

2020 annual report



UNIVERSITY OF
ILLINOIS CHICAGO

College of Pharmacy

UNIVERSITY OF ILLINOIS AT CHICAGO
COLLEGE OF PHARMACY

rising above

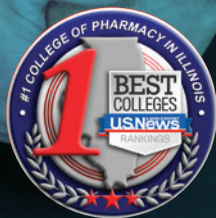
Without a doubt, the 2019–20 academic and fiscal years came to a close in a unique and unprecedented fashion.

While the world grew accustomed to separation and isolation, at the UIC College of Pharmacy, staying apart meant staying together.

As always, we remain united with the common goal of strengthening our community in innovative ways while continuing to develop and maintain our connection to the global healthcare arena and its ever-changing needs. As physical facilities closed, our online classrooms and offices opened to a brave new world of possibility. And, true to our 161-year-long history, we adapted, undeterred by adversity and rising above challenge, to welcome to the world the next generation of more than 200 pharmacists, pharmaceutical scientists, and industry leaders.



GLEN T. SCHUMOCK
Professor and Dean



UIC College of Pharmacy's Mission, Vision, and Financial Report

Established in 1859 and consistently ranked in the top ten nationally, the UIC College of Pharmacy—with a local, state, national, and international impact—is renowned for seamless integration of its educational programs with innovative pharmacy services, and impactful and cutting-edge research.

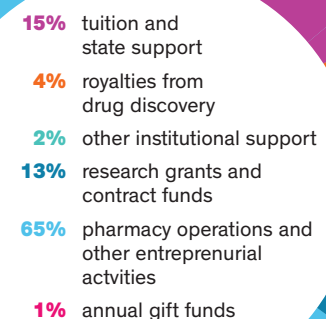
The college has the lowest student to faculty ratio among top-ranked schools, thus enabling individualized student experiences not available elsewhere. Our extensive and comprehensive pharmacy practice program is embedded within the University of Illinois Hospital & Health Sciences System (UI Health), which provides a rich interprofessional environment that supports our internationally known research programs that advance pharmaceutical science, clinical pharmacy sciences, and pharmaceutical health services research and outcomes. The true reflection of any school is their alumni. And our alumni have done so much for the profession of pharmacy, patients, and society—across the spectrum of settings where they practice and work. The college has a large and diverse network, with graduates in leadership positions across the world, which creates unparalleled opportunities for existing students and new graduates.

MISSION The mission of the UIC College of Pharmacy is to educate the current and next generation of pharmacists, pharmaceutical scientists, and pharmacy leaders; to conduct impactful and cutting-edge research; and to provide innovative patient care and serve our local, national, and global communities.

VISION Our students, faculty and preceptors, staff, alumni, and other strategic partners working together to be the global leader in innovative pharmacy education, research, and practice to improve human health.

FINANCIAL REPORT FY20 Operating Funds and Expenses for the UIC College of Pharmacy.

FY20 Operating Funds \$127.5 M



FY20 Operating Expenses



vision quest

By the spring of 2020, “business as usual” had become a moving target for the world, yet we here at the College of Pharmacy remained focused on our singular vision: becoming the global leader in innovative pharmacy education, research, and practice to improve human health. In fact, the challenges presented by the last quarter of FY20 gave us an opportunity to take a fresh look at pooling resources to practice what we preach. Among many other accomplishments, this year saw the realization of a unique and timely new fellowship program, FDA approval of a revolutionary women’s contraceptive developed at UIC, and the grand opening of a state-of-the-art simulation center designed to raise the bar for the P1 classroom experience. We are grateful for all your contributions that allow us to inspire future pharmacy leaders with the highest quality instruction and training, shape the industry with breakthrough scientific investigation, and to always offer compassionate patient care in our own communities as well as around the globe—all while keeping an eye on the horizon for safety and best practices. Here are just a few standout moments from the last year as we raise a glass to the accomplishments of all of our students, faculty, and alumni, no matter how big or small.

50 research grants awarded in totaling \$24.2M

66 full-time funded investigators

10,000+ living alumni are making an impact in Illinois and throughout the world—and are among the largest alumni body of any college of pharmacy in the nation.

discovery and scholarship

When retired UIC College of Pharmacy professor Donald Waller, along with his best friend, Lourens Zaneveld, began working on their next-generation contraceptive for women, they sought to fill a simple, but widespread, need in the market.

“What we tried to do was develop an on-demand contraceptive for women that wasn’t a steroid or implant and could provide additional protection against sexually transmitted disease. We wanted something inexpensive, easily made and available to everybody,” Waller recalls. “That was what was really important to us. That’s what we achieved.”

As of this past May, Waller and Zaneveld’s discovery, called Phexxi, became the world’s first and only nonhormonal prescription gel approved by the U.S. Food and Drug Administration for the prevention of pregnancy and a potential to prevent sexually transmitted disease.

Waller, who teaches at UIC as a professor of pharmacology and toxicology in the Department of Pharmaceutical Sciences, began developing the idea behind the gel with Zaneveld, of Rush University Medical Center, 15 years ago.

“At the time, we thought the concept was naive, but worthwhile,” Waller recalls. “If you look at the mechanism that sperm uses to penetrate the egg, it’s a similar



process that pathogenic organisms use to gain access to tissues and infectivity. We thought we had something.”

Waller recalls that, also at that time, Zaneveld had been doing some work with acrosin inhibitors. Acrosin is an enzyme that plays a key role in the sperm’s penetration of the egg. When the researchers decided to look into whether or not those same substances were effective on pathogens, their suspicions were confirmed.

“It started us on this path toward something that could inhibit sperm, but prevent STDs as well.” What they ended up with accomplished this in an even simpler way.

The pH level of the vagina, Waller explains, is already naturally hostile to sperm as well as most pathogens. When introduced to the vagina, semen alters its pH, neutralizing acidity and lowering defenses against pregnancy and infection.

“If we have the capacity to maintain the pH of the vaginal vault so that it would not allow sperm to be active, we also deactivate viruses and pathogens.”

Waller and Zaneveld’s concept, which is copatented by UIC and Rush, was licensed to Evofem Biosciences, Inc., in 2003. Evofem developed the gel for commercial use through clinical trials and FDA approvals. While Phexxi is not yet FDA-approved for STD prevention, Waller expects that time will bear out its potential. The concept is admittedly “very low-tech,” but Waller believes this gives the contraceptive an edge.

“High-tech may be good for the United States or Western Europe, but not for the developing world, which needs something inexpensive and easily produced,” says Waller. “If you look at the components, there’s nothing there that’s unusual. They’re all easily obtained products.” Those products include lactic acid, citric acid, and potassium bitartrate.

As a result, Waller and Zaneveld have essentially created a tool by which women around the world will be provided the ability to take control of both their reproductive rights as well as sexual health.

“My hope is that women feel empowered with a new option to protect themselves.”

service and leadership



The college is proud to highlight a few examples that include two of our own faculty elected to lead Expert Committees of the United States Pharmacopeia (USP). **DR. GUIDO PAULI** will serve as the 2020–2025 chair of the USP Expert Committee on Non-Botanical Dietary Supplements.

DR. STEPHANIE CRAWFORD will serve as the 2020–2025 chair of the USP Expert Committee on Nomenclature and Labeling; it is her second term.

Additionally, **DR. ROBIN MARLES** (PhD '88) was also reelected as chair USP Expert Committee on Botanical Dietary Supplements and **DR. OTILIA KOO** (PhD '05) was elected as chair of Excipients Complex Expert Committee and Council of Experts in the 2020–2025 cycle.

The mission of the USP is to improve global health through public standards and related programs that help ensure the quality, safety, and benefit of medicines and foods.



COLLEGE LAUNCHES POSTDOCTORAL FELLOWSHIP WITH PFIZER

Pfizer is now the third company—and the first outside of the Chicago area—to invest in a health economics and outcomes research (HEOR) postdoctoral fellowship with UIC and its prominent Center for Pharmacoepidemiology and Pharmacoeconomic Research (CPR). As with existing HEOR fellowships at AbbVie and Takeda, current and future Pfizer fellows will spend the opening year of their two-year fellowship at UIC working with CPR faculty while taking courses in biostatistics, research design, pharmacoeconomics, and grant writing. In year two, fellows will venture to a Pfizer corporate site in New York to tackle real-world projects alongside professional

colleagues and broaden their skill sets in outcomes research methodologies, study designs, and problem-solving approaches. Along the way, fellows will deepen their ties to the pharmacy profession by pursuing publication in peer-reviewed venues, attending professional and scientific conferences, and teaching PharmD students in the classroom setting. “Market access, demonstrating value, and patient-centered outcomes—these are all increasingly important to decision makers in healthcare,” says Professor Simon Pickard, the CPR’s assistant director. “With industry partners like Pfizer willing to invest alongside the resources and faculty talent we have at CPR to support these fellowship programs, we’re positioning our HEOR fellows to become leaders in this high-growth area.”

