

**SUMMER 2022**

VOL. 3, NO. 3

**Research  
Issue**

RFU aims to be a trusted partner in identifying opportunities for research collaborations that help bridge the gap between science and healthcare delivery.



**Rosalind Franklin University**

continues to lead, inspire and educate a diverse student body of healthcare professionals in announcing the new **College of Nursing.**

# Meet the Nurse of the Future.

The academic programs of RFU's College of Nursing are the result of years of planning and building strategic partnerships that work to impact today's healthcare challenges, address the social barriers to health and wellness, and ultimately lead to better community health outcomes.

As Lake County's first nursing college, we are preparing nursing professionals today for the demands of tomorrow by providing a strong interprofessional foundation in nursing education, in the classroom and in clinical settings.

Our nursing vision addresses workforce shortages, builds diversity among future nursing professionals and improves healthcare access and quality in the region.

Learn more about our new College of Nursing at [rosalindfranklin.edu/con](https://rosalindfranklin.edu/con).

**SEE HOW** we're preparing nurses for the future.



**ROSALIND FRANKLIN UNIVERSITY**  
*of* MEDICINE AND SCIENCE

# HELI~~X~~

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## IN OUR AIMS

Rosalind Franklin University aims to be a trusted partner in identifying opportunities for research collaborations that help bridge the gap between science and healthcare delivery. We are committed to equitable health and well-being for all people across all communities as a guiding value and goal across every endeavor of our mission of education, research and service. Together, we can build a shared vision to advance health equity through evidence-based, population-level interventions and innovations that help eliminate disparities in health and its determinants.

**Please note**, any group photo that does not feature physical distancing or mask-wearing was taken prior to the state of Illinois issuing such guidelines, or it reflects guidance in place at the time and in the location the photos were taken. During the COVID-19 pandemic, RFU enacted policies focusing on these and many other safety measures.

## FEATURES



### RESEARCH COLLABORATION

#### **CyberSole: The Science of Saving Feet**

Can an orthotic insole be designed to adapt to changing foot pressures in real time? CyberSole researchers might have an answer.

Page 6

BY SARA SKOOG

### RESEARCH IN SCHOLARSHIP

#### **New Center for Health Equity Research: An Engine for Scholarship and Change**

RFU's Center for Health Equity Research moves forward with funding from the Michael Reese Research and Education Foundation and the appointment of a founding director. **Page 12**

BY JUDY MASTERSON



### RESEARCH IN GOVERNMENT

#### **Building Trust in the Time of COVID**

Allison Arwady, MD, MPH, commissioner of the Chicago Department of Public Health, urges RFU faculty and student researchers to share the story behind their science and why it matters. **Page 20**

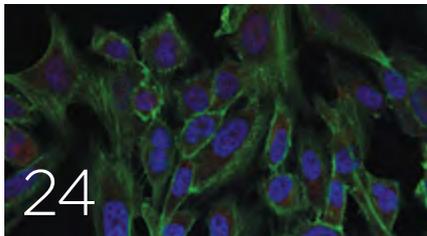
BY JUDY MASTERSON

### RESEARCH AWARDS

#### **Sloan Fellow Looks to Blaze New Trails in Neuroscience**

EunJung Hwang, PhD, looks forward to expanding her work on neural circuit mechanisms after being named a 2022 Sloan Research Fellow. **Page 26**

BY MARGARET SMITH



## DEPARTMENTS

### 4 LEADERSHIP MESSAGE

BY WENDY RHEAULT, PT, PhD, FASAHP, FNAP, DipACLM and RONALD S. KAPLAN, PhD

### 11 DONOR IMPACT

Jeffrey Yessenow, MD '76, and his wife Marla dedicated a planned gift for Chicago Medical School students through the RFU Legacy Challenge.

BY STEPHANIE GEIER

### 18 THE X FACTOR

Pharmacy students resume in-person career exploration activities for young women from the Chicago-based Ladies of Virtue leadership program.

BY SARA SKOOG

### 24 STUDENT RESEARCH

ASRC 2022: Annual symposium highlights student research.

### 30 THE X FACTOR

By expanding research models to include testing on both males and females, Holly Hunsberger, PhD, is demonstrating that Alzheimer's disease has differing impacts based on sex.

BY DAWN RHODES

### 32 THROUGH THE MICROSCOPE

Research in collaboration with 9/11's World Trade Center first responders leads to a better understanding and treatment of traumatic and occupational exposures.

BY MONIKA WASZCZUK, PhD

### 33 THROUGH THE MICROSCOPE

RFU's Sexuality, Health, and Gender Lab studies the unique forms of stigma affecting bisexual people, which contributes to adverse health outcomes.

BY BRIAN FEINSTEIN, PhD

### 34 STUDENT PROFILE

When masks and other shortages of PPE posed a serious threat, Niral Patel, MS, DPM '22, stepped up to help.

BY JUDY MASTERSON

### 36 INNOVATION SPOTLIGHT

Baldwin Institute faculty Jim Carlson, PhD '12, PA-C '01, and Robin Dyer, MD, OTR, helped lead the development of a web-based MDMA simulation case that is increasing awareness around delayed effects of psychostimulant use.

BY JUDY MASTERSON

### 38 INNOVATION SPOTLIGHT

Michael Beaubaire, MD, the first Entrepreneur in Residence for Helix 51, finds fulfillment in working with companies that offer hope through innovation.

Entrepreneur in Residence Peter Paredes, JD, helps Helix 51 biotech entrepreneurs create a patent strategy.

BY JUDY MASTERSON

### 40 UNIVERSITY NEWS

Lisa L. Dutton, PT, MS '93, PhD, says RFU "holds a special place in my heart" as she returns to her alma mater as College of Health Professions dean.

The AAMC honors the Community Care Connection's efforts to reduce COVID-19 vaccine hesitancy and improve health equity.

Helix 51 expands its roster and plans an inaugural Biomedical Innovation Day.

Nicole Ferrara, PhD, joins the Center for Neurobiology of Stress Resilience and Psychiatric Disorders.

### 42 FROM THE ARCHIVES

A look back at *The Chicago Medical School Quarterly*, a journal that highlighted faculty/student research from the 1940s into the early 1970s.

BY KELLY REISS

### 44 POST-OP

Science, murder and history — and poison — come together in a new non-fiction book authored by Neil Bradbury, PhD.

BY MARGARET SMITH

Cover: "You Got to Be Kidney Me," Jessica Centa, PhD '21

of MEDICINE AND SCIENCE  
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**Rosalind Franklin University strives to build an environment in which research and our researchers can thrive. With a reported 80% of health science jobs in our state located in Lake County, we continue to position RFU as a vital part of that ecosystem.**

Our Innovation and Research Park and recently expanded Helix 51 — the only wet lab-based incubator in Lake County and the northern Chicago suburbs — are helping to strengthen our regional and state bioscience industry and our local economies. We are supporting and promoting biomedical innovation that improves quality of life; creates good jobs, training and internship opportunities; and contributes to public health.

Undergirding that effort is our determination to elevate public trust in science, research and health care. This issue of *Helix* speaks to the close relationship between advances in science and technology and good health, and also to our awareness that many people do not benefit from those advances, as structural racism and other systemic inequities that shape health determinants continue to cut lives short.

As an institutional anchor in northern Lake County, RFU has a responsibility to prioritize members of under-resourced communities that face so many barriers to good health.

Our new Michael Reese Research and Education Foundation Center for Health Equity Research represents a renewed commitment to improved health and health equity across Lake County. It will serve as a nucleus and strategic force for improved health and wellness. It will create a community-based hub for interprofessional scholarship, research and innovation. It will combine the strengths of RFU with the strengths and wisdom and perspectives of our communities, which have so much to teach us.

We are indebted to the Michael Reese Foundation, our philanthropic partner in this effort. The center also presents opportunities for increased funding and grants, new community partnerships and new collaborations with established partners and among RFU and other local researchers. We warmly welcome Founding Director Amanda Simanek, PhD, MPH, a native Midwesterner and social epidemiologist, whose rich body of NIH-funded research includes the study of psychosocial determinants of infectious diseases and the underlying pathways between social disadvantage and poor health across generations.



Trust and communication, as Chicago Department of Public Health Commissioner Allison Arwady, MD, MPH, reminds us, are often-overlooked but crucial factors in achieving better outcomes for all, especially for those who shoulder the burden of health and healthcare disparities. Our Center for Health Equity Research will help us build bridges across disciplines, across sectors, across our communities and region. It will help us measure outcomes and strengthen our ability to conduct more inclusive translational and clinical research. It will help us tell the story behind the research, move data into action and, together, create lasting change.

We are grateful for the support of so many as we continue to rebuild trust, tell our story and pursue evidence-based solutions to all that ails us.

Wishing you the best of health. ✕

Wendy Rheault, PT, PhD, FASAHP, FNAP, DipACLM  
*President and CEO*

Ronald S. Kaplan, PhD  
*Executive Vice President for Research*



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for university updates and more messages from leadership.

[youtube.com/RosalindFranklinU](https://youtube.com/RosalindFranklinU)

**EDITOR'S NOTE**

**A college writing class was discussing the pitfalls of jumbled phrases and their potential to confuse the reader — brain-teasers that included “Is there a 4th of July in England?” and “Why can’t a man living in the United States be buried in Canada?”**

The answers, of course, are “Yes, there is — along with every other date in July”; and “Because you shouldn’t bury a living man anywhere.” The answers would be vastly different if the questions were “Does England celebrate American Independence Day?” and “Can a man who lived and died in the United States be buried in Canada?”

Then another query took this grammatical exercise on an alternate track: “How many birthdays does the average man have?” The guesses ranged from 70 up to 80, but most of the students agreed that the average life expectancy in the U.S. is about 72 years.

But the simple answer — “The average man has only one birthday, which is the day he was born” — couldn’t ignore the complexity of the guesses that were incorrect on more than one level. The fact is that U.S. life expectancy not only varies from state to state but also county to county and ZIP code to ZIP code. It is also generally true that women live longer than men, and life expectancy is lower in minority populations.

In one measure of these disparities, the 2019 National Vital Statistics Reports found that life expectancy for the U.S. population was 78.8 years — but variations from that included 81.4 for females, 76.3 for males, 74.8 for Blacks and 71.8 for Native American and Alaska natives.

In another measure that illustrates the local variations, a 2015 U.S. Census-tract study by NYU Langone Health found a decade-wide gap between life expectancies in neighboring ZIP codes in Waukegan, Illinois: 85.9 years in 60031 — home to estate-style properties on the city’s far west side — and 75.3 in a tract of 60085 with apartment complexes just across the Tri-State Tollway.

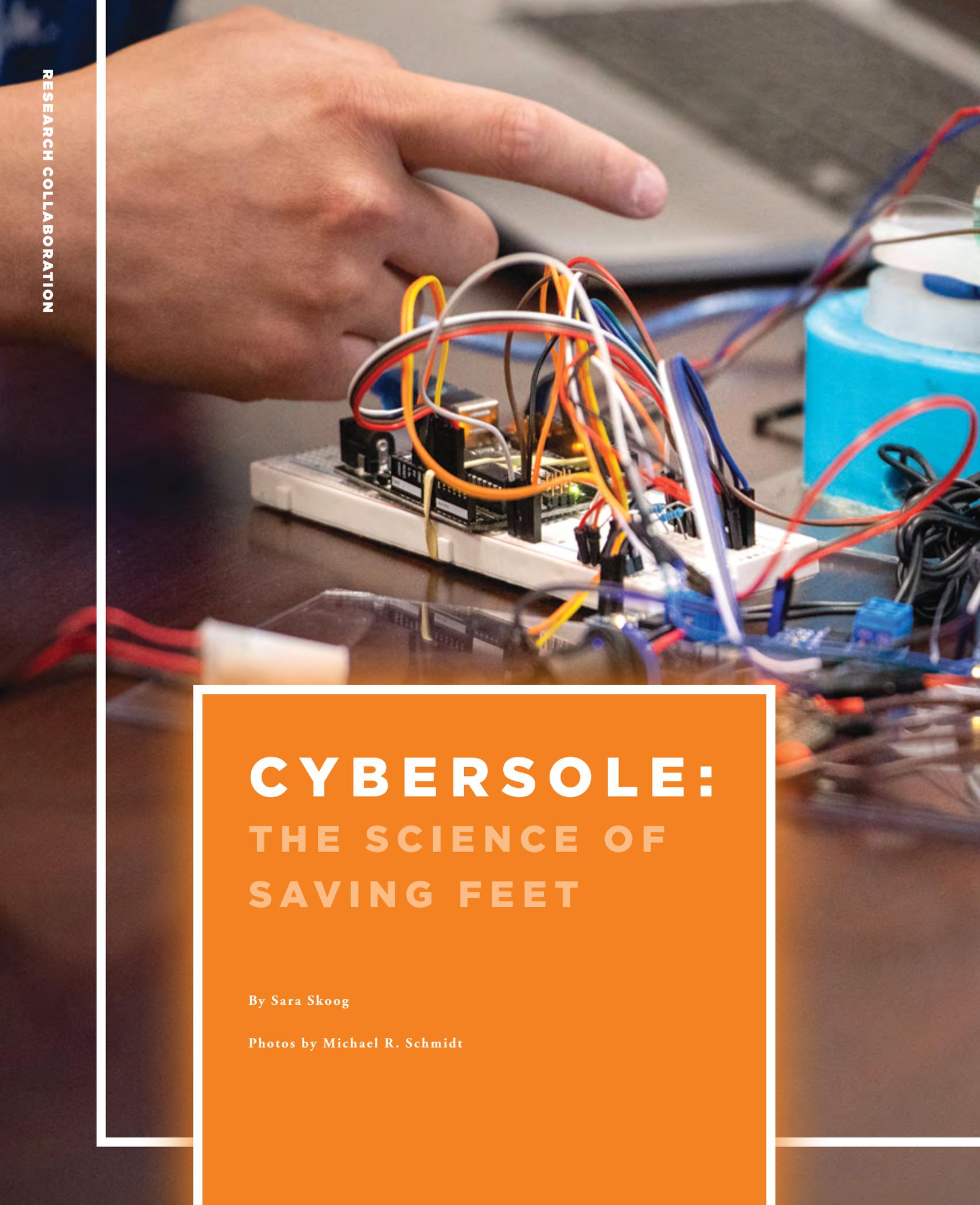
These disparities are among the challenges to regional wellness that will be addressed by RFU’s new Michael Reese Research and Education Foundation Center for Health Equity Research, the formation of which is detailed in this research edition of *Helix*. The search for answers to health inequity — and brain disease and PTSD among 9/11 first responders and other challenges — begins with the academic inquiry that separates informed knowledge from casual assumptions.

*Dan Moran is the communications director with RFU’s Division of Marketing and Brand Management.*

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**If you have thoughts to share on the stories and themes featured in the pages of *Helix*, please send us your feedback today at [helix.letters@rosalindfranklin.edu](mailto:helix.letters@rosalindfranklin.edu).**

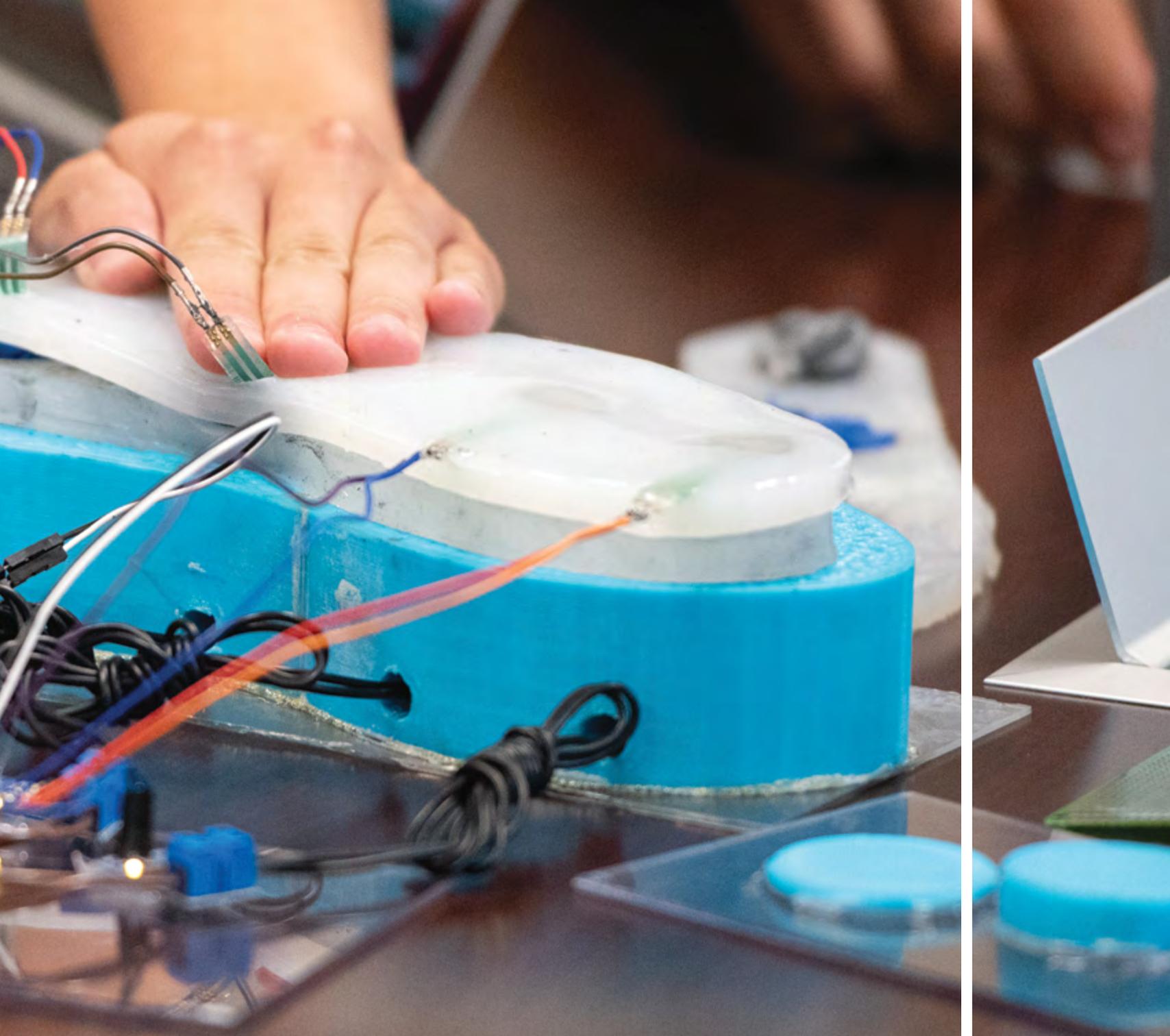
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# CYBERSOLE: THE SCIENCE OF SAVING FEET

By Sara Skoog

Photos by Michael R. Schmidt



**RESEARCHERS AT RFU'S CENTER FOR LOWER EXTREMITY AMBULATORY RESEARCH (CLEAR), IN PARTNERSHIP WITH THE UNIVERSITY'S INNOVATION AND RESEARCH PARK AND THE UNIVERSITY OF ILLINOIS CHICAGO (UIC), ARE DEVELOPING AN INTELLIGENT ORTHOTIC INSOLE — A "CYBERSOLE" — THAT HAS TREMENDOUS POTENTIAL TO PROMOTE HEALING AND PREVENT FOOT ULCERS IN PATIENTS WITH DIABETES.**

This insole could also benefit athletes and military personnel. The team members developing the device are considering a range of possibilities. They have the technology — a patent was issued in 2020 — and are now in the process of building a prototype. CLEAR's Interim Director Noah Rosenblatt, PhD, Clinical Research Scientist Ryan Crews, PhD, and RFU's Director of Innovation and Industry Relations Connie Cleary, DPM, detail the science inside the device, potential applications beyond the diabetic population, and the academic/industry partnerships essential to the product's development. Conversations have been condensed and edited for length and/or clarity.

**Helix: You've developed this unique idea for an intelligent orthotic, a "CyberSole" — why is there a need for a device like this?**

**Dr. Ryan Crews:** In looking at either protecting feet at risk or helping feet with an open wound to heal, particularly in diabetic patients, one of the key principles to healing is reducing continued physical trauma to the site of the wound. When we talk about diabetic footwear, whether it be preventive or healing devices, the primary intention is to redistribute that physical stress away from the site of the wound. For example, if you have a wound on your big toe, you want to try and offload, or relieve, physical trauma to that big toe and shift that load somewhere else on the foot that doesn't currently have a wound. You need to do that in an equitable manner, so you aren't just transferring the problem to another spot on the foot and causing a new wound there. So, we came up with this concept for a dynamically adapting insole that will continuously assess how the foot is loading and automatically adapt to optimize loading over the course of a day.

**Can you describe the device technology? How does it work?**

**Dr. Noah Rosenblatt:** The technology essentially is a way to measure pressure and dynamically adjust based on the needs of the foot. The insole has sensors that respond to different pressures on the foot. If there is a region that has a high pressure, the device will signal a fluid-filled bladder in that region of the insole to make the fluid a little softer and make the bladders more firm in regions that have lower pressures. These needs can change based on a person's activities; they might be fast-walking or walking with a backpack, and that can change how the foot takes on the load during these activities. The insole can respond to these changes and adapt the pressures spatially across the foot.

Below: Drs. Rosenblatt and Crews, on right side of table, meet in spring 2022 with University of Illinois Chicago engineering students in an RFU conference room. Opposite: Dr. Rosenblatt observes lab work on a CyberSole prototype.



**What is UIC's role in developing this project?**

**NR:** Prior to coming to RFU in 2015, I was working at UIC and interested in studying prosthetics for individuals with a lower limb amputation. With my co-investigators there, we developed a concept to make an adjustable prosthetic socket that can improve comfort levels and overall mobility by using special fluids that you can change how, for lack of a better word, "squishable" they are by applying electrical current to them. So when I came to RFU, I knew Ryan was highly involved in researching diabetic foot ulcers, which is kind of outside my realm, so one day I said to Ryan, "Is this something that would

make sense to apply to the foot?" We spoke to a couple of the podiatrists here and they agreed it would make sense, and we went from there. Since UIC was already listed as an inventor on the patent, it made sense to reach out to them, because this is clearly very technical and involves a lot of engineering prowess — which, while we'd like to think we have some, it's beyond our scope of knowledge.



**“THE TECHNOLOGY ESSENTIALLY IS A WAY TO MEASURE PRESSURE AND DYNAMICALLY ADJUST BASED ON THE NEEDS OF THE FOOT.”**

- **DR. NOAH ROSENBLATT**, ASSISTANT DEAN OF RESEARCH, INTERIM DIRECTOR OF CLEAR, DIRECTOR OF DPM/PhD PROGRAM, ASSOCIATE PROFESSOR

**Dr. Connie Cleary:** In addition to Drs. Crews and Rosenblatt, UIC's College of Engineering faculty member Dr. Farid Amirouche was an inventor named on the original patent. With an established shared interest in the technology between RFU and UIC, Dr. Steven Kuemmerle (former RFU associate vice president for innovation and industry relations) worked with a number of UIC contacts to assess feasibility for proceeding with prototyping work. This eventually led to Crews and Rosenblatt being assigned as mentors for a UIC engineering senior design project. Part of the engineering students' curriculum is to work on a real-life project, and so the students and their mentor, Dr. Jon Komperda, would meet with Drs. Crews and Rosenblatt to talk about the project and try to figure out what the best-case scenario would be for the prototype. They would then do pilot projects in terms of "Is this the right way to go? If we use liquid in the bladders, we need to figure out which substance would work best. Should there be a battery that extends out to another interface for recharging the sensors?" That work is ongoing.



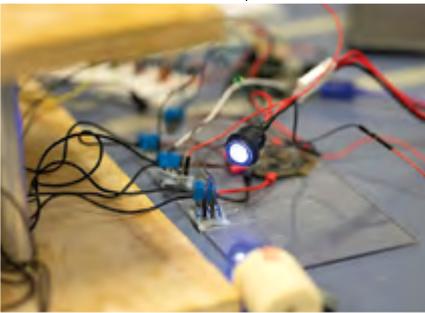
**How far along is the project in the development process?**

**RC:** We're at the stage of developing proof of concept. It's definitely more of a benchtop prototype, so it's not something that's ready to go into a shoe and be worn by anybody, but it would be something to demonstrate the feasibility of having the smart fluid bladders adjust to loads. In theory, it is designed like an insole as far as the shape of it, but it wouldn't be compatible with putting it in a shoe just yet.

**What needs to happen between now and the time when someone could put this device in their shoe?**

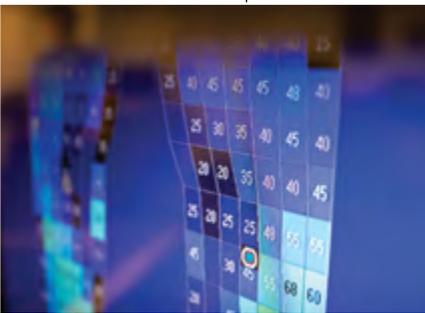
**NR:** Quite a lot has to go into this. Would this be considered under the FDA as a standard orthotic, or would it go in its own class? There are safety issues to consider with the fluids used, with the power source for recharging the device, making sure the device doesn't overheat. What we're recognizing is that the more things we solve, the more problems we find that need solving.

**RC:** I think our next major milestone would be getting to the point where we can do human-subjects testing. We still don't have that complete benchtop model yet, but our hope is to have that solid benchtop model that transitions into that model that we can use for testing in our human-performance lab.



**Relationships between academia and industry are essential to continuing the research and development of devices like CyberSole. How is RFU's Innovation and Research Park fostering these partnerships?**

**CC:** Under the leadership of our vice president for research, Dr. Ronald Kaplan, we are exploring ways in which we can make our technologies more appealing to industry. Here is one example: we engaged a company to provide some early information on what a potential prototype would look like. They did a pre-alpha study on what the best type of materials would be to create this insole. Another example of what we are doing to increase industry awareness under Dr. Kaplan is our membership in MTEC, the Medical Technology Enterprise Consortium, which allows us to engage with industry, academia and foundations. We were able to make pitches through MTEC, which led to us talking to a couple of companies who might be interested in working with Drs. Crews and Rosenblatt on developing the insole for use by warfighters. If you're in the battlefield and you have problems walking, that could be an issue, so this device could potentially help save warfighters' lives, especially in situations where there's offloading requirements, or there's uneven terrain, or the warfighter has some type of pathology in the foot. This device could be used for a lot of different scenarios. ✕



Left: The ongoing research by the CyberSole team seeks to align with the largest volume of evidence concerning diabetic foot ulcer prevention, which is associated with therapeutic footwear that mitigates physical stress on the plantar surface of the foot.

*Sara Skoog is a staff writer with RFU's Division of Marketing and Brand Management. In addition to writing for Helix and other university publications, she also produces Pulse, RFU's monthly e-newsletter.*



# LEGACY CHALLENGE CONTINUES WITH COMMITMENT FROM CMS ALUM

By Stephanie Geier  
Photography by James C. Svehla

**Jeffrey Yessenow, MD '76, believes that, as much as possible, students should be free to focus on their academic and clinical pursuits.**

"I recognize the importance and urgency of helping our outstanding students to fully benefit from the education and training offered by Chicago Medical School," he said. "My years at CMS allowed me to become a successful OB-GYN with eight physicians at our Women's Wellness Clinic. Surprisingly, a local hospital selected me to become the CEO, and the rest is history. The opportunity and encouragement I received from CMS and mentors like Dean Emeritus Theodore Booden, PhD, empowered me to succeed beyond my own expectation." Dr. Yessenow now operates a small surgery center and looks forward to his retirement.

To help CMS attract and retain students, Dr. Yessenow and his wife Marla documented a planned gift with Rosalind Franklin University that will endow a scholarship for students at CMS upon the Yessenows' passing and preserve their legacy of support for the school.

**"The opportunity and encouragement I received from CMS and mentors like Dean Emeritus Theodore Booden, PhD, empowered me to succeed beyond my own expectation."**

Research has proven that the diversification of the healthcare workforce is key to addressing health disparities that exist in our society today. RFU is committed to leveling the playing field by working with donors like Dr. and Mrs. Yessenow to ensure access to healthcare education through the creation of scholarships that help RFU increase access and the diversity of its student body and of eventual professional cohorts.

The RFU Legacy Challenge, launched in December 2020, uses a matching gift pool — established through a gift from RFU Board of Trustees Chair Elizabeth Coulson and her husband William Coulson — to match each new or increased planned gift commitment to the university. Through the RFU Legacy Challenge, alumni and friends who notify the university of their qualifying planned gift will help raise both current and future support for the university.

"For us, the Legacy Challenge was a call to action," the Yessenows said.

The matching funds are available on a first-come, first-served basis to any donor who documents a planned gift. To date, more than \$7.8 million in new or increased estate plans have been identified. The Legacy Challenge is scheduled to run through Dec. 31, 2022, or until the matching funds have been depleted. ✦

*Stephanie Geier is executive director of RFU's Stewardship and Advancement Services.*



## JOIN THE LEGACY CHALLENGE

If you would like to document a planned gift, contact Jill Doherty, senior director, gift planning, [jill.doherty@rosalindfranklin.edu](mailto:jill.doherty@rosalindfranklin.edu) or visit:

[rosalindfranklin.planmylegacy.org/legacy-challenge](https://rosalindfranklin.planmylegacy.org/legacy-challenge)

**NEW  
CENTER  
FOR  
HEALTH  
EQUITY  
RESEARCH:  
AN ENGINE FOR  
SCHOLARSHIP  
AND CHANGE**

By Judy Masterson

Photos by Michael R. Schmidt



A glowing lightbulb is positioned on the left side of the page. The bulb is lit, casting a warm yellow glow. Behind the bulb, a large, white question mark is cut out from the dark background, creating a silhouette effect. The text is overlaid on the right side of the page, in a bold, white, sans-serif font.

**“DISPARITIES  
REFLECT AND  
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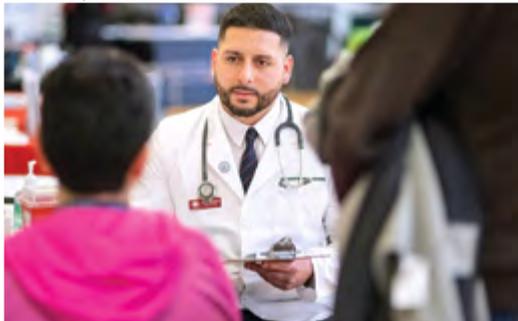
– HEALTHCARE FOUNDATION OF NORTHERN LAKE COUNTY

In her first communication as founding director of the new Michael Reese Foundation Center for Health Equity Research at Rosalind Franklin University, social epidemiologist Amanda Simanek, PhD, MPH, offered up a definition and laid down a challenge.

“Health inequities are differences in health across groups that are systematically perpetuated by unjust social structures, and importantly, differences in health that healthcare providers, public health professionals and government officials have a duty to act on by working to disrupt these structures and ensure the conditions necessary for obtaining optimal health are in place for all.”

The Center for Health Equity Research (CHER) will take up the call to act, said Dr. Simanek, who arrives on campus this summer, by fostering health equity-focused research collaborations that are responsive to community needs, address sociostructural determinants of health and involve implementation of interventions aimed at improving health equity.

**“Public health has built a mountain of evidence on health inequities over the past 20 years. So now the question is, ‘How do we translate data into action?’”**



Clockwise from upper left: Raluca Dima, DPM '22, participates in a Wellness Week event in February 2019; RFU's Innovation and Research Park will house the Center for Health Equity Research; Cristo Rey St. Martin College Prep in Waukegan is one of RFU's partners in the Nursing Education to Workforce (NEW) Pathway; and Dr. Jose Martinez-Perez, MS '18, CMS '22, with a visitor at an April 2019 Health Resource Fair hosted by the Waukegan Park District.

“Dr. Simanek emphasizes the importance of listening to the community,” said Carl Lawson, PhD, MPH, interim assistant dean for diversity and inclusion and CMS director of Interprofessional Global Health, who served on the search committee for the director. “She understands that the foundation of community-based research is actually engaging the community in conversation about what research is, because many people equate research with experimentation. Given our nation’s history, that’s not surprising. So we need to listen and learn how our neighbors define their own well-being. We have to ask questions of them. We have to gather data from them. That process is research, and it informs actions we can take together to improve community health and advocate for change.”

The center will serve as the nucleus for the existing ecosystem of RFU initiatives aimed at improving health equity: the Community Care Connection mobile health clinic; educational pathways in partnership with local schools, including the Nursing Education to Workforce Pathway — a hallmark program of the new College of Nursing; the Interprofessional Community Clinic for the uninsured; the Innovation and Research Park and its contributions to the local economy and public health; and a new emphasis on lifestyle medicine, the social determinants of health, and diversity, equity and inclusion across academic programs and curricula.

“We needed a hub,” said Chicago Medical School Assistant Professor of Medicine Maureen Benjamins, PhD, an epidemiologist with CMS partner Sinai Urban Health Institute (SUHI) on Chicago’s West Side. “We needed a home for people who are dedicated to advancing equity and who are working on various pieces of that. Public health has built a mountain of evidence on health inequities over the past 20 years. So now the question is, ‘How do we translate data into action?’”

**“HEALTH INEQUITIES ARE DIFFERENCES IN HEALTH ACROSS GROUPS THAT ARE SYSTEMATICALLY PERPETUATED BY UNJUST SOCIAL STRUCTURES, AND IMPORTANTLY, DIFFERENCES IN HEALTH THAT HEALTHCARE PROVIDERS, PUBLIC HEALTH PROFESSIONALS AND GOVERNMENT OFFICIALS HAVE A DUTY TO ACT ON BY WORKING TO DISRUPT THESE STRUCTURES AND ENSURE THE CONDITIONS NECESSARY FOR OBTAINING OPTIMAL HEALTH ARE IN PLACE FOR ALL.”**

- **AMANDA M. SIMANEK**, FOUNDING DIRECTOR OF THE MICHAEL REESE FOUNDATION CENTER FOR HEALTH EQUITY RESEARCH



**NAME:** Amanda M. Simanek, PhD, MPH

**TITLE:** Founding director of the Michael Reese Foundation Center for Health Equity Research

**AREA OF STUDY:** Social epidemiology

**PREVIOUS POST:** Associate professor in the Joseph J. Zilber School of Public Health at the University of Wisconsin-Milwaukee

**EDUCATION:** Master of Public Health in International Health Epidemiology and doctorate in Epidemiologic Science from the University of Michigan

“I look forward to working with RFU faculty and students as well as community members to shape the mission and goals of the center, and my hope is that together, we can prioritize and catalyze research that ultimately serves to ameliorate health inequities among Lake County communities that have been historically marginalized, disadvantaged and underserved.”

“The center, headed by Dr. Simanek, will help us be very intentional,” added Dr. Benjamins, who also served on the search committee. “It will help keep our eyes on the fact that we’re trying to eliminate a gap. We want to implement new programming or policies and use evaluation techniques that are centered on equity. Advances in medical care might benefit the larger population, but often have little or no impact for communities that have been historically marginalized. Life expectancy — which is as much as 10 years shorter for Black people than white people who live near RFU — is one very powerful metric that measures the gap.”

**“We have a responsibility, as an anchor institution, to try to help solve some of the inequities in our closest communities.”**



Northern Lake County offers evidence of the stark reality behind the National Academy of Medicine’s observation that “disparities reflect and contribute to the impact of structural racism on health at the systems level.” Demographic data collected by the Healthcare Foundation of Northern Lake County, an RFU philanthropic partner, reveals persistent racial disparities in income, education and health — with the largest inequities in three communities along Lake Michigan. There, Black and Hispanic people make up 68% of the population, 23% of adults lack a high school diploma and 50% spend more than a third of their income on housing. The coal-fired power plant that has belched toxins for decades will close this year. But massive dumps of coal-ash pollutants will remain — a risk factor equal to smoking a pack of cigarettes a day for anyone living nearby, the U.S. Environmental Protection Agency once estimated.

Executive Vice President for Research Ronald Kaplan, PhD, has been the driving force behind the Center for Health Equity Research.

“I saw how effective SUHI was in documenting and addressing inequities in underserved Chicago neighborhoods, and I saw the great need in Lake County,” he said. “We have a responsibility, as an anchor institution, to try to help solve some of the inequities in our closest communities. We realize this is a lifetime endeavor, that these are systemic issues. But there’s a saying in Hebrew, ‘tikkun olam,’ which means ‘heal the world’ one action at a time.”

Both Dr. Kaplan and Chicago Medical School Dean Archana Chatterjee, MD, PhD, recognize the growing interest among RFU students and faculty in issues of equity, in the 80% of health determinants that exist outside of doctor appointments and hospital visits.

“It will be an engine for scholarship and research that can translate into improved health and well-being,” Dr. Chatterjee said. “We want to continue to extend research opportunities to aspiring students from our community. We must be inclusive of our whole community, paying special attention to those who are disenfranchised, discriminated against, who don’t have access.”

COMMUNITY PARTNER

**THE MICHAEL REESE RESEARCH AND EDUCATION FOUNDATION**

expanded its partnership with RFU in March 2022 by providing funds to establish the Center for Health Equity Research. The foundation’s mission is to continue the legacy of Michael Reese Hospital — which opened in 1881 with a directive to treat all patients regardless of religion, ethnicity or class — by “supporting research, education and community service through relationships that foster quality health care.” In 2021, the foundation provided Chicago Medical School with funding for two full-ride scholarships for students from underrepresented populations in medicine.



The center is expected to be powered by interprofessional collaboration among RFU's faculty and students in more than 30 graduate health profession programs.

"There are so many ways to collaborate and connect that will be of interest to those within our respective schools and colleges — medicine, pharmacy, podiatric medicine, nursing, psychology and so many other programs in our College of Health Professions," Dr. Lawson said. "It's an incredible opportunity to take our collective skills and our collective will and interact with our communities in a way that engages them with respect. All of us working together can design and provide interventions and programs that lead to better health outcomes for populations most in need."

Health psychologist Kristin Schneider, PhD, associate professor in the Department of Psychology and associate dean of research for the College of Health Professions, has previously conducted research in collaboration with the Lake County Health Department and North Chicago public schools, work that was difficult to sustain, especially during the pandemic.

"I'm looking forward to a much more concentrated effort and synergy around community-based research," she said. "The center will definitely be helpful, especially in terms of establishing relationships with different organizations and community folks. Its biggest role, in my mind, is going into the community, learning what the needs are and what needs to be done, and using that input to facilitate connections with researchers."

Dr. Benjamins has seen first-hand the disconnect between "what researchers think might work and what people who live in the community think will work."

"We will really need to engage the community to guide this effort," she said. "We have to do more than inform them or consult with them or ask them to serve on advisory committees. Effective changes only happen when you share the decisions, share the power. We need to help researchers get comfortable with that idea. We have to follow the community's lead." ✕

*Judy Masterson is a staff writer with RFU's Division of Marketing and Brand Management.*

# VISUALIZE HEALTH EQUITY

## A COMMUNITY ART PROJECT



**"Visualize Health Equity: A Community Art Project,"** a traveling exhibit produced by the nonprofit National Academy of Medicine (NAM), was displayed in RFU's Scholl Gallery, April 4–28. The academy calls on artists to illustrate what health equity looks, sounds and feels like to them. RFU students, faculty and staff submitted creative works illustrating their vision.



### **Visualizing Health Equity: Patients, Colleagues, Professionals**

Thad Anzur, MHPE

"My vision of health equity provides superior health care to patients that embraces their individual attributes and perspectives, cultural mores and spiritual beliefs. It also encompasses accessible, quality education and training for all individuals who wish to contribute their unique talents to the healthcare industry."

### **Continuation**

Kayla Quebral, CMS Class of 2023

"In my upbringing as a young Filipina-American girl, I had opportunities to be exposed to an immense number of healthcare professionals who served the Filipino people through medical missions and education. This promoted my understanding of health equity in recognizing the importance of addressing the overwhelming disparities that exist in the communities derived from my family tree. Now, as a fellow healthcare professional, my passion is to continue to carry the responsibilities of achieving health equity — all while being able to connect with my culture, my roots and my people."



**FIND OUT MORE ABOUT THE PROJECT**

[nam.edu/programs/culture-of-health/visualize-health-equity-community-art-show](https://nam.edu/programs/culture-of-health/visualize-health-equity-community-art-show)

# LEADING WITH VIRTUE

By Sara Skoog

Photos by James C. Svehla

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The College of Pharmacy's Student National Pharmaceutical Association (SNPhA) chapter presented a pharmacy career exploration event on April 16 to the Chicago-based Ladies of Virtue (LOV), a nonprofit mentoring and leadership program for girls ages 9-18 from underserved communities. The event was supported by Walgreens Diversity Dollars, which COP received to develop programming that helps bring about a more diverse and inclusive pharmacy practice community. The day's agenda was inspired by LOV's mission to instill purpose, passion and perseverance in girls while preparing them for college, careers and becoming change agents in their communities.





The pharmacy students discussed the educational path to becoming a pharmacist and the important role pharmacists play in the delivery of care at both patient and population health levels. They also led the LOV students through hands-on activities including a mock compounding exercise and learning to use an EpiPen. The event was SNPhA's first in-person program with LOV following two years of virtual activities due to the COVID pandemic, according to Tila Thomas, COP '23, SNPhA's chair of multicultural affairs.

April's event was eagerly anticipated by both SNPhA and LOV students alike. "I think I was as excited as they were," Ms. Thomas recalled. "It was such a good time, we spent a whole morning with these girls, and everybody seemed really into what we were doing. I'm glad we were able to meet them where they are and give our presentation."

For the compounding activity, the LOV students used a roll of Smarties candies, some simple syrup and a mortar and pestle to simulate making a medication suspension. Ms. Thomas and her fellow SNPhA students also taught the LOV girls how to administer an EpiPen so they would know how to use it should the need arise. "The students had a ton of questions about the EpiPen. We used a practice model that doesn't actually deliver an injection, and they all practiced on each other. I thought it would be a quick part of the presentation, but the students had so many questions," Ms. Thomas said.

Another important aspect of these exercises was seeing the patient counseling component of pharmacy practice, said Jolee Rosenkranz, MPH, associate dean for external relations, instructor of pharmacy practice and faculty advisor for SNPhA.

"This was so crucial, because it emphasized the importance of the patient-pharmacist dynamic and also sparked discussions about the myths and misconceptions about vaccines," she said. "What was so amazing was seeing how the pharmacy students responded to the LOV students' enthusiasm, and knowing that both groups were getting so much out of this experience."

The COP-LOV partnership also creates opportunities for SNPhA students to serve as mentors and role models. "LOV programming is geared toward helping students from middle school up until college, so in terms of mentorship, we can say to these girls, 'We're here as people who have been in your shoes, being that age and not knowing where we're going, what we want to do or exactly how to do it,'" Ms. Thomas said.

"What our students have done really successfully is not just advocating for pharmacy, but supporting our mission of building a more diverse pharmacy workforce," Ms. Rosenkranz added. ✕



**"We're here as people who have been in your shoes, being that age and not knowing where we're going, what we want to do or exactly how to do it."**



Ladies of Virtue launched in 2011 in Chicago's Grand Crossing community with a mission "to instill purpose, passion, and perseverance in girls, ages 9 to 18, while preparing them for college, careers and to become change agents in their communities."

# BUILDING TRUST IN THE TIME OF COVID

By Judy Masterson



**ALLISON ARWADY, MD, MPH, COMMISSIONER OF THE CHICAGO DEPARTMENT OF PUBLIC HEALTH — WHERE, SHE HAS SAID, “PROMOTING HEALTH EQUITY DