitals and Clinics
Madison, WI

James Nie (C)
Cleveland Clinic
Cleveland, OH

Surgery – Orthopaedic

Peter Cirrincione (R)
University of Illinois College of Medicine Chicago
Chicago, IL

Alondra Diaz (C)
The Warren Alpert Medical School of Brown University
Providence, RI

Steven Kurina (R)
University of South Florida Morsani College of Medicine
Tampa, FL

Jhunnelle Walters (C)
Wake Forest Baptist Medical Center
Winston-Salem, NC

Surgery – Preliminary

Eli Adams (P)
Valley Health System
Las Vegas, NV

James Gustafson (R)
University of Wisconsin Hospitals and Clinics
Madison, WI

Surgery – Thoracic

Olivia Ly (C)
University of Maryland Medical Center
Baltimore, MD

Surgery – Vascular

Louis Darkwa (C)
University of Washington
Seattle, WA

Urology

Ryan Trippel (C)
University of Missouri School of Medicine
Columbia, MO

Transitional Year

Thomas Akurugo (R)
Parkview Health
Fort Wayne, IN

Joseph Crutison (C)
HCA Houston Healthcare Kingwood, TX

Ashwin Ganesh (C)
Health Education Services
Tucson, AZ

Dante Gonzalez (R)
Indiana University School of Medicine
Indianapolis, IN

Rajangad Gurtatta (C)
UPMC Medical Education
Pittsburgh, PA

Eyad Hamad (C)
MacNeal Hospital
Berwyn, IL

Christopher Kopan (P)
University of Illinois College of Medicine Peoria
Peoria, IL

Julia May (C)
Ascension Saint Joseph
Chicago, IL

Molly Mary Meister (P)
University of Illinois College of Medicine Peoria
Peoria, IL

Gabrielle Mitchell (R)
Indiana University School of Medicine
Indianapolis, IN

Suha Mohiuddin (C)
Weiss Memorial Hospital
Chicago, IL

Ashley Osuma (P)
Emory University School of Medicine
Atlanta, GA

John Vandevender (C)
Ascension Saint Joseph
Chicago, IL

Nicholas Xie (P)
Ascension St. Francis
Evanston, IL

C = Chicago
P = Peoria
R = Rockford

Match Day 2024

faculty news

DR. VANDEN HOEK ELECTED TO NATIONAL ACADEMY OF MEDICINE


Terry Vanden Hoek

Terry Vanden Hoek, MD, FACEP, head of the Department of Emergency Medicine at the College of Medicine, has been elected to the National Academy of Medicine—one of the highest honors in the fields of health and medicine.

Dr. Vanden Hoek, a College of Medicine professor of emergency medicine and physiology and biophysics, was recognized for his leadership in CPR, which has advanced worldwide practice and significantly improved cardiac arrest survival in Illinois. He is the director of the Center for Advanced Resuscitation Medicine in the Center for Cardiovascular Research at UIC and has received more than $30 million in extramural funding to improve care for vulnerable populations. His work ranges from novel peptide development for cardiac arrest treatment to artificial intelligence monitoring for COVID-19 patient protection.

"It's an honor to join a group that I have long considered important role models and mentors," says Dr. Vanden Hoek. "I am very excited to join the great efforts by the National Academy of Medicine to improve our health for all. Their mission and vision walk a common path with work I have done for many years for UI Health at the University of Illinois Chicago: to advance science, accelerate health equity, and provide trusted advice that will create a healthier future for everyone. I am thankful to emergency medicine that reminds us always of our most at-risk populations, for those around me who have been running partners in my scientific efforts, and for this wonderful new opportunity to help others."

DR. PRINS, DEAN ROSENBLATT, DR. ALSBERG, AND DR. CHAN NAMED UIC DISTINGUISHED PROFESSORS

The University of Illinois Chicago Office of the Vice Provost for Faculty Affairs announced the appointment of UIC's 2023-2024 and 2024-2025 Distinguished Professors. The title of UIC Distinguished Professor is one of the highest academic honors for faculty at the University of Illinois. Within this group, the following College of Medicine faculty members were recognized for their significant contributions to the field of medicine through scholarship, research, creativity, and leadership:


Gail S. Prins

Gail S. Prins, PhD, is the Michael Reese Professor of Urology and Physiology and director of the University Andrology Laboratory, which diagnoses and treats infertile couples and provides sperm-banking services to patients nationwide. She was recognized as a UIC Distinguished Professor in 2023 for her research on prostate cancer, environmental health sciences, and andrology.

Her basic research program focuses on prostate gland development, prostate stem cells, hormonal carcinogenesis, endocrine-disrupting chemicals, and the fetal basis of adult prostate disease. Her translational work on human sperm cryopreservation led to the development of an optimal sperm freezing system used for both donor and surgically retrieved patient samples.

Dr. Prins received her doctorate in physiology and biophysics from the University of Illinois Chicago and her undergraduate degree from Trinity Christian College. An internationally acclaimed researcher, she has authored more than 170 peer-reviewed manuscripts, as well as book chapters and position papers, and speaks regularly at scientific meetings around the world.


Mark I. Rosenblatt

Mark I. Rosenblatt, MD, PhD, MBA, MHA, executive dean of the College of Medicine, was recognized as a UIC Distinguished Professor in 2023 for his research on corneal peripheral nerve regeneration, nanoengineered biomaterials, and stem cell delivery to the ocular surface.

A graduate of the University of Miami Miller School of Medicine's Honors Program in Medical Education and the Combined MD/PhD program, Dr. Rosenblatt received his PhD in biochemistry, cell, and molecular biology. He completed his MBA at New York University and his MHA at the University of Illinois Chicago School of Public Health. As director of the Corneal Regenerative Medicine Laboratory, he leads groups of scientists investigating the mechanism of corneal peripheral nerve regeneration following injury, and the use of nanoengineered biomaterials for use in stem cell delivery to the ocular surface.


Eben Alsberg

Eben Alsberg, PhD, was recognized as a UIC Distinguished Professor in 2024. He holds the Richard and Loan Hill Chair in the Department of Biomedical Engineering, where he serves as director of the Alsberg Stem Cell and Engineered Novel Therapeutics (ASCENT) Laboratory. His laboratory focuses on engineering functional biologic replacements to repair damaged or diseased tissues in the body. He has more than 30 patents issued or pending in the field of tissue engineering.

He received BSEs in biomedical engineering and mechanical engineering and material science from Duke University and continued his education at the University of Michigan, Ann Arbor, where he received MSE degrees in mechanical engineering and biomedical engineering and a PhD in biomedical engineering. Following his graduate studies,

he was a postdoctoral research fellow in the Vascular Biology Program at Harvard Medical School.

R.V. Paul Chan, MD, MSc, MBA, is the department head and the John H. Panton, MD Professor of Ophthalmology at the Illinois Eye and Ear Infirmary. He was recognized as a UIC Distinguished Professor in 2024.

Dr. Chan is a global leader in pediatric blindness prevention and retinopathy of prematurity. His primary research interests focus on utilizing new technology and imaging techniques to better evaluate and manage children with retinal disease.

R.V. Paul Chan

He received his BA from the University of Pennsylvania, his MD from the Temple University School of Medicine, his MSc from Weill Cornell Medical College, and his MBA from the University of Chicago Booth School of Business. After completing his ophthalmology residency, he completed a fellowship in vitreoretinal surgery at the Massachusetts Eye and Ear Infirmary at Harvard Medical School.

DR. CASKEY APPOINTED DEPARTMENT OF MEDICINE HEAD

Rachel Caskey, MD, MAPP, was appointed head of the Department of Medicine at the College of Medicine, effective Feb. 1, 2024. Dr. Caskey serves as professor of medicine and pediatrics at the College of Medicine and has served as chief of the Division of Academic Internal Medicine and Geriatrics since 2016.

Rachel Caskey

A national leader in the field of maternal child health, Dr. Caskey combines her clinical interest in women's health with her public health interest in population health to develop a research platform focused on healthcare delivery through scalable behavior change interventions. She is a health services researcher focused on novel system-level changes to healthcare settings to improve outcomes for women and children, with an emphasis on improving access to care for postpartum women and reducing maternal morbidity and mortality. The principal investigator on several federally funded grants, Dr. Caskey has earned local and national recognition for her work. In 2019, she was named UIC Researcher and Scholar of the Year.

Dr. Caskey has an appointment at UIC's School of Public Health in the Center of Excellence in Maternal and Child Health, where she has taught core courses on health outcomes. She is a member of the University of Illinois Cancer Center, where she collaborates on efforts to reduce the incidence of HPV-related cancers. Dr. Caskey has considerable experience working with the State of Illinois, the City of Chicago, and the state Medicaid office, and she is often asked to provide content expertise on state Medicaid healthcare policy and pharmacy coverage policy decisions. She partners with the Chicago Department of Public Health and Illinois Department of Public Health on several large research and public health programming efforts, and has been invited to sit on city and state task forces targeting health disparities and prevention activities.

Dr. Caskey is a board-certified internist and pediatrician. Her clinical contributions to UIC have led to a number of clinical teaching awards and the Chancellor's COVID-19 Response Award in 2020.

She received her MD from Jefferson Medical College in Philadelphia and completed a combined internal medicine and pediatrics residency program at the University of Michigan in Ann Arbor. After her residency, Dr. Caskey completed a research fellowship at the University of Chicago and a master's in public policy (healthcare policy track) at the Harris School of Public Policy at the University of Chicago.

DR. PARK NAMED DEPARTMENT OF MEDICAL EDUCATION HEAD

Yoon Soo Park, PhD, was appointed head of the Department of Medical Education at the College of Medicine, effective July 1, 2023.

Dr. Park earned his PhD in measurement, evaluation, and statistics from Columbia University. He joined the faculty at the College of Medicine in 2012. Currently, he serves as department head of medical education and as director of research in the Office of Educational Affairs.

Beyond UIC, Dr. Park has served as chair of research in medical education for the Association of American Medical Colleges and as vice president for the American Educational Research Association (AERA). He was the recipient of the AERA Established Investigator Award for the best paper presented at the annual meeting. He received the Alicia Cascallar Award from the National Council on Measurement in Education.

He was honored with the Research in Medical Education Best Paper Award from the AAMC. Additionally, he was named a KIPRIME Fellow by the Karolinska Institutet and was inducted into the American College of Surgeons Academy of Master Surgeon Educators.

Yoon Soo Park

Dr. Park's research has contributed to advancing assessment validity and developing innovative methodologies in learning analytics, influencing assessment practices in the National Board of Medical Examiners, the Accreditation Council for Graduate Medical Education, and medical specialty boards. His work has improved clinical reasoning, workplace-based assessments, and learning analytics, addressing the transition from medical school to residency and learner developmental trajectories in residency education, contributing to emergency medicine, family medicine, internal medicine, pediatrics, psychiatry, and surgery.

BY CHERYL SOOHOO

A Lifesaving

> "For the College of Medicine, commercializing innovation is not about making money but about **conducting research that enhances** the health and welfare of individuals, communities, and society."
>
> **Bellur S. Prabhakar, MSc, PhD**

Mark I. Rosenblatt, MD, PhD, MBA, MHA'19
(right in photo)
G. Stephen Irwin Executive Dean

Bellur S. Prabhakar, MSc, PhD
Senior associate dean for research and associate dean for technological innovation and training

PHOTOS: DIANE M. SMUTNY

Pipeline

Moving biomedical breakthroughs from the lab to the marketplace

From an islet-cell therapy that prevents dangerous blood sugar drops in people with Type 1 diabetes to a novel treatment for dry eye disease, the College of Medicine's entrepreneurial pipeline is **accelerating the delivery of game-changing medical treatments and technologies** for patients in need.

IMAGINE AN EYE DROP WITH ANTIBODIES GENERATED FROM THE PLASMA OF THOUSANDS OF HEALTHY HUMAN DONORS—antibodies that can zero in on autoimmune inflammation to relieve the burning pain and light sensitivity caused by severe dry eye disease. A life-transforming therapy that replaces malfunctioning pancreatic islet cells with healthy donor cells to prevent severe hypoglycemia in patients with uncontrolled Type 1 diabetes. An innovative treatment that helps the body's immune system heal itself from autoimmune diseases such as rheumatoid arthritis and lupus.

These medical advances—which have immense potential to enhance human health and well-being—all began as innovative concepts or breakthrough discoveries by College of Medicine faculty members and their students. Along with scores of other innovations, these groundbreaking treatments are making their way through the College of Medicine's entrepreneurial pipeline to address humanity's most urgent unmet health needs.

"Our fundamental goal at the College of Medicine is to improve health through outstanding education, research, clinical care, and social responsibility," says Executive Dean Mark I. Rosenblatt, MD, PhD, MBA, MHA '19. "We constantly strive to take advantage of findings made in our laboratories and clinics to improve the lives of patients through new technologies, whether they become cures or more effective diagnostics, therapeutics, devices, or bioinformatics."

The robust innovation environment at the University of Illinois Chicago—and particularly at the College of Medicine—has long yielded game-changing commercial products. Today, UIC has three major drugs on the market: an anti-HIV drug sold by Janssen Therapeutics; Tice BCG, a bladder cancer drug in the Merck portfolio; and an improved shingles vaccine developed by former faculty member Abbas Vafai, PhD, at the College of Medicine's Rockford campus in the late 1980s.

Dr. Vafai's work on the shingles vaccine was further developed by pharmaceutical giant GlaxoSmithKline (GSK) and marketed as Shingrix® through a UIC licensing agreement. Approved by the Food and Drug Administration in 2017, Shingrix has an efficacy rate of over 90% relative to the 51% efficacy rate of its predecessor, Zostavax. Shingrix is now recommended by the Centers for Disease Control and Prevention for adults aged 50 and over and protects millions around the globe from the debilitating pain of shingles and postherpetic neuralgia. In addition to significantly safeguarding public health, Shingrix has become a multimillion-

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How Innovation Happens

UIC researchers are constantly innovating to meet humanity's need for more effective and precise surgical techniques, therapeutics, medical devices, medical software, and delivery systems. The College of Medicine's innovation culture is supported by a robust entrepreneurial pipeline that nurtures ideas and inventions through every stage of development, from unmet needs to innovative solutions to viable commercial products.

From Idea to Market: The Three Pathways to Product Development

PATHWAY 1:

Therapeutics

Discovery and Target Identification
- Identify a target molecule, gene, or protein involved in a disease.
- Design and test potential drugs that can interact with the target and modulate its activity.

Preclinical Studies
- Test promising therapeutics in laboratory and animal models to evaluate safety and efficacy.
- Through a process known as target validation, evaluate whether a drug can modulate disease activity and offer therapeutic benefits within an acceptable safety window.

Investigational New Drug Application
- If a drug shows promise in the preclinical phase, file an Investigational New Drug (IND) application with regulatory authorities such as the FDA.

Clinical Development
- Test promising drugs in human subjects in carefully controlled clinical trials conducted in three phases:
  - **PHASE 1:** Determines whether a drug is safe to test for efficacy
  - **PHASE 2:** Determines whether a drug has any therapeutic effect
  - **PHASE 3:** Determines the extent of a drug's therapeutic effect

New Drug Application
- If a drug is deemed safe and effective for its intended use in the population studied in the clinical trials, file a New Drug Application (NDA) with regulatory authorities such as the FDA.

Market Introduction
- If regulatory authorities approve the NDA, the drug can be manufactured, marketed, and made available through pharmacies, hospitals, and other healthcare providers.

Post-Market Monitoring
- Once a drug is on the market, monitor it to identify safety issues or adverse events, and report to regulatory authorities.

PATHWAY 2:

Medical Devices

Concept Design
- Develop an innovative idea or concept for a new device.
- Define user needs.
- Establish key design requirements and performance indicators.

Design Planning
- Generate and evaluate ideas.
- Refine promising concepts.
- Develop a concept prototype to demonstrate the potential of the device.

Design Development
- Refine and test prototype.

Design Verification and Validation
- Test device to verify that it is built correctly.
- Test device to validate that it works as intended for the consumer.

Device Classification
- Device is classified based on its potential risks and the regulatory controls needed to ensure its safety and efficacy. The path to regulatory approval is different for each risk classification:
  - **CLASS 1** (low-risk) devices such as bandages, stethoscopes, surgical masks, or nonelectric wheelchairs: Must be FDA-registered. Subject to general controls to ensure safety and efficacy.
  - **CLASS 2** (moderate-risk) devices such as blood pressure cuffs, blood glucose meters, syringes, and electric wheelchairs: Must be FDA-cleared. Subject to special controls such as labeling requirements, mandatory performance standards, and device-specific testing requirements.
  - **CLASS 3** (high-risk) devices such as artificial hips, breast implants, defibrillators, or pacemakers: These devices typically support or sustain life, are implanted in the body, or have the potential for unreasonable risk of illness or injury. Must have FDA pre-market approval.

Product Launch

If regulatory approval is granted, the device is manufactured, marketed, and made available for real-world use.

PATHWAY 3:

Medical Software

Determine medical software requirements.

Research and Prototype
- Conduct research and evaluate possible software solutions.
- Design and build prototype with basic functionality to demonstrate software concept.

Design and Development
- Refine initial prototype and build final prototype.
- Write software code.

Medical Software Testing
- Test and refine software.
- Run training datasets to train machine learning model.
- Run validation dataset to assess accuracy and functionality of model.

Regulatory Approval
- Ensure that software meets regulatory standards.
- Obtain FDA precertification for streamlined premarket review.

Product Launch
- Commercial distribution and real-world use.

The College of Medicine Research Building (right), an innovation hub where many medical breakthroughs begin the journey from the lab to the marketplace.

Keeping ideas with commercial potential confidential as long as possible helps maximize market exclusivity and the time needed to develop a product, build a business, and get into the marketplace.

Suseelan Pookote, PhD
Senior director,
Office of Technology Management

PHOTO: DIANE M. SMUTNY

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dollar blockbuster therapeutic for GSK—and currently ranks among the top royalty-generating technologies at UIC, providing revenue that helps the university fulfill its academic mission and maintain its stature as a top public research institution.

"For the College of Medicine, commercializing innovation is not about making money but about conducting research that enhances the health and welfare of individuals, communities, and society," says Bellur S. Prabhakar, MSc, PhD, senior associate dean for research and associate dean for technological innovation and training. "Revenue generated through medical entrepreneurship enables us to offer more scholarships for students, provide seed funding for research projects, train the next generation of clinicians and scientists, and continually invest in more innovative ideas."

The College of Medicine's research goals focus, in part, on translating high-impact biomedical and behavioral discoveries into clinical applications. With their strong translational research skills, COM's clinical investigators are well positioned to play a pivotal role in drug

> What we are seeing now are more clinicians and scientists **holding patents and becoming innovators and entrepreneurs**. They are taking more control of driving innovation to advance their fields.
>
> **Peter Pfanner**
> *Innovation Center executive director, associate vice chancellor for innovation, and COM's medical device development director*

PHOTOS: DIANE M. SMUTNY

and device development as medical entrepreneurs.

While the journey from idea to commercial medical product can be long and filled with challenges, the College has worked to create a strong ecosystem that encourages innovation and provides the framework needed for entrepreneurial ventures to flourish. COM partners with collaborators across UIC, and has an entrepreneur-in-residence program to help faculty members navigate commercialization pathways, from licensing new technologies to launching startups.

Safeguarding Innovations

The first step in the entrepreneurial journey is a critical one: putting safeguards in place to protect all intellectual property (IP) associated with new treatments and technologies. This is where the Office of Technology Management (OTM) comes in. A UIC service, OTM works to commercialize the research and educational activities of faculty members and their students at the university's Chicago, Rockford, and Peoria campuses.

"Keeping ideas with commercial potential confidential as long as possible helps maximize market exclusivity and the time needed to develop a product, build a business, and get into the marketplace," explains OTM Senior Director Suseelan Pookote, PhD. "One of our key functions is to review faculty research results before they are presented, published, or even informally discussed in nonconfidential communications to identify ideas that we should protect."

In the U.S., inventors have up to one year to apply for federal patent protection after the public disclosure of an invention. From Europe to Asia, other countries are not so forgiving and will not entertain IP protection once members of the public learn about the existence of an innovation.

The OTM serves multiple colleges on the Chicago campus—although the College of Medicine is its largest and most productive client. COM provides more than 65% of the products currently in UIC's clinical pipeline of therapeutics, vaccines, and devices. OTM provides a broad array of support services, from conducting marketing analyses and developing scalable business models to wooing potential investors and finding licensees. Generating licensing revenue of more than $20 million annually over the past decade, the OTM is the university's conduit for transferring technology to industry and/or faculty startup enterprises through licensing agreements.

All research universities include the pursuit of scholarship in their missions. Sharing new knowledge for the greater good is imperative, and the focus on faculty scholarly publications within universities remains a strong incentive for career advancement, motivating academic investigators to submit manuscripts to high-impact journals as quickly as possible. But to translate these discoveries requires critically important patent protection that enables commercialization and impact. Dr. Prabhakar—a technological innovator and multiple patent holder—has worked hard to make COM faculty members more knowledgeable about the commercialization and entrepreneurial process.

"Protecting ideas prior to publication allows our clinicians and scientists to extract the full value of their research to make a difference in

improving human health," he says. "To that end, we have created a culture of entrepreneurship that begins with faculty disclosing their inventions to the OTM."

From 2014 to 2023, about 80% of COM invention disclosures resulted in patent application filings with the U.S. Patent and Trademark Office, an agency of the U.S. Department of Commerce. Of those applications, about 25% yielded coveted patents to maintain inventor rights, with 75% of these patented COM medical products leading to licenses that continue to generate revenue for the university as well as the inventors.

While COM possesses a strong life-sciences portfolio of commercial products, there is room for more growth, according to Dr. Pookote. "While quality disclosures from COM have been steady over time, we are always looking for more," he points out. "We are here to help. We encourage faculty to reach out to us early and often."

On average, COM innovations result in 6 to 16 licenses annually, with faculty inventors establishing 1 to 4 startups each year.

The OTM also works with the College of Medicine to cultivate and manage research collaborations with industry to accelerate the development of COM-originated medical products.

In 2023, COM celebrated noteworthy progress toward commercialization due to corporate and faculty startup partnerships. In March of that year, Grifols, a global leader in plasma-derived medicines, announced its collaborative agreement with Selagine, founded by B.A. Field Professor of Ophthalmology Sandeep Jain, MD, for the development and commercialization of immunoglobulin eye drops to treat dry eye disease. In June, the FDA approved CellTrans' Lantidra (donislecel), the first allogeneic (donor) pancreatic islet cellular therapy made from deceased donor pancreatic cells for the treatment of brittle Type 1 diabetes. José Oberholzer, MD, founder and president of CellTrans Inc. and the principal investigator of the islet transplant clinical trials completed at UIC, launched CellTrans out of his scientific research group at UIC. In October, Deerfield Management—a healthcare investment management firm collaborating with UIC through a company called West Loop Innovations—announced its first project to develop an innovative antibody treatment for autoimmune diseases based on research conducted in Dr. Prabhakar's lab.

Bringing Ideas to Life

Home oxygen therapy helps people with respiratory conditions breathe easier. For individuals with chronic obstructive pulmonary disease (COPD) and hypoxemia, supplemental oxygen can improve health outcomes and quality of life. Yet the highly volatile nature of oxygen also poses a fire hazard in the home and in enclosed spaces—especially for patients who smoke. Most people breathe in-home oxygen via a nasal cannula connected to oxygen-generating or oxygen-storage equipment. The nasal cannula, not typically airtight, allows oxygen to leak into the surrounding air—creating an oxygen-rich environment with the potential to ignite at the slightest puff of a cigarette. To make matters worse, patients who smoke often neglect to turn off their oxygen concentrator machines, which pull oxygen out of the air. When they remove their nasal cannulas to smoke, more oxygen escapes, creating a very unstable situation.

Pulmonologists like Professor of Medicine Israel Rubinstein, MD, routinely prescribe home oxygen therapy for COPD patients with lung problems due to a history of lifelong smoking. But many individuals will not or cannot give up the addictive habit while on continuous oxygen therapy—even when warned of the risks. Dr. Rubinstein believed there had to be a better way to protect patients, as well as family members, neighbors, pets, and first responders from serious flash burns, inhalation injuries, and/or death. So he reached out to the UIC Innovation Center to help him create an oxygen therapy safety device.

Located in a former Jewel-Osco grocery store building on the UIC campus, the Innovation Center solves real-world problems by working on real-world projects through corporate-sponsored classes, labs, and programs for students. Operating on the premise that innovation is a teachable, learnable process, the center brings together interdisciplinary teams of students, staff, and faculty members who use their minds and hands to invent, experiment, and innovate.

The practice of innovating involves deep learning, obtaining feedback, prototyping to validate hypotheses, and pitching innovative technology. Not only does the center inspire students to become innovators, but it also helps College of Medicine faculty entrepreneurs like Dr. Rubinstein through the entrepreneurial pipeline—wherever they are in the process.

"What we are seeing now are more clinicians and scientists holding patents and becoming innovators and entrepreneurs. They are taking more control of driving innovation to advance their fields," notes Innovation Center Executive Director Peter Pfanner, associate vice chancellor for innovation and COM's medical device development director. "The Innovation Center has the resources and expertise to help inventors convert promising ideas into actual, tangible 'things.'"

The Innovation Center has four dedicated medical R&D laboratories that focus on products and services: a urology lab; an Ophthalmic Research in Bioengineering, Innovation and Technology lab referred to as the ORBIT lab; a healthcare applications lab dubbed "HAL"; and a medical accelerator devices lab known as "MAD." It was in the MAD lab that Dr. Rubinstein's idea gained traction.

"Dr. Rubinstein came to us with a problem, and we collaborated with him to develop a viable solution," explains Charles Frisbie, MBA, director of the Innovation Center's medical device labs.

Frisbie served as the business and market analysis lead on the project

Faculty entrepreneurs yearn to see their research discoveries turned into products that meet unmet medical needs, but they may not have the experience when it comes to commercialization. My goal is to help position them for successful outcomes, whatever form that takes.

Michael T. Flavin, PhD
Research professor in the Colleges of Medicine and Pharmacy and a staff member at the university's Discovery Partners Institute

PHOTO: DIANE M. SMUTNY

and assembled a team that included a bioengineer and an industrial designer. In a year's time, the Innovation Center-based group developed and validated a proof-of-concept prototype for a wearable device they named the "Smart Bolo."

Worn around the neck like a bolo tie, the smart device's flex sensors sit above and around the patient's ears to monitor the correct placement of the nasal cannula. If the user removes the cannula without turning off the flow of oxygen or the cannula comes loose while the patient is sleeping, the Smart Bolo simultaneously triggers an alarm on the oxygen concentrator equipment and shuts down the flow of oxygen.

More than 1.2 million people in the United States receive oxygen therapy. The Smart Bolo has the opportunity to be packaged as a standard safety measure for every home oxygen user. With an estimated market size of $2.5 billion in 2020, the global medical oxygen concentrator market size is expected to reach $5 billion by 2026.

All of this information and more is highlighted in the investor pitch deck developed by Frisbie and the Smart Bolo team.

"Not only did we help Dr. Rubinstein take the project to the next step," says Frisbie, "but we also helped him tell an engaging story about his innovation in understandable lay audience terms to attract the interest of potential investors."

Dr. Rubinstein is now working to procure innovation or small-business funding to support additional translational work to move the entrepreneurial project further along the path toward commercialization.

Faculty Startups

On March 6, 2023, Dr. Jain made a major leap forward in his quest to develop novel therapeutics for patients with debilitating ocular diseases. On this late winter day, his company, Selagine, a UIC spinout company, announced that it had entered into

a global collaboration and licensing agreement with Grifols Inc.—a leading pharmaceutical firm based in Barcelona, Spain—to develop and commercialize a breakthrough therapy for dry eye disease. This strategic alliance has the potential to deliver a more effective and much-needed treatment for a condition that affects more than 100 million people worldwide.

The culmination of more than a decade of cutting-edge research in Dr. Jain's lab, this novel therapeutic targets the inflammatory and immunological factors underlying severe dry eye disease. By securing patent protection for his innovative treatment and demonstrating proof of concept in preclinical studies, Dr. Jain had taken care of two key elements that were critical to moving his idea through the entrepreneurial pipeline to the marketplace to improve eye care.

"These are some of the important clues that tell me that a new technology has good commercial potential," explains Michael T. Flavin, PhD, founder of COMassist, a program designed to help translate the discoveries of COM faculty and their students into first-ever products, services, and technologies. "Dr. Jain had made significant progress, and his technology was ripe for commercialization when I began working with him. Using my experience in creating early-stage ventures, I helped him start up and develop Selagine."

With its corporate headquarters on Taylor Street, Selagine has stayed close to the College of Medicine. The company is currently working to secure R&D laboratory space in the UIC Incubator Laboratory Facility, a startup incubator that supports UIC and local biotech entrepreneurs looking to develop their ideas and technologies into sustainable businesses.

Dr. Flavin relies on his own biotechnology venture experience to advise COM faculty-led teams on how to start, finance, and develop their own startup companies. In 1999, the successful serial entrepreneur founded Advanced Life Sciences, a biopharmaceutical company focusing on new drugs to fight infection, inflammation, and cancer. Six years later, the company completed a $35 million initial public offering (IPO) and several rounds of follow-on funding to advance drugs through clinical trials, including Restanza (cethromycin), a novel once-a-day oral antibiotic in new drug application-stage development for the treatment of respiratory tract infections. In 1987, Dr. Flavin created MediChem Life Sciences, a drug discovery and development company for the pharmaceutical industry. In 2000, the company completed a $54 million IPO. Two years later, it was acquired by deCODE genetics to build a "gene map to drug" business model.

Dean Rosenblatt saw an opportunity to tap into Dr. Flavin's entrepreneurial expertise. So he recruited Dr. Flavin as an entrepreneur-in-residence to help COM's enterprising faculty advance their innovations to the marketplace.

"I see Mike as a catalyst who works with others here at UIC and COM to accelerate progress, especially for mature projects," says Dean Rosenblatt. "He helps make the learning curve less steep, allowing dreams to come true for faculty hoping to make a difference in improving patient care with new technologies."

In 2020, Dr. Flavin joined UIC as a research professor in the Colleges of Medicine and Pharmacy and a staff member at the university's Discovery Partners Institute, which conducts applied research and development and launches new businesses built on university technologies.

In these roles, Dr. Flavin has facilitated the launch of 13 companies. Nine of these startups originated in COM's departments of ophthalmology, neurology, and pediatrics. He also helped four additional firms founded by College of Medicine faculty members secure licensing agreements from the university and pitch their companies to investors.

Often working one-on-one with faculty and their students, Dr. Flavin offers an array of personalized services that address specific aspects of the commercialization process, such as evaluating technologies in development, initiating the incorporation of startup companies, and assisting with proposals for federal technology funding from sources such as the Small Business Innovation Research (SBIR) and the Small Business Technology Transfer (STTR) grant programs—also known as "America's Seed Fund." Dr. Flavin works closely with the UIC Office of Technology Management and the UIC Innovation Center to get faculty-initiated projects off the ground.

"Faculty entrepreneurs yearn to see their research discoveries turned into products that meet unmet medical needs, but they may not have the experience when it comes to commercialization," explains Dr. Flavin. "My goal is to help position them for successful outcomes, whatever form that takes."

Universities and, more specifically, medical schools have a special role to play in commercializing research discoveries to fill gaps in medical care. Every day in academic health centers, clinician-scientists witness the many ways that medical innovations improve patient outcomes and quality of life.

"While industry is certainly thoughtful about health equity, it is one of the College of Medicine's central missions and an orientation that is woven into all we do," remarks Dean Rosenblatt. "We pursue research discoveries and develop new technologies always with the thought of how we can improve care for everyone—regardless of ethnicity, gender, or other socioeconomic factors—to overcome health disparities."

The Innovation Pipeline

Bringing groundbreaking medical treatments and technologies to patients in need

The University of Illinois Chicago is a hub of innovation and cutting-edge research with a commitment to discovery and real-world problem-solving. A leader in translational medicine, the College of Medicine has a proven track record of commercializing therapeutics, with three major drugs on the market today. Clinician-scientists and researchers at the Chicago campus are currently moving 36 medical innovations through the pipeline, with 26 in preclinical development and 10 in clinical trials. Of the 36 inventions in the innovation pipeline, the following 17 are in clinical trails or have been licensed.

INNOVATIONS	INNOVATORS	SPECIALTY	PHASE
Robotic surgical station: Integrated survival unit with robot/operative table/anesthesia machine	Pier Cristoforo Giulianotti, MD, FACS	Surgery	On the market
Shingrix: A safer, more effective vaccine to prevent shingles	Abbas Vafai, PhD	Infectious Diseases	On the market
EnteroTracker: Minimally invasive gastrointestinal sampling	Steven J. Ackerman, PhD	Diagnostics	On the market
Isolating human islets for allogenic transplantation of islets	Jose Oberholzer, MD	Endocrine, Autoimmune, and Metabolic Disorders	FDA approved
OCU300: A treatment for ocular discomfort and redness in patients with ocular graft versus host disease	Sandeep Jain, MD	Ophthalmology	Phase 3
Stem Cell Educator: A one-time, dialysis-like stem cell therapy to treat autoimmune diseases	Yong Zhao, MD, PhD	Endocrine, Autoimmune, and Metabolic Disorders	Phase 2
Ezetimibe: Adjuvant therapy for hepatitis C	Susan L. Uprichard, PhD	Infectious Diseases	Phase 2
DNase eye drops for treating dry eye disease	Sandeep Jain, MD	Ophthalmology	Phase 2
Dronabinol: Cannabinoid treatment for sleep apnea	David W. Carley, PhD	Neurology	Phase 2
TEM8: Prostate cancer vaccine	David J. Peace, MD	Oncology	Phase 2
Oral THU-Decitabine: Formulation to improve oral absorption for treatment of sickle cell disease	Yogen Saunthararajah, MD	Oncology	Phase 2
Pooled human immunoglobulins (OSIG-eye drops): The first biologic for treating dry eye disease arising from inflammatory and immune system disorders	Sandeep Jain, MD	Ophthalmology	Phase 1
P28: Bacterial peptide anticancer agent	Ananda Chakrabarty, PhD	Oncology	Phase 1 clinical trial completed; awaiting funding for Phase 2 clinical trial
dCK inhibitors: Small molecule inhibitors of nucleotide metabolism	Arnon Lavie, PhD	Oncology	Phase 1
DMD cell therapy: Novel allogeneic chimeric cell therapy for Duchenne muscular dystrophy	Maria Siemionow, MD, PhD, Dsc	Rare Diseases	Phase 1
Intuition: AI-driven neurological diseases database for clinical care and research	Jeffrey A. Loeb, MD, PhD, and Biswajit Maharathi, PhD	Neurology Software	Software
Depression diagnostic: Test for therapeutic response to antidepressant therapy	Mark Rasenick, PhD	Diagnostics	Validating clinical samples

Helping the Body H

PHOTO: DIANE M. SMUTNY

Bellur Prabhakar, MSc, PhD, senior associate dean for research and associate dean for technological innovation and training, with his research team at the College of Medicine Research Building.

An innovative therapy harnesses the body's natural defenses to treat lupus and other autoimmune diseases.

BY CHERYL SOOHOO

eal Itself

IN APRIL 2019, the University of Illinois Chicago partnered with healthcare investment firm Deerfield Management to launch a company called West Loop Innovations. Its purpose? To supercharge the commercialization of therapeutics developed at UIC. In October 2023—after vigorous vetting of 120 projects pitched by investigators across the Chicago campus—the company announced its first research project: the discovery of a safe and effective antibody treatment for autoimmune diseases based on the breakthrough work of Bellur Prabhakar, MSc, PhD, senior associate dean for research and associate dean for technological innovation and training, and his research team at the College of Medicine.

A cure for the more than 100 different autoimmune diseases currently identified remains painfully elusive for millions of patients who struggle with these chronic and life-threatening disorders. The development of common autoimmune conditions like arthritis, lupus, and Type 1 diabetes occurs when the body's immune system attacks host cells and tissues. The body's natural defense system sees normal cells as foreign invaders and sends out its fighter T cells or antibodies to do battle. This turnabout in the immune system's allegiance can lead to multiple health problems, from chronic joint pain and swelling to diabetes. Existing therapies tamp down the assault on healthy cells by focusing on the immune suppression of pathogenic T cells and B cells, which produce autoantibodies. While offering some relief, current treatments often lead to debilitating side effects, diminished quality of life, and an increased risk of infections and malignancies.

Deficits in the number and/or function of a regulatory type of immune cell called "Tregs" contribute to the pathogenesis of autoimmune diseases. A subpopulation of T cells, Tregs help to control the immune response to the body's own cells and foreign particles or antigens to prevent autoimmune disorders. Restoring these suppressive cells could offer promise for organically rebalancing the immune system without harsh immune-suppressive tactics. But potentially clinically useful methods for expanding Tregs and maintaining their efficacy beyond weeks or months in the human body have not materialized or been on the horizon—until now. Based on an innovative Treg expansion method developed in Dr. Prabhakar's lab, the proposed therapeutic approach aims to restore homeostatic balance to the immune system by following natural pathways of immune regulation.

"Almost all autoimmune diseases arise from a lack of immune regulation," explains Dr. Prabhakar, a professor in the Department of Microbiology and Immunology and the Department of Ophthalmology. "My novel method of treatment fixes this problem by using biological modifiers to exploit physiological processes that already exist in each of us. The strategy prompts the body's immune system to naturally 'heal thyself,' if you will."

Two decades of research conducted by Dr. Prabhakar and his team have led to the identification of novel mechanisms for regulatory T-cell induction and maintenance. The investigators have collected strong efficacy data in animal models of three autoimmune diseases: systemic lupus erythematosus, Type 1 diabetes, and Hashimoto's thyroiditis. West Loop Innovations intends to further advance Dr. Prabhakar's innovative technology to explore a variety of treatment approaches, starting with the development of a monoclonal antibody. The therapeutic agent will target protein OX40 and NOTCH3 as a safe approach that can selectively expand Tregs, with a sustained suppressive function to confer long-term protection against autoimmune diseases.

Always with an eye on product marketability, West Loop Innovations will also look at scalability issues such as whether the eventual therapeutic can be easily mass produced.

Dr. Prabhakar serves as a project manager through West Loop. Any potential products that come from this exploratory biologics initiative will be evaluated for safety and efficacy in the Prabhakar lab to ensure input from the inventors, according to Suseelan Pookote, PhD, a member of the West Loop Innovations leadership team.

"If a novel therapeutic agent is identified under the current project, then there is a potential for the work to continue through a milestone-based program, with every successful step advanced with Deerfield covering the costs of research and development," says Dr. Pookote, senior director of UIC's Office of Technology Management, which oversees the university's third-party industry partnership with Deerfield. "The benefit of our Deerfield collaboration through West Loop Innovations is that we have a built-in partnership with a path toward commercialization if this project proves successful and yields a marketable product."

> "This modality of treatment could have profound value in improving the lives of many people."
>
> **Bellur S. Prabhakar, MSc, PhD**
> *Senior associate dean for research and associate dean for technological innovation and training*

Deerfield funds all West Loop projects, which are executed by a collaborative team of university scientists and Deerfield experts. OTM's assistant director, Melissa Maderia, PhD, MBA, serves as scientific collaboration director of West Loop. Deerfield has committed to providing up to $65 million in translational research funding to advance the early phase development of promising UIC discoveries such as this inaugural project and others in the College of Medicine's innovation pipeline.

For his part, Dr. Prabhakar is thrilled to see his discovery brought ever closer to helping patients. "This modality of treatment could have profound value in improving the lives of many people."

PHOTO: DIANE M. SMUTNY

An Entre

Blending his clinical work and research with an enterprising spirit, **Sandeep Jain, MD**, pursues novel treatments for ocular diseases with Selagine Inc.

BY DANIEL P. SMITH

preneurial Eye




BOARD-CERTIFIED OPHTHALMOLOGIST Sandeep Jain, MD, is well aware of the daily discomfort that plagues patients afflicted with dry eye disease. Over many years, Dr. Jain has heard countless patients lament the condition's negative impact on their quality of life, challenging their ability to concentrate on tasks, disrupting sleep, and stirring anxiety.

"It's as if my eyes have been rolled in sand and then dipped in hot sauce," he recalls a patient telling him. This vivid description had a profound impact on Dr. Jain. It continues to motivate him today, fueling his work as an "academic entrepreneur"—his favored term for a clinical scientist who translates real-world clinical data into novel technologies to address unmet medical needs.

"I don't want patients suffering, and when they do, it strikes me as medicine's failure," says Dr. Jain, B.A. Field Professor of Ophthalmology and director of the Dry Eye and Ocular GVHD Clinic at the College of Medicine. "We need to figure out ways that don't exist yet and develop strategies and products to help patients and relieve the misery they're feeling."

In recent years, creating novel solutions for dry eye disease—one of the most common conditions that ophthalmology specialists encounter—has been a personal mission for Jain and one best represented in the launch of Selagine Inc., a business based on Dr. Jain's groundbreaking research. The Chicago-based company is developing two timely, first-in-class eye care products: the first biologic for treating dry eye disease and a next-generation antibiotic for ocular bacterial infections.

Tying the Clinic and Research Together

Dr. Jain moved to UIC from Massachusetts Eye and Ear–Harvard Medical School in 2006, largely to pursue work as an academic entrepreneur, enticed by the ability to devote upwards of 75% of his time to cornea healing and scarring research. Once in Chicago, Dr. Jain immediately began building an active, solutions-oriented lab closely tied to work at the Dry Eye and Ocular GVHD Clinic.

Empowered by support from College of Medicine and Department of Ophthalmology leadership and significant research grants, including a Mentored Clinical Scientist Research Career Development Award from the National Eye Institute/National Institutes of Health, the Jain-led clinic acquired sophisticated technology and examination equipment and began attracting patients from coast to coast. In particular, Dr. Jain focused on patients who had received bone marrow transplants, about half of whom developed severe ocular surface diseases.

Seeing patients four days a week, Dr. Jain gathered clinical data and insights to inform his lab's work. That, in turn, fueled the pursuit of new therapeutic targets, more advanced care, and additional clinical data. The intimate, tightly aligned clinical care-basic research loop proved advantageous for Dr. Jain, as progress in one fostered success in the other—and breakthrough discoveries.

"We run both at full speed, which is the only way it works," Dr. Jain says, crediting a "powerful and unique ecosystem" at the College of Medicine and Department of Ophthalmology for propelling progress. "At our clinic, volume isn't the driver, so we can spend more time with patients investigating their issues in depth. A terrific compounding pharmacy at UIC

> The mission here is to leverage research to improve human health and **help people lead better lives**.

Sandeep Jain, MD
B.A. Field Professor of Ophthalmology and director of the Dry Eye and Ocular GVHD Clinic

turns our ideas into actual off-label treatments that can be dispensed to patients."

While studying patient specimens in the lab, Dr. Jain and his team unearthed key discoveries in dry eye conditions. Notably, they found the presence of neutrophil extracellular traps on the ocular surface of patients with dry eye disease, as well as anti-citrullinated proteins and autoantibodies in the tears.

Dr. Jain, in fact, became the first to describe the use of pooled human immunoglobulin eye drops for treating dry eye patients and earned a five-year, $10.15 million National Eye Institute grant to develop a broad-spectrum eye drop to treat patients with severe dry eye and ocular surface disease due to inflammatory and immune system disorders.

Marching Toward Commercialization

While the lab discoveries invigorated Dr. Jain, he had his eye on a bigger prize: academic entrepreneurship.

With assistance from UIC's Office of Technology Management, Jain incorporated Selagine in 2020. Headquartered in the Illinois Medical District with an R&D lab housed at UIC's Incubator Laboratory Facility, Selagine is marching technologies from Dr. Jain's lab into the marketplace, navigating everything from regulatory steps and preclinical development to clinical trials and marketing.

In 2023, Selagine entered into a research, development, and sublicense agreement with Grifols, a global leader in plasma-derived medicines. Under the agreement, Grifols has made a commitment to fund the estimated $60 million needed for developing immunoglobulin eye drops through U.S. Food and Drug Administration (FDA) approval. The process will be managed collaboratively by Grifols and Selagine, including all clinical, manufacturing, and regulatory activities. Preclinical work with the FDA is complete, and the partners are now preparing for Phase 2B clinical trials.

"The development process is vigorously moving forward," Dr. Jain says.

Simultaneously, Selagine is also developing its antibiotic eye drop for treating bacterial infections, initially focusing on trachoma, a significant public health problem in countries around the globe. The easily transmitted ocular disease is responsible for the blindness or visual impairment of about 1.9 million people, according to the World Health Organization. Here, too, Selagine is readying its promising therapeutic for a Phase 2B clinical study and the Investigational New Drug process.

"The antimicrobial resistance pandemic lurks in the shadows, largely overlooked," Dr. Jain says, noting that the last FDA-approved antibiotic for eye care hit the market some 15 years ago. "This underscores the need to bring new antibiotics to market."

Encouraged by Selagine's potential to deliver life-enhancing treatments, Dr. Jain hopes to build Selagine into a research-based company at the intersection of innovation and philanthropy.

"The mission here is to leverage research to improve human health and help people lead better lives," he says. "That's what energizes me, and I know we can make a difference."

BY IAN P. MURPHY

College of Medicine researchers are developing new ways to fight the centuries-old herpes virus—and turning a genetically engineered version of the virus into an unlikely ally in the war against cancer.

Herpes Breakthroughs on the Horizon

College of Medicine Professor and Vice Chair for Research Deepak Shukla, PhD, and his team members are exploring novel ways to treat ocular herpes infections and one day neutralize the herpes virus in patients altogether.

PHOTO: DIANE M. SMUTNY

PHOTO: DIANE M. SMUTNY

Dr. Shukla's research targets HSV-1's life cycle at multiple checkpoints: A G2 peptide blocks viral entry into cells, DECON inhibits viral replication, BX795 hinders viral protein synthesis, PBA prevents endoplasmic reticulum stress caused by HSV infection, and heparinase inhibitors impede viral release and spread.

HERPES IS A VIRUS THAT HAS AFFLICTED HUMANITY FOR MORE THAN 2,000 YEARS, but UIC researchers are finding new ways to fight it—and enlisting the virus in the fight against other serious diseases. The applications could eventually lead to blockbuster drugs and immunotherapies that prevent debilitating complications and save millions of lives.

The University of Illinois College of Medicine encourages high-impact biomedical and behavioral discovery and the translation of that research into clinical and commercial applications. In fiscal 2023 alone, the school filed 49 new disclosures and 39 patent applications, received eight new patents, licensed six discoveries, and was instrumental in the launch of four startups.

There are two types of herpes simplex virus: HSV-1, which spreads mostly through oral contact and causes infections including sores and genital herpes; HSV-2 spreads via sexual contact and causes genital herpes.

About 80% of adults have HSV-1 and are mostly asymptomatic, meaning they can spread the virus without knowing. "HSV-1 quietly hides in our systems," says Vice Chair for Research Deepak Shukla, PhD, the Marion H. Schenk Esq. Professor in Ophthalmology for Research of the Aging Eye.

When herpes infects the eye: The herpes simplex 1 virus is best known for causing crusty cold sores around the mouth, but it can also infect the eye and cause corneal scarring and vision loss. Dr. Shukla and his research team are developing new drugs to treat ocular herpes, a leading cause of blindness worldwide.

But for about half a million patients per year, herpes infections go beyond the typical cold sore to cause an infection and swelling in the eye. Ocular herpes symptoms mimic pink eye, but the associated inflammation can scar the surface of the cornea.

Immunocompromised patients are especially at risk for repeated flare-ups, and the virus can become resistant to antiviral medications over time. "Ocular herpes just comes back," Dr. Shukla says. "It can lead to permanent damage to the cornea—and once the cornea has damage, you're pretty much blind."

Four Promising Drugs

Dr. Shukla's research is exploring the development of a new class of drugs that treats ocular herpes infections differently from currently available treatments, especially in the unique tissue microenvironment of the eye. "Our ultimate quest is to be able to wipe out the virus," he says. "Until that happens, better drugs are needed to manage herpes."

One is a small peptide that blocks heparan sulfate and, by proxy, heparanase—a cellular enzyme that allows diseases such as viruses and cancers to spread. Previously, treating herpes with the anticoagulant heparin could lead to toxicity, but Dr. Shukla's experimental formulation is nontoxic to healthy cells and effectively inhibits corneal infection in animal models.

There's also phenylbutyrate (PBA), which appears to block infections and increase the efficacy of existing antiviral medications, even protecting the kidneys from damage when the treatment of severe herpes infections demands large courses of antivirals. Clinical trials are on the horizon.

DECON is a patent-applied-for product that uses activated charcoal to allow patients to apply topical acyclovir to the eye as little as once per day rather than six times or more. "The convenience factor alone could create huge demand," Dr. Shukla says.

Finally, the lab is working on a new formulation of a small-molecule antiviral known as BX795, an accidental discovery that may someday neutralize the herpes virus in patients altogether. "Once we have a patent, I can almost guarantee that the drug will be a megabuster," Dr. Shukla says.

Although his team concentrates on ocular herpes, the drugs may

have broader applications, he adds. “Our feeling is that they will also be equally effective against fever blisters, cold sores, and even genital herpes. If the drug can work in the eye, it’s almost certain to be able to take care of herpes issues elsewhere.”

Harnessing Herpes

Bin He, PhD, a professor in the Departments of Microbiology and Immunology at the College of Medicine, also has a deep familiarity with the herpes simplex virus. But he and his research team aren’t trying to eradicate herpes. Instead, they’re engineering it to be “more dangerous to cancer cells,” says Dr. He. With an estimated 10 million cases worldwide in 2020, metastatic disease is the major cause of cancer deaths, and there is an urgent need for effective therapies.

Therapies like the ones Dr. He is working on were introduced in the early 1990s. When injected into a tumor, the modified HSV-1 virus multiplies, delivering a therapeutic payload that jump-starts genes’ immune response and kills cancerous cells “like a missile,” he says. One of these therapies—the first of its kind to treat melanomas—has already been approved by the FDA for use in humans based on early research findings.

“We feel like there’s a good chance to improve upon that to develop the next generation,” Dr. He says. “If it’s effective in 17% of patients, my question is, can we improve it to 27%? Can we make it better so that it’s more efficient at killing the cancer cell and more efficient at activating the immune cells? An increase of a few percentage points can save a lot of lives.”

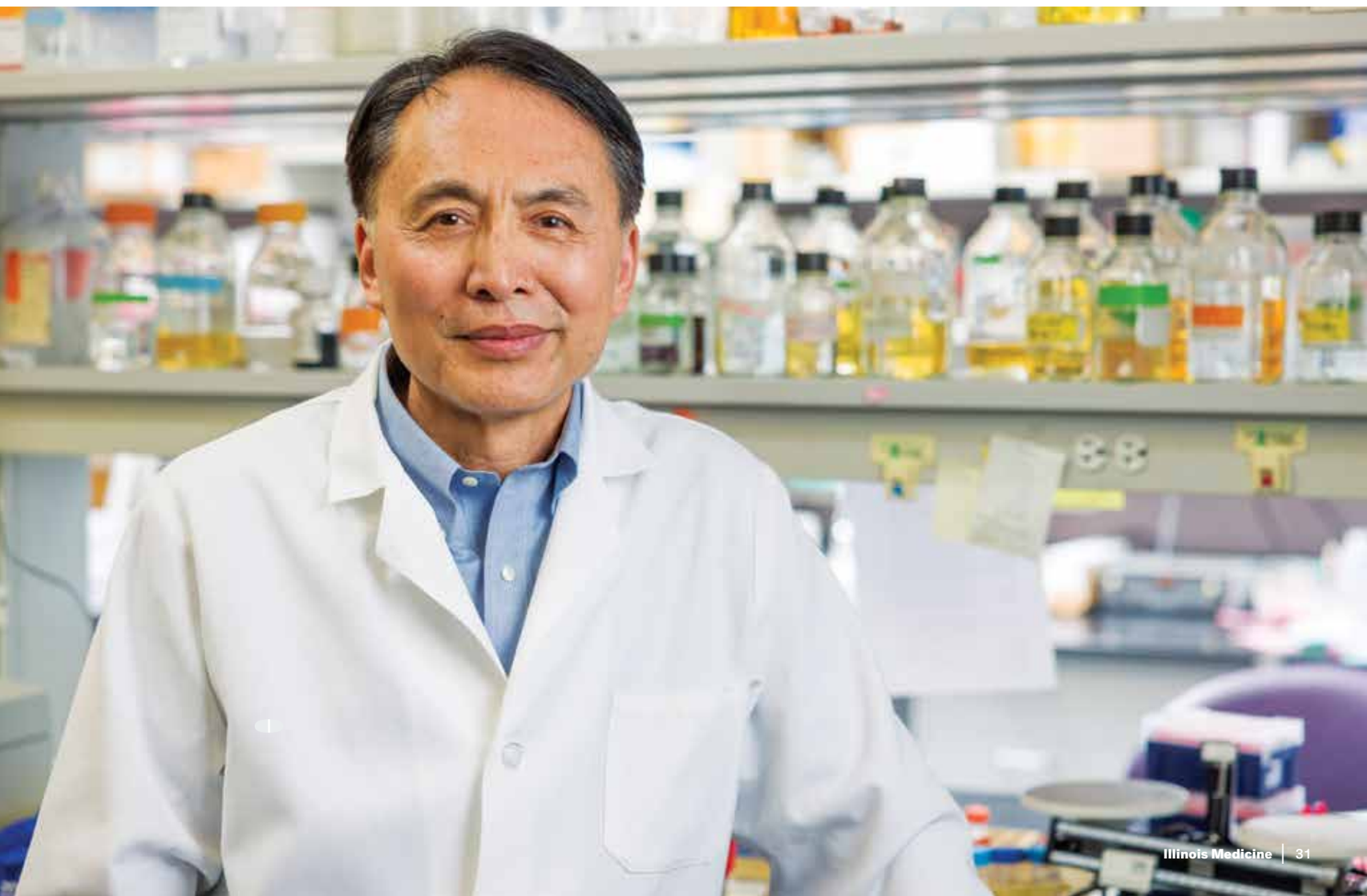
The therapy has attracted National Institutes of Health funding for testing on breast and colon cancers, and the team wants to expand testing to liver and pancreatic cancers soon after. Dr. He’s team is working with the UIC Office of Technology Management to create a commercial therapy; if clinical trials continue to go well, the lab will pursue additional testing in humans.

Herpes-based immunotherapies may ultimately be able to activate patients’ immune systems to help immune cells circulate and target cancers throughout the body. Microbiologically speaking, the virus’s large size means “you can add additional things to the therapeutic payload to amplify its therapeutic outcome,” Dr. He says.

“You have to think about the next generation of therapies,” he adds. “If it’s at 35% overall response—meaning 35% of patients are tumor-free or disease-progression-free for four or five years—it’s OK. But 70% is really impressive. We have to prepare for the next therapy that’s even better than that.”

Harnessing the virulence of herpes to heal cancer: Bin He, PhD, a professor in the Departments of Microbiology and Immunology at the College of Medicine, and his research team are engineering the next generation of a herpes virus that targets cancer cells “like a missile” and destroys them, while inducing a systemic response against tumors.

PHOTO: DIANE M. SMUTNY



MENTAL WELLNESS

Sunnyside for Moms—*a mental wellness app developed by two psychiatry professors—screens pregnant and postpartum women of color from low-income Chicago communities for depression and anxiety and gives them the tools and support they need to thrive.*

Pauline Maki, PhD (left)
Professor of psychiatry, psychology, and obstetrics and gynecology; director of the Women's Mental Health Research Program; and senior director of research, Center for Research on Women and Gender

Jenna Duffecy, PhD
Professor of clinical psychiatry

PHOTO: DIANE M. SMUTNY

PREGNANCY CAN BE A WONDERFUL TIME IN A WOMAN'S LIFE, but it also can bring about feelings of anxiety and, for some, depression. Two professors in the Department of Psychiatry have developed a digital app called *Sunnyside for Moms* that screens new and expectant moms for anxiety and depression and teaches effective coping skills.

In 2014, Pauline Maki, PhD—professor of psychiatry, psychology, and obstetrics and gynecology; director of the Women's Mental Health Research Program; and senior director of research for the Center for Research on Women and Gender—began collaborating with colleague Jenna Duffecy, PhD, professor of clinical psychiatry, to enroll expectant mothers in a digital outreach study that screened for anxiety and depression and provided cognitive behavioral therapy.

Although UIC prenatal clinic patients were screened for anxiety and depression during their first office visits, Drs. Maki and Duffecy were hearing that many patients were having difficulty finding written resources or therapists to help them cope with the condition.

"Our patients were aware of postpartum depression and were really concerned about it," says Dr. Maki. "Some had experienced it before or knew others with it—and they were looking for tools to better manage it before it became a problem."

"There is a connection between the way people think and the way they feel," Dr. Duffecy notes. "So, when

BY CARLA BEECHER

FOR MINORITY MOMS

pregnant women or new mothers are feeling inadequate, anxious, or depressed, it's important for them to take a step back and think about what's going through their minds. The *Sunnyside for Moms* app walks them through that process."

The lessons are based on cognitive behavioral and interpersonal therapy. Participants open the app and receive two 10-minute lessons a week, which include three-minute animated videos of women sharing their pregnancy and postpartum experiences of anxiety and/or depression. Interactive tools enable moms to practice cognitive behavioral skills to improve their mood.

For instance, there's a relaxation tool with deep-breathing and mindfulness exercises, a mood tracker to help moms identify and understand their feelings over time, and a goal-setting tool that reminds them to complete tasks that are important to them.

"*Sunnyside* works for both prevention and treatment, and it was tailored for low-income women of color served by UIC prenatal clinics," says Dr. Maki. "And because most of our patient population have a number of social determinants of health that are barriers to care, they are considered an at-risk population."

Additionally, she says, the psychiatric issues that women experience extend beyond depression. About 4% of the UI Health prenatal clinic patients enrolled in their MoMent: Moms & Mental Health research study test positive not only for perinatal depression (depression during pregnancy and up to one year postpartum), but also for generalized anxiety disorder, substance-use disorder, and post-traumatic stress disorder. Drs. Maki and Duffecy would like to see the project expand to incorporate cognitive behavioral therapy tools for those with multiple comorbidities.

"Ideally, we would like to attract either corporate or philanthropic money to develop a more personalized version of the app to treat the specific circumstances, experiences, and diagnoses of a particular woman," says Dr. Maki. "That's the vision we have."

Over the past 10 years, the National Institute of Mental Health and the Illinois Department of Public Health have funded the Sunnyside *project, which has enrolled more than 400 women. Drs. Maki and Duffecy worked with the university's Center for Clinical and Translational Science Technology Services Core to build and support the app. With the clinical trial now completed, the six-week program is free and open to Illinois residents, who can register for* Sunnyside *by calling 866-364-MOMS.*

Turn to page 4 to read about First lady Jill Biden's visit to UIC to raise awareness of the White House Women's Health Research Initiative and learn about Dr. Maki's groundbreaking research on the mood changes and cognitive issues that women experience during menopause.

The Demographics of Maternal Depression

1 in 5

women experience symptoms of prenatal or postpartum depression

Women who screen positive for depression are likely to be:

- Younger
- African American
- Publicly insured
- Single
- Less educated

With more depressive episodes beginning:

- After giving birth: 40.1%
- During pregnancy: 33.4%
- Before pregnancy: 26.5%

A Fitness Tracker for the Brain

An innovative app turns smartphones into early alert systems for the brain, tracking typos, typing speed, and other smartphone keyboard behaviors to predict bipolar mood swings, detect depression, monitor the cognitive symptoms of neurodegenerative disorders, and provide other objective measures of mood and cognition to advance research and improve patient outcomes.

SMARTPHONES CAN TRACK OUR SLEEP and stand hours, walking and running distance, heart rate, and even our VO2 max (the amount of oxygen we consume during physical exertion).

Now, thanks to an innovative app developed by a research team at the University of Illinois Center on Depression and Resilience, smartphones can also track our mental and cognitive health.

The first iteration of this novel brain fitness tracker was conceived nearly a decade ago when Alex Leow, MD, PhD—a psychiatry, biomedical engineering, and computer science professor—had a flash of insight while playing the piano. "I've always been aware that my piano playing on any given day is linked to my mood and cognitive state," says Dr. Leow. "As I looked down at my piano keyboard that afternoon in 2015, I suddenly realized that we could study the ways that people use their smartphone keyboards to measure their mood and cognition."

Dr. Leow's epiphany led to the creation of BiAffect, a smartphone app concept developed in collaboration with Peter Nelson, PhD, dean of the College of Engineering and founder of the UIC Artificial Intelligence Laboratory. When the idea won the 2017 Mood Challenge—a venture fund program sponsored by the Robert Wood Johnson Foundation—Dr. Leow and her research team used the award money to prototype their app and develop a study to track how keystroke dynamics such as typing speed, frequency of texting, and social media use are altered during depressive and manic episodes in individuals with bipolar disorder.

"The Mood Challenge award helped us realize our vision to address the needs of a population that is often tech-savvy but poorly served by existing mental health tools," Dr. Leow noted at the time.

Advancing Mood Research

For the 5.7 million U.S. adults with bipolar disorder, navigating daily life can be challenging. Diagnosis and treatment rely on careful examination by a physician, supplemented by self-reporting and caretaker-informed questionnaires.

Yet these periodic, subjective methods of collecting information are rarely effective in predicting imminent changes in mood. The BiAffect app developed at UIC, by contrast, objectively measures brain health in real time.

"By leveraging state-of-the-art machine-learning approaches, BiAffect mathematically models relevant, functional details about real-time cognitive performance and psychological states without explicitly testing individuals using active probes," explains Olusola Ajilore, MD, PhD, who serves as professor of psychiatry, associate head for faculty development, and director of the Mood and Anxiety Disorders Program at the Center on Depression and Resilience.

Throughout the BiAffect study, the app has enabled the research team to gain valuable insights into the mood fluctuations and cognitive changes experienced by individuals living with bipolar disorder. Study subjects have also benefited as the app alerts them (and their healthcare providers) to imminent mood swings that could interfere

“I’ve always been aware that **my piano playing on any given day is linked to my mood and cognitive state**. As I looked down at my piano keyboard that afternoon in 2015, I suddenly realized that we could study the ways that people use their smartphone keyboards to measure their mood and cognition.”

Alex Leow, MD, PhD
Professor of psychiatry, biomedical engineering, and computer science

PHOTO: DIANE M. SMUTNY

Brain Health, Measured

By tracking keyboard behaviors as users type emails, send texts, and post on social media sites, **KeyWise AI's Skye smartphone app captures indicators of brain health** such as processing speed, attention span, mood stability, and impulse control—and then translates this data into individualized brain metrics, enabling users to monitor and manage their cognitive and mental health for better outcomes.

Skye's technology has been validated by research funded by the National Institutes of Health and the National Institute on Aging and peer-reviewed studies completed at Rutgers University, the University of California San Diego, the University of Illinois, the University of Texas at Dallas, and other institutions.

with their daily activities.

The anticipated findings from the ongoing BiAffect study have the potential to transform bipolar disorder diagnosis, monitoring, and treatment. Meanwhile, says Dr. Leow, the study has expanded in scope. "We've broadened our focus to include any major mood disorder," she reports. "We've also collected and published data on the cognitive symptoms of multiple sclerosis and started to use the app to track and study the symptoms of neurodegenerative diseases such as Alzheimer's and Parkinson's."

Dr. Leow is also involved in studies that are using the app to track mood disorders in adolescents, mood swings related to menstrual cycles, and suicidality in women.

An Innovative Research Tool Goes to Market

Since the inception of the BiAffect research project, Drs. Leow and Ajilore have been fielding inquiries from tech and pharmaceutical companies about the app's potential commercial applications.

In 2018, they teamed up with Raeanne C. Moore, PhD, of UC San Diego Health to co-found KeyWise AI and commercialize the generalizable knowledge and intellectual property derived

> **For commercial purposes**, we developed a user interface that displays a composite score of brain health. Based on feedback from patients and potential customers, we determined that a single summary score that's easy to understand and track made the most sense for this product.
>
> **Olusola Ajilore, MD, PhD**
> *Professor of psychiatry, associate head for faculty development, and director of the Mood and Anxiety Disorders Program at the Center on Depression and Resilience*

PHOTO: DIANE M. SWIFTNY

from UIC's BiAffect digital technology. Skye, the commercial version of the BiAffect research app, hit the market the following year.

According to Dr. Ajilore, Skye doesn't differ much from the research app, with one exception: "For commercial purposes, we developed a user interface that displays a composite score of brain health," he says. "Based on feedback from patients and potential customers, we determined that a single summary score that's easy to understand and track made the most sense for this product."

Skye continuously measures keyboard behavior and applies scientifically validated AI analysis to calculate this summary score (referred to as the "Clarity Score" on the final version of the Skye app interface). The score is updated throughout the day and represents aspects of the user's cognitive function, such as attention and processing speed. Users can then access their metrics and brain-health insights in real time on the app. For privacy reasons, user content is never collected or monitored; the keyboard technology only registers how—rather than what—participants are typing.

"For digital biomarkers to eventually become integrated into routine patient care, it's critical to ensure this kind of privacy," Dr. Ajilore points out.

Although anyone with an iPhone can download Skye from Apple's App Store and use it to provide an objective measure of mental clarity, the KeyWise AI team developed the app to enhance patient care through deployment in healthcare settings and clinical trials.

"We're working with potential customers to deploy the Skye app in a number of healthcare settings, including neurorehabilitation clinics and several women's mental health organizations," says Dr. Ajilore. "We're also talking to women's health groups interested in tracking the brain fog that occurs during the perimenopausal transition, large national health insurance companies interested in offering the app to their subscribers, and a pharmaceutical company interested in monitoring the cognitive symptoms of individuals with Huntington's disease during clinical drug trials."

Skye may also provide valuable insights into the brain health of the estimated 17 million COVID-19 long-haulers in the U.S.[1] "My colleague, Dr. Jerry Krishnan—a professor of medicine and public health at the College of Medicine and one of the principal investigators for a large, NIH-funded study of long COVID—is using Skye to track the brain health of these study subjects because brain fog, mood changes, and cognitive dysfunction are very distinct components of long COVID," says Dr. Ajilore.

"Our overall goal with Skye is to bring the technology that we developed for our research app (now in its third iteration) to a wider audience and into the hands of patients who can benefit from its feedback," he adds. "By providing objective measures of brain health, Skye can help ensure earlier interventions, better outcomes, and reduced healthcare costs."

[1] *"Alice Burns, "As Recommendations for Isolation End, How Common Is Long COVID?," KFF, April 9, 2024,* https://www.kff.org/coronavirus-covid-19/issue-brief/as-recommendations-for-isolation-end-how-common-is-long-covid/.

How Skye Works

Step 1

Install Skye and the custom keyboard.

Step 2

Type on your smartphone the same way as before.

Step 3

Skye computes your brain health metrics and gives you personalized feedback and actionable insights to help you manage your brain health journey.

A Rockford Researcher's Quest to End Elephantiasis

A $2.4 million NIH grant brings **Ramaswamy Kalyanasundaram, DVM, PhD,** one step closer to human clinical trials for the first vaccine to prevent elephantiasis, a tropical parasitic disease that causes arms and legs to swell and skin to become hard and thick like an elephant's.

A $2.4 MILLION GRANT FROM THE NATIONAL INSTITUTES OF HEALTH (NIH) is helping University of Illinois College of Medicine researchers move closer to clinical trials for a vaccine to prevent elephantiasis, a disfiguring mosquito-borne illness.

The three-year grant will facilitate a crucial step in a decades-long quest by Ramaswamy Kalyanasundaram, DVM, PhD—the Michael L. and Susan M. Glasser Professor of Rural Health Professions Education and Research and head of the College of Medicine Rockford's Department of Biomedical Sciences—to create the first vaccine for lymphatic filariasis, commonly known as elephantiasis, which affects tens of millions of people globally.

Dr. Ramaswamy and collaborators in Seattle received the grant from the NIH Small Business Innovation Research program. It will allow them to complete the final studies needed for investigative new drug approval from the Food and Drug Administration, so they can start testing the vaccine in humans.

"We're hoping that, in the next three to five years, the vaccine should be ready for actual human immunization," says Dr. Ramaswamy.

Lymphatic filariasis is a parasitic disease transmitted by mosquitoes in tropical regions of Asia, Africa, and parts of the Caribbean and South America. According to the World Health Organization, it affects more than 120 million people in 72 countries. It is a leading cause of permanent disability worldwide, according to the Centers for Disease Control and Prevention, and communities often shun and reject people disfigured by the disease.

A vaccine is desperately needed, says Dr. Ramaswamy, because medications for lymphatic filariasis have failed to thwart the disease. Despite a global effort to distribute medication to areas where the disease is endemic, infections are still an issue in many parts of the world. Ten years ago, he spent five months in India on a Fulbright scholarship studying the effectiveness of the program and found many adults and children still suffering from the disease.

With a vaccine, a single shot could provide immunity for at least a year, as opposed to medicine which needs to be taken more frequently.

Dr. Ramaswamy's research shows that the vaccine is also effective against the parasite that causes heartworm disease in dogs, dirofilaria immitis, which shares 80% genome similarity with the human filarial parasite. He is working with an industry partner to bring the dog vaccine to the veterinary market. Dr. Ramaswamy was named the 2020 UIC Office of Technology Management Inventor of the Year for his work on vaccines to prevent parasitic infections in humans and dogs.

Stopping the spread before it starts: Transmitted by infected mosquitoes, lymphatic filariasis (commonly known as elephantiasis) is a painful and disfiguring disease caused by parasitic roundworms that invade the body's lymphatic system. The vaccine under development by Dr. Ramaswamy and his team could prevent infection for up to a year. Currently, the only way to prevent the disease is to avoid mosquitos bites—a tall order in tropical climes.

Advancing the effort to eradicate elephantiasis worldwide: After a decades-long quest to develop the first vaccine for lymphatic filariasis (commonly known as elephantiasis), **Ramaswamy Kalyanasundaram, DVM, PhD** (above), and his collaborators will use their NIH Small Business Innovation Research grant to complete the final studies needed for investigative new drug approval.

> "A vaccine is desperately needed because medications for lymphatic filariasis have failed to thwart the disease."
>
> **Ramaswamy Kalyanasundaram, DVM, PhD**

BY CHERYL SOOHOO

Training the **Innovators** of

PHOTO: DIANE M. SMUTNY

Interdisciplinary innovators: Miiri Kotche, PhD, founding director of the Innovation Medicine (IMED) program (left), with fourth-year IMED student Sitara Rao at the UIC Institute for Healthcare Delivery Design. Rao hopes to use her IMED education to identify clinical needs and work with interdisciplinary teams to develop solutions to challenging medical problems.

The College of Medicine's IMED students may well be **the game changers of tomorrow**—the interdisciplinary innovators who will use their clinical insights and experience to inform their research and product development as they solve real-world problems at the intersection of medicine and technology.

the Future

MOST MEDICAL STUDENTS go into automatic patient care mode when they enter a clinical setting. But the aspiring physician-innovators enrolled in the College of Medicine's popular Innovation Medicine (IMED) program have a longer-term goal: to identify unmet needs in the clinical environment and learn how to move from problem identification to product design and development to viable commercial solutions.

"In the clinical immersion component of our curriculum, participants team up with biomedical engineering students in the hospital or clinic, where we ask them *not* to look through the lens of patient care—often difficult for medical students—to find clinical needs," says Miiri Kotche, PhD, founding director of IMED and the Richard and Loan Hill Clinical Professor of Biomedical Engineering. "Instead, the students take a user-centered approach, focusing on the equipment being used and the people who use the equipment. We spend a lot of time observing users, their workflows, and how they interact with existing medical devices. We look for and ask about ways to improve the experience of the healthcare provider or patient, as well as where challenges arise. Many of these observations serve as the basis for initiating biomedical design solutions. This user-centered approach emphasizes empathy, experimentation, and iterative design to ensure that new technologies not only meet the technical requirements but also seamlessly integrate into the workflow of healthcare providers."

The development of new technologies in today's healthcare delivery space continues to accelerate, opening up new avenues for innovation in every medical specialty. IMED—a specialized medical training pathway at COM—seeks to create next-generation, tech-savvy physicians who draw from advances in technology and clinical expertise to solve real-world problems. This optional scholarly concentration program achieves this goal by exposing IMED participants to interdisciplinary activities related to medical product design. Established in 2014 with its first student cohort in 2015 and its first graduating class in 2019, the program meets a growing demand for future-minded physicians with a unique skill set: the ability to innovate at the intersection of technology and medicine.

"The ability to recognize clinical needs that can be addressed through technical development is a tremendous asset," notes Dr. Kotche. "While we are not training IMED students to write business plans or engineer medical devices, per se, we are preparing them to enter the workforce well versed in the language of innovation and able to comfortably work with other disciplines toward the same goals."

Technology development involves many minds working together to create the next game-changing medical device or machine-learning algorithm. IMED's College of Medicine and College of Engineering faculty provide interdisciplinary, team-based problem-solving experiences to cover every angle of product development. The IMED curriculum introduces participants to the overall process, as well as essential market opportunity, intellectual property, and regulatory considerations for any new invention and entrepreneurial venture.

Each year, the highly competitive program enrolls a maximum of 12 incoming COM students, who apply to IMED after their medical school acceptance. Adds Dr. Kotche, "Students from around the country come to the College of Medicine because of the IMED program." Many ideal candidates possess prior demonstrated interest in innovation medicine and a passion for the power of invention to improve human health. Some come from engineering backgrounds or have had industry exposure in myriad fields. For example, one program alumnus had been a patent attorney.

During the first year of medical school—the M1 year—interdisciplinary teams of IMED students collaborate on projects sponsored by corporate or internal clinical partners. The following summer, they participate in a six-week clinical immersion program. During the M2 year, these innovators in training attend a variety of "lunch and learn" seminars presented by physicians and engineering faculty with product development and biotech startup experience. Third- and fourth-year IMED students form small teams to identify real-world problems encountered during clinical rotations during the M3 year. In the M3 and M4 years, student teams present their capstone projects. Some of their proposed technologies have since gone into development.

> "During my years in IMED, I've been able to collaborate with people who study or work in engineering, the basic sciences, business, and medicine. After medical school, I plan to apply the fundamental skills that I've honed in IMED—such as the **ability to identify unmet needs**—so that I can continue to innovate to serve my patients."
>
> **Sitara Rao**, *IMED student*

Many IMED alumni have found that their innovation medicine training serves as a key differentiator as they interview for spots in residency programs, according to Dr. Kotche. Some graduates have continued to advance their physician-innovator acumen. Anna Brzezinski, MD, a 2019 IMED graduate, is a Stanford Biodesign Innovation Fellow, as well as a Stanford Pediatric Critical Care Medicine Fellow. Gardner Yost, MD—a 2019 IMED alum who holds a UIC master's degree in bioengineering—is completing a cardiothoracic surgery residency at Michigan Medicine, where he is also an innovation fellow.

Dr. Kotche attributes the success of the IMED program, in part, to the extraordinary collaboration between the College of Medicine and the College of Engineering at UIC. She and other biomedical engineering faculty members, for example, hold joint faculty appointments with COM.

"Because UIC and the College of Medicine value innovation," she notes, "we had the support we needed to build an amazing program."

BY SUSAN REICH

Philanthropy Fueled by Gratitude

G. Stephen Irwin, MD ’77, Res ’82—a grateful alumnus and longtime champion of the College of Medicine—has made an extraordinary investment in his medical school alma mater with a major gift to establish the College’s **first named executive deanship**.

BY THE AGE OF 28, G. STEPHEN IRWIN HAD EARNED two degrees in chemical engineering from Cornell University and embarked on a lucrative career as a chemical engineer at Chevron Oil in San Francisco. From all outward appearances, he was living the dream in one of the world’s most beautiful cities.

Then he had a change of heart. “I realized that I didn’t enjoy engineering, and I certainly didn’t enjoy working for a large corporation,” says Dr. Irwin today. “I felt drawn to medicine as a way to help ‘fix the world.’ I was a science guy, and I came from a medical family. My father and grandfather were physicians, so I was familiar with the lifestyle.”

Medicine may have been Dr. Irwin’s calling, but—from a financial perspective—it was an inconvenient truth.

“I was married with two children by then, and I knew that giving up my successful engineering career to chase this dream would be risky,” he points out. “I also knew that the only way to make this career change happen was to find a first-rate medical school with reasonable tuition.”

Not sure that such an institution existed, he began a nationwide search, which led him to the University of Illinois College of Medicine in Chicago.

“The University of Illinois provided a rare opportunity for me to get an excellent medical education at a large public institution with an outstanding faculty at a fraction of the cost of a medical education at a private institution,” he states. “After a few weeks at the College of Medicine, I knew that I’d made the right decision. I completed my graduate medical study in orthopedics at the University of Illinois as well. During those nine years, I transformed myself from a chemical engineer into a well-trained orthopedic surgeon and embarked on a challenging and meaningful career that I loved—all thanks to the University of Illinois.”

Four Decades of Giving Back

Dr. Irwin has never lost sight of the transformative role that the College of Medicine played in his life. His enduring commitment to philanthropy and service at the College has been fueled by a deep sense of gratitude—and a desire to advance excellence and equity in education, research, and patient care.

“Over the years, Dr. Irwin and his late wife, Kathleen, have invested in nearly every facet of the College of Medicine’s mission—from scholarships for our diverse student population to professorships for our most accomplished faculty to critically needed support for facility enhancements and leading-edge research,” says College of Medicine Executive Dean Mark I. Rosenblatt, MD, PhD, MBA, MHA ’19.

Dr. Irwin has also served on the UIC Med Eye Fund Board, the Brilliant Futures Campaign Committee, the UIC Chancellor Advisory

A far-reaching philanthropic investment: *G. Stephen Irwin, MD ’77, Res ’82 (opposite), is building on a long tradition of support for the University of Illinois and the College of Medicine with a transformational gift to establish the* **G. Stephen Irwin Executive Deanship**. *Mark I. Rosenblatt, MD, PhD, MBA, MHA ’19, was installed as the inaugural G. Stephen Irwin Dean of the College of Medicine at a formal investiture ceremony in November 2023.*

PHOTO: DIANE M. SMUTNY

> People give back for different reasons. I give back because **the College of Medicine was transformational for me**.
>
> **G. Stephen Irwin, MD '77, Res '82**

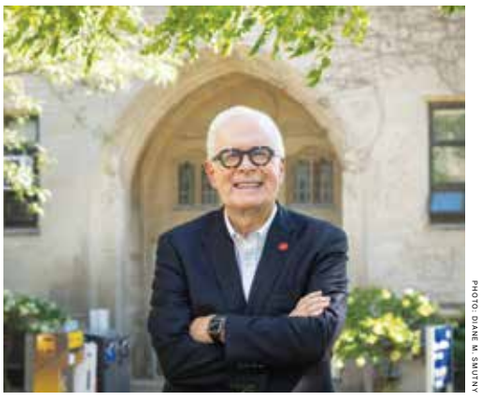


PHOTO: DIANE M. SMUTNY

Committee, the Ignite Campaign Committee, the UIC Med Thought Leaders, and the University of Illinois Foundation Board.

When Kathleen, a registered nurse, lost her battle with cancer in 2021, he honored her commitment to nursing and compassionate patient care by establishing the Kathleen M. Irwin Endowed Clinical Chair Professorship in Outstanding Nursing Practice at the UIC College of Nursing. It is believed to be one of the nation's few endowed positions at a Research 1 university for nursing faculty engaged in clinical practice.

A Visionary Investment

In 2023, Dr. Irwin made one of the most visionary and far-reaching philanthropic investments of his lifetime: the establishment of the G. Stephen Irwin Executive Deanship. Dr. Irwin's gift will support Executive Dean Rosenblatt and his successors as they work to advance medicine and enhance the health and well-being of the College's communities through outstanding education, research, and clinical care.

"I am tremendously honored and humbled to be named the G. Stephen Irwin Executive Dean—and I am forever grateful to Dr. Irwin for his continued generosity toward the College of Medicine and UIC," says Executive Dean Rosenblatt. "This deanship will support highly innovative and impactful programs that will further the college's mission to continue to enhance health for everyone, including those who are traditionally underserved in both urban and rural areas.

"The deanship will also enable the college to grow novel research programs that help change the face of medicine but require early investment from the endowment," he points out. "The recently developed Center for Health Equity Using Machine Learning and Artificial Intelligence, for example, will draw on funding from the deanship to implement new technologies and community partnerships to promote health equity through the application of modern data science to solve the problems faced by Illinois communities."

"We are proud to count Dr. Irwin among our alumni and grateful for the decades that he has spent supporting and championing UIC and its health sciences," says Tom Wamsley, UIC vice chancellor for advancement. "This endowment will allow the college to recruit powerhouse academics and leaders and support their visions and priorities for generations to come. It is fitting that Dr. Mark Rosenblatt, and the medicine deans who follow him, will carry a title honoring Dr. Irwin."

"I am incredibly grateful for the visionary support of Dr. Irwin, who is deeply committed to the UI Health enterprise's academic, research, and care mission," adds UIC Vice Chancellor for Health Affairs Robert A. Barish, MD, MBA. "Dr. Irwin's continued generosity is crucial because it allows faculty leaders to shape the future and careers of students while making life-changing discoveries in their own research. A named deanship is special because it provides transformational, enduring support to our outstanding faculty and allows the named dean to make investments that will have a profound collegewide impact."

"Dr. Irwin's dedication is a reminder to the members of our college that we have a profound social responsibility that comes with our long-standing role as a leading public medical school," notes Executive Dean Rosenblatt.

Dr. Irwin could not agree more. "People give back for different reasons," he reflects. "I give back because the College of Medicine was transformational for me. The college made my medical education possible—in part due to its affordability when I decided to pursue a career in medicine. Because I look at medicine as a public utility that should be available to all, I give back to support the college's social justice mission of excellence and equity in education and healthcare. I also give back to inspire other alumni to give, because the college needs and deserves our support."

PHOTO: DIANE M. SMUTNY

> **I am tremendously honored and humbled to be named the G. Stephen Irwin Executive Dean.** This deanship will support highly innovative and impactful programs that will further the college's mission to continue to enhance health for everyone, including those who are traditionally underserved in both urban and rural areas.
>
> **Mark I. Rosenblatt, MD, PhD, MBA, MHA '19**

It's Official!

On Nov. 1, 2023, the UIC community celebrated the investiture of Dr. Mark Rosenblatt as the inaugural **G. Stephen Irwin Executive Dean** of the College of Medicine.

PHOTOS: DIANE N. SHUTNY

UIC Chancellor Marie Lynn Miranda *presented the investiture medal for the G. Stephen Irwin Executive Deanship to Mark I. Rosenblatt, MD, PhD, MBA, MHA, at his investiture ceremony and celebration.*

"IT IS SUCH A JOY TO WELCOME YOU TODAY as we come together to celebrate the creation of a deanship for the College of Medicine and the investiture of Dr. Mark Rosenblatt as the G. Stephen Irwin Executive Dean," declared UIC Chancellor Marie Lynn Miranda as she gazed out at the UI COM community members gathered at the University Club of Chicago.

UIC Vice Chancellor for Health Affairs Robert A. Barish, MD, MBA, spoke about the significance of the deanship, noting that Dr. Irwin's "extraordinary gift will provide our College of Medicine deans with a lasting endowment that will give them unrestricted support to pursue intrepid ideas and promote the College's mission to advance health for all through outstanding education, research, and clinical care."

When Dr. Irwin approached the podium, he told his colleagues, fellow alumni, family members, and friends that, as a proud graduate of the College of Medicine, he wanted to help UIC succeed and provide for others what the university had done for him personally.

During the investiture ceremony, Dr. Irwin expressed his gratitude for a "transformative medical education" and spoke about his desire to give back to advance the College of Medicine's mission.

"Giving is not just about the resources we can provide, but about the impact we make through gifting," he said. "So I want to welcome Mark Rosenblatt to this deanship. I know that we will all be rewarded by his innovative use of the endowment to improve the College of Medicine and advance its healthcare goals."

After the investiture ceremony, Executive Dean Rosenblatt expressed his gratitude and reflected on the opportunities and responsibilities that lay ahead.

"I really view my career as a clinician scientist as merely a somewhat dim and often imperfect reflection of the human and professional excellence that has surrounded me at the College of Medicine," he confided. "I am humbled by the honor of holding the G. Stephen Irwin deanship and promise that I will do my utmost to prove worthy of this honor and in some way add to both Dr. Irwin's legacy, as well as the legacy of those in this room who have helped me so much."

A new era for COM leadership *(l-r): UIC Chancellor Marie Lynn Miranda welcomed the UI COM community to the investiture ceremony; Dr. Barish, Executive Dean Rosenblatt, and R.V. Paul Chan, MD, MSc, MBA, FACS, joined Chancellor Miranda for a post-investiture photo; Dr. Irwin and Executive Dean Rosenblatt in a rare moment out of the spotlight.*

Carrying On a Father's Legacy

Three siblings honor their father's enduring commitment to surgical excellence, scholarship, and service with a generous gift to fund the Robert A. Atkins Lectureship in Surgical Innovation in Clinical Practice and the Robert A. Atkins Memorial Courtyard at the College of Medicine.

WHEN BOB ATKINS, DON ATKINS, AND PEGGY STUCKEY REMINISCE ABOUT THEIR FATHER—**Robert A. Atkins, BS '44, MD '45**, a distinguished physician and surgeon who died in 2022—three themes emerge: community, connection, and lifelong learning.

Peggy Stuckey remembers her father's unwavering commitment to surgical excellence, his compassion for his patients, and his deep connection to the College of Medicine community. "My dad was incredibly humble and equally generous, always putting his patients first," says Stuckey, who remembers that her father made his children feel as if they were an integral part of his mission to serve humanity through medicine. "The University of Illinois was a part of his life story, and it became a part of our story, too."

To honor their father's many contributions to the field of medicine—and the professional community and connections that meant so much to him—the Atkins siblings recently made a generous gift to establish the Robert A. Atkins Lectureship in Surgical Innovation in Clinical Practice in the Department of Surgery and fund the development of the Robert A. Atkins Memorial Courtyard at the College of Medicine. The lectureship and courtyard will create points of connection for the College of Medicine community and help foster innovation by facilitating the exchange of ideas and experiences.

Robert A. Atkins, BS '44, MD '45

"The College of Medicine is committed to making discoveries that will enhance our patients' lives," says Executive Dean Mark I. Rosenblatt, MD, PhD, MBA, MHA '19. "The impetus for such discoveries is often as simple as coming together to share ideas, experiences, and perspectives. This gift to support the lectureship and courtyard will build on Dr. Atkins' lifelong commitment to medical excellence by fostering collaboration and surgical innovation."

> "**Dr. Atkins was an accomplished surgeon who believed strongly in innovation and lifelong learning**, so it is our honor to remember him with a lectureship that will bring an international superstar speaker to the College of Medicine who can educate us on important changes being made to our practice."
>
> **Enrico Benedetti, MD, FACS,** *Warren H. Cole Chair in Surgery, professor, and head of surgery*

The Atkins family gift *will provide the support needed to transform an outdoor gathering space between the East Tower and the West Tower at the College of Medicine into a tranquil and welcoming oasis where students, faculty, staff, alumni, and friends of the College can meet to converse and collaborate—or simply relax, reflect, and recharge before returning to the rigors of medical education and practice.*

A Life of Service and Scholarship

Dr. Atkins interned at Cook County Hospital after graduating from the College of Medicine and then served at hospitals in Georgia, where he was stationed with the U.S. Army. After completing his surgical residency at Methodist Hospital in Texas and Hines Veterans Administration Hospital in Illinois, he served as assistant chief of surgery at the West Side Veterans Administration Hospital in Chicago. He ultimately settled in Champaign-Urbana, established an independent practice, held a chief of surgery appointment at Cole Hospital, and practiced at Burnham, OSF (Mercy) and Gibson City Hospital.

When Dr. Atkins' first wife passed away, he honored her life as a pharmacist and her interest in medicinal plants by making a gift to the UIC College of Pharmacy to create The Dorothy Bradley Atkins Medicinal Plant Garden. Today, this garden is a valuable resource for researchers, trainees, and visitors interested in learning about the history, modern-day applications, and potential future uses of medicinal plants.

Continuing the Tradition

According to his children, Dr. Atkins was a lifelong learner who never stopped reading medical journals.

"Dad liked that the Medicinal Plant Garden was used in teaching," Don Atkins recalls. "We thought it would be appropriate for our gift to have a teaching aspect as well—and that's where the idea for the lectureship came in."

The Robert A. Atkins Lectureship in Surgical Innovation in Clinical Practice will bring a leading surgeon to the College of Medicine on an annual basis to discuss innovations in practice with faculty, surgeons, medical students, and residents.

"Dr. Atkins was an accomplished surgeon who believed strongly in innovation and lifelong learning, so it is our honor to remember him with a lectureship that will bring an international superstar speaker to the College of Medicine who can educate us on important changes being made to our practice," says Enrico Benedetti, MD, FACS, Warren H. Cole Chair in Surgery, professor, and head of surgery. "We have an exceptional reputation in the field because of our focus on improving care for our patients, and this learning experience will be invaluable."

A Vision of Collaboration and Community

Dr. Atkins' three children conceived their gift as a way to bring the College of Medicine community, including alumni, together to continue their father's tradition of surgical excellence, scholarship, and service.

"We hope that people will enjoy connecting through these living memorials," says Bob Atkins, "and we also hope that our gift will inspire others to make commitments of their own to advance the College of Medicine's mission."

5 QUESTIONS

Vanitha Raguveer, MD '24, *is a recent University of Illinois College of Medicine graduate and a general surgery resident at Beth Israel Deaconess Medical Center. Dr. Raguveer took a few moments to talk about her experience at UI COM and her future plans.*

1 Why did you apply to medical school?

I was always interested in working in health technologies, and I pursued biomedical engineering as an undergrad. Through engineering and research projects at Case Western Reserve University and the National Institutes of Health, I became aware of the key role of a clinician in medical innovation, identifying gaps in the healthcare system, understanding patient needs, and ensuring that interventions will be useful and effective. I also appreciated the opportunity to work directly with patients and to effect positive change on an individual basis. This drew me to clinical medicine, and I soon found myself at UI COM, where I was able to continue to pursue my passions through the Innovation Medicine Program and robust research opportunities.

2 Why did you develop an interest in your specialty?

I fell in love with the technical artistry and anatomical expertise of surgery during my core clerkship. As I watched the residents and attendings interact with their patients, I was compelled by the opportunity to support and empower patients though the often stressful experience of surgery. However, while working at UIC and with our community hospital partners, I was struck by the challenges that many patients faced as they attempted to access surgical care, from physical distance to quality care to financial burdens. This concern led me to a research year with the Program in Global Surgery and Social Change at Harvard Medical School, where I worked on research, innovation, and advocacy efforts to improve global access to surgical care.

3 Is there someone who influenced your future plans, and what do you hope to do with your career?

I was so lucky to have incredible mentors throughout my medical school journey! Notably, Dr. Thomas Sims, who advises the Global Surgery Student Alliance, and Dr. Alejandra Perez-Tamayo, who acts as an advisor for many surgery applicants. Both of these attending physicians demonstrated a passion for health equity and humanism, which influenced my decision to pursue a career in surgery. They helped me build connections within the UI COM surgical community, answered my many questions, and encouraged me to seek out opportunities such as my research year. Through research, I met a variety of role models and mentors who demonstrated the balance of research and clinical practice that I hope to have in my own practice. Finally, I would be remiss not to mention the surgical residents who took the time to teach me, advocate for me, and help me see myself as a future surgeon!

4 How did being a College of Medicine student influence you on a personal level?

First, the College of Medicine attracts learners and physicians who are passionate about health equity, and this enabled me to find my voice and my community. While participating in the College's street medicine program during my first year, engaging in volunteer efforts during the pandemic, and seeing patients during clinical rotations, I was constantly facing the realities of health inequities. This can be hard to grapple with, but I had peers and mentors who inspired me to have the difficult conversations and continue advocating for our patients. Second, the access that we had as students was so valuable. I was able to pursue so many of my interests—from research and global health to innovation—and figure out how to bring these interests together.

5 What makes you proud to be a UI COM graduate?

Now that I'm a few months into my general surgery residency at Beth Israel Deaconess Medical Center, I'm grateful to UI COM for so much! I'm not sure that anyone can be truly ready for the intensity of residency, but I do feel that my rotations prepared me to be collaborative and efficient as a resident. I feel lucky that I had so many opportunities to learn how to serve diverse patient communities, and I'm proud to be part of such a supportive, brilliant community that continues to inspire me to be a better physician, researcher, mentor, and friend.

PHOTO: DIANE M. SMUTNY

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Artist's rendering of the Robert A. Atkins Memorial Courtyard

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