68
POSTDOCTORAL
TRAINEES

112
GRADUATE
STUDENTS

773
PROFESSIONAL
STUDENTS

teaching and learning

NEW HEALTHCARE SIMULATION CENTER

The college opened the Herbert and Carol Retzky Simulation Center last year. The Retzky Simulation Center, renovated with \$1 million in funding from the Retzkys and now named in their honor, features a simulated pharmacy and counseling rooms

developed to recreate every step a pharmacist takes, from prescription entry to fulfillment.

The 5,000-square-foot center, which is used as classroom space for up to 176 students, helps first-year pharmacy students experience all aspects of their required pharmacy practice courses in the same space.

“From practicing filling and dispensing medication to counseling patients, these simulated learning opportunities help our students gain skills and confidence that will enable their success during practical rotations and as future pharmacists,” said Marlowe Djuric Kachlic, clinical assistant professor of pharmacy practice in the College of Pharmacy.

#7 college of pharmacy*
#7 in research support**

* US News and World Report
** American Association of Colleges of Pharmacy

62 members of class of 2020
matched for either a residency
or fellowship

202 PharmD, PhD, and
MS graduates comprised
our class of 2020

750+ experiential partnerships enable
us to provide our PharmD students with an
unparalleled selection of clinical rotations.

global opportunity inspires PharmD and PhD students to seek out world-health solutions

Chicago-area native Margaret O'Connor, P4, had always wanted to go into healthcare but also had an eye on international politics. Until she began attending the College of Pharmacy, she wasn't sure how she might be able to combine the two. When she joined UIC's student chapter of the American Pharmacists Association (APhA), she was immediately drawn to its sister organization, the International Pharmaceutical Students' Federation (IPSF). O'Connor deepened her involvement while using the organization's resources to investigate various aspects of global health and soon assumed a leadership position, planning educational events and submitting articles for publication.

Through her connection with IPSF, O'Connor learned about an opportunity to join a student delegation to 72nd World Health Assembly in Geneva, Switzerland, and jumped at the chance, detailing her interest in refugee health in her application essay.

MARGARET O'CONNOR, P4

"I wanted to learn more about the refugee situation, not only on our own borders, but what's happening internationally, with regard to policy. I wanted to learn what other countries were doing better and what we could bring back to our own country to improve on."

O'Connor was thrilled to discover how intermingled students were during the process.

"We had the opportunity to sit at the table with everyone else, to be treated like equals. We were able to have intimate conversations with delegates."

Overall, she's been grateful for the "robust experience" she's had at UIC and is pleased to have the opportunity to learn from others' experiences and build her network through alumni events and student organization initiatives.

"We have a much larger alumni network than any other school in the state, and there are so many who end up being successful. At conferences, I see students from other schools who don't have the options that we do."

O'Connor also credits electives and networking events like the Dean's Leadership Forum for opening her eyes to different perspectives on where she can go with her degree.

"Alumni talk to us about their different career paths, and we have the opportunity to ask questions and talk one-on-one with them. There's such a good array of very successful people. This makes us more competitive in a positive way."

After graduation in 2021, O'Connor hopes to build on the clinical skills she's gained at UIC and continue her education through a global health

fellowship. Beyond that, she's considering a career in public or global health, perhaps at an entity like the World Health Organization.

"At UIC we have lots of options to get something like a second curriculum. Access to information and resources that you need outside of your classes, my experience with IPSF—those are things I don't think I would have gotten going to another school."

Brian Guo, a 2020 PhD graduate, always had an interest in the study of natural products. As a biomedical engineering student at Northwestern University, he pursued internships with Baxter Pharmaceuticals' medical devices division while focusing his studies on biochemistry and molecular signaling. After graduation, Guo went on to work for Baxter focusing on product design, but yearned to go back to doing research.

"I wanted to do something more early-stage, nitty-gritty biology or chemistry—more benchtop work, essentially."

At the time, Guo wasn't aware that his field of interest had a name—pharmacognosy—but discovered that "UIC has one of the preeminent programs in the field." So he decided to enter the PhD program in the Department of Pharmaceutical Sciences and joined the lab run by Dr. CT Che, who has a background in traditional Chinese medicinal herbs and whose work focuses on botanicals.

In his third year, Guo learned about the college's pharmacology industry internships for PhD students (PIIPS) program. Supported by an institutional award from the American Society for Pharmacology and Experimental Therapeutics, the competitive program



BRIAN GUO, PHD '20

offered summer internships in industry.

"I already knew I wasn't interested in continuing in academia, so once I found out that there was this opportunity to get some real-world work experience, I was pretty excited to be able to apply for it."

At the time, Guo had, of course, been doing his course work and moving forward with his project on a Nigerian medicinal plant, *Icacina trichantha*.

"I thought [my work] was progressing well, but I guess you never really know how it applies to the real world and real world research until you've actually done it."

But when Guo arrived at Sirenas, a drug-discovery company that focuses on marine natural products, he was pleasantly surprised to find that his time both in the classroom and at the bench at UIC had prepared him well.

"Once I picked it up, I realized the concepts are the same, even if the tools are a little different. It was all very comfortable, and I was able to play a part and contribute. Nothing was ever over my head."

teaching and research opportunities that empower the next generation

Nita Mukand, PharmD/MBA '20, hails from a long family tradition of serving patients. Her great-grandmother was a nurse, and her grandfather was a physician, as are both of her parents. While pursuing an undergraduate degree in biology at Wesleyan University in Middletown, Connecticut, she had the opportunity to shadow a clinical pharmacist and was inspired by the therapeutic impact of pharmacists on patient care. Mukand realized that she wanted to follow the family footsteps in this profession and was drawn to UIC by its status as a major research institution with a strong clinical emphasis.

Service has always been a priority in her educational and career choices, says Mukand, who tutored low-income students in college. At the College of Pharmacy, she found an institution that shared that same commitment. She credits Dr. Rosalyn P. Vellurattil, co-coordinator for a course called Personal and Professional Development, as being an “incredibly important mentor” who championed Mukand and gave her opportunities to advance her professional development through collaborative projects. This year, Vellurattil and Mukand were selected by the American Association of Colleges of Pharmacy for the Walmart Scholars program, which helps students develop a career in academic pharmacy.

Alongside her interest in teaching, Mukand realized a passion for research early on at UIC during her work with the late Dr. Judy Bolton. Bolton, who served as

distinguished professor and head of the Department of Medicinal Chemistry and Pharmacognosy, was a renowned chemical toxicologist whose research focused on natural products.

“Her enthusiasm for drug metabolism and the implications for carcinogenesis inspired me to pursue research.”

Mukand adds that her research is also driven by a desire to be of service to minority and socioeconomically disadvantaged patients.

“Only by elucidating the health disparities that patients face can we hope to eliminate them.”

Mukand's work has gone on to merit recognition of its own. In March 2019, she was selected as the first recipient of the University of Illinois Cancer Center's Pfizer Fellowship, a \$25,000 award to be used towards the cost of tuition, professional development, and annual meeting attendance.

Last fall, the American Association for Cancer Research (AACR) awarded Mukand the Minority Scholar in Cancer Research Award to present her work at their 2019 health disparities conference.

This February, Mukand was selected to participate in AACR's Early-Career Hill Day, an annual event that brings early career scientists to Washington, D.C., to advocate for continued funding of the National Institutes of Health and the National Cancer Institute (NCI). Mukand met with legislators and their aides

from Illinois, Ohio, Georgia, and Rhode Island, including Rep. Rodney Davis (R-Ill.) whose district includes the UI Cancer Center. She spoke on the importance of basic science in elucidating cancer mechanisms, which can ultimately lead to novel therapies; how “sustained and robust funding supports our research on critical questions in cancer biology, therapy, and epidemiology”; and how “NCI initiatives are necessary to reduce disparities for both patients and investigators.”

“There are many ways that clinicians and researchers can serve patients, and advocacy is an important role. I will always champion cancer research—at the national, state, or local level!”

Mukand credits her work with Dr. Gregory Calip, associate professor in the Department of Pharmacy Systems, Outcomes, and Policy, and affiliate in the Center for Pharmacoepidemiology and Pharmaco-economic Research, as the turning point in her pharmacy education.

“It was under his mentorship I came into my own as a cancer researcher. He is a truly remarkable mentor who has imbued me with perspectives and skills that will serve me well for my entire career.”

Since completing her education at UIC, Mukand has begun work on a Master of Public Health at Harvard University. This fall, she is applying to PhD programs in epidemiology.

Beyond that, Mukand looks forward to serving future students in the same way she was at UIC.

“I hope to become a professor, continue my cancer disparities research, and inspire future generations of clinicians and researchers.”



your support made an impact in FY 20

* July 1, 2019 - June 30, 2020

\$27,286,562
campaign total as of June 30, 2020

\$7,465,924
research

\$6,820,267
deanship + professorships

\$4,577,447
facility improvements

\$4,278,322
academic unit support

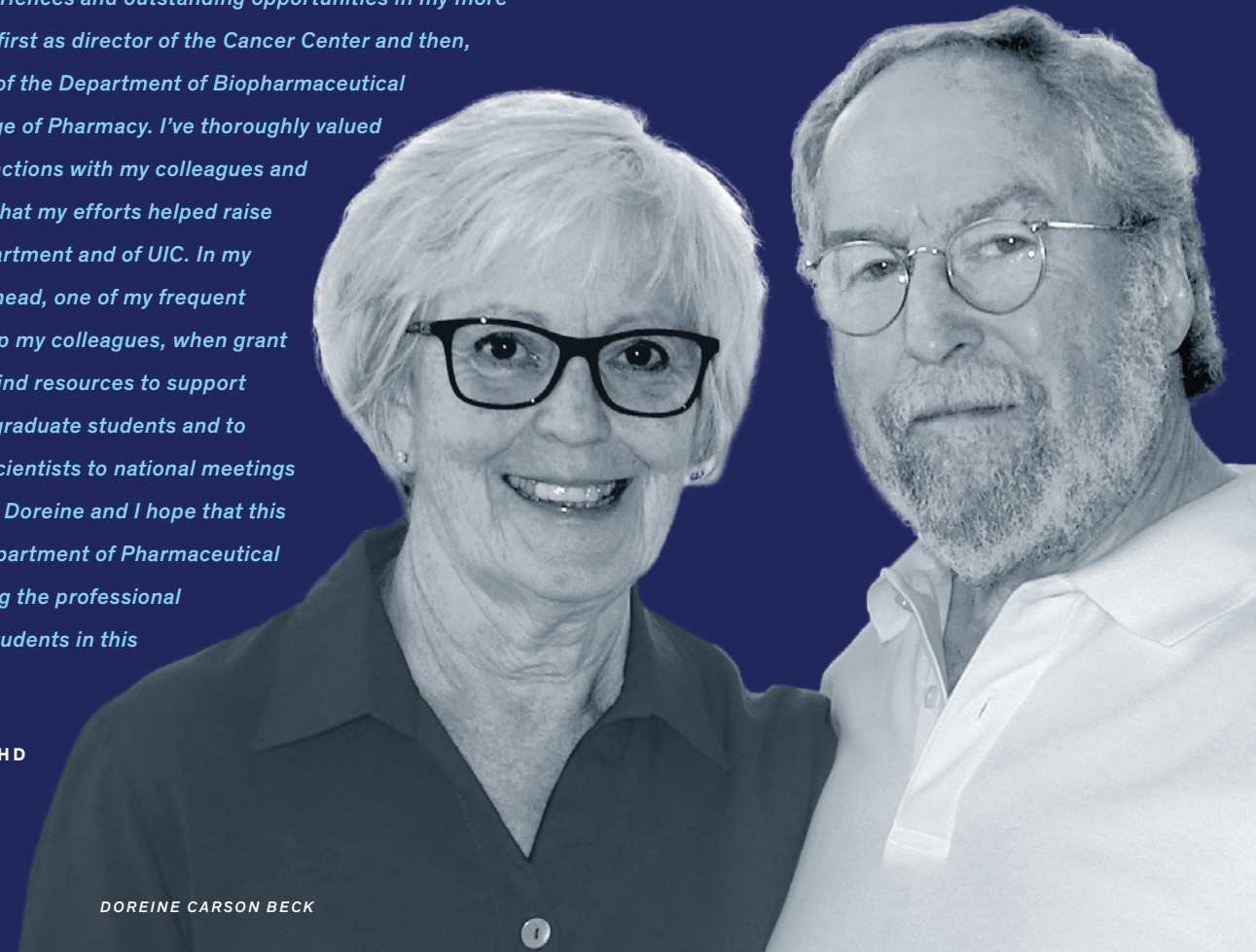
\$2,144,602
scholarships and graduate support

\$2,000,000
drug discovery + innovation pavilion

Your investments in the College provide both immediate and continuing impact for our students, faculty, and mission.

"I had wonderful experiences and outstanding opportunities in my more than 22 years at UIC, first as director of the Cancer Center and then, for 17 years, as head of the Department of Biopharmaceutical Sciences in the College of Pharmacy. I've thoroughly valued and enjoyed my interactions with my colleagues and students, and I hope that my efforts helped raise the profile of the department and of UIC. In my years as department head, one of my frequent challenges was to help my colleagues, when grant funding was limited, find resources to support the research of their graduate students and to send these budding scientists to national meetings to present their work. Doreine and I hope that this gift helps the new Department of Pharmaceutical Sciences in supporting the professional development of our students in this and other ways."

WILLIAM T. BECK, PHD
UIC Distinguished
Professor Emeritus



DOREINE CARSON BECK

17
endowed scholarships
created in FY20

26
students received travel
support to national
conferences

\$513,750
in scholarships and
awards distributed

1 in 4 students
received financial support

transforming
student support

as of June 30, 2020

432
volunteers contributed
thousands of hours

358
donors

\$27,286,562
contributed

UIC IGNITE
THE CAMPAIGN FOR UIC

COLLEGE OF PHARMACY

your gifts allow us to develop local solutions that have global impact

At the College of Pharmacy, we take pride in reinventing the landscape of pharmacy practice and blazing trails in industry research. As such, the college is thrilled to partner with the UI Cancer Center, the State of Illinois, and the Discovery Partners Institute (DPI) on a new initiative by the University of Illinois System to construct the Drug Discovery and Cancer Research Pavilion, a state-of-the-art facility to house emerging areas of translational research. The Drug Discovery and Cancer Research Pavilion will bring together industry partners, educational and clinical programs, and researchers to create the collaborative environment necessary to further drive innovative therapeutic discovery.

“This is huge for us,” says UIC College of Pharmacy professor and dean Glen Schumock. The idea is to spark innovation in research and create partnerships with corporations. We’ll be bringing our students and these corporate partners together to train the next generation of innovators.”

The Drug Discovery and Cancer Research Pavilion will be located on the UIC campus, directly behind the College of Pharmacy building at 833 South Wood Street. The five-story facility will be dedicated to pharmaceutical and cancer research with a focus on drug development and discovery.

“Our idea was to integrate a different piece of drug discovery. We’d start at the molecular level, identify chemical drugs and how they work, and eventually start doing clinical trials. The whole process would occur within this building.”

It will also feature a technology park, ripe for public-private partnerships, which will account for 60,000 sq.

ft. of the building. The college’s drug discovery research will focus on important therapeutic areas, including cancer, infectious disease, and women’s health.

“The partnership with the Cancer Center makes sense, since we’ve got about forty percent of faculty doing drug discovery on cancer treatments, so synergies do already exist.”

Schumock hopes that the research will further attract corporate partners, where drug discoveries could transition to or even be purchased by pharmaceutical companies interested in further developing the compounds.

In February, Governor J. B. Pritzker announced that the State of Illinois is moving forward with \$500 million in capital funding for the DPI and its umbrella system, the Illinois Innovation Network (IIN), a collection of university-community-industry-based hubs throughout the state that will work together to drive innovation, economic development, and workforce development across Illinois.

As for support a little closer to home, Carol Retzky of Oak Park, whose late husband, Herb, earned a degree from the college in 1946, has committed the first private investment for the project, a gift of \$2 million from herself and Herb’s estate.

Following successful careers as a pharmacy technician for Carol Retzky and pharmacist for Herb Retzky, and then as independent pharmacy owners, the Retzkys wanted to make a lasting impact on the practice of pharmacy as a profession and have supported the college for decades.

For Carol Retzky, investing in the new building is part of a legacy that she wished to leave at UIC.

“It felt like the right thing to do. The profession of pharmacy has given so much to us, and it was time to give back,” Retzky says.

“The Retzkys’ generosity has made a lasting impact on our students and has enabled our faculty to pursue groundbreaking research,” says Schumock. “The state-of-the-art facility will further our ability to bring new insights and pharmaceutical therapies to people all over the world in need of cures, treatments and improved quality of life.”



HERB AND CAROL RETZKY





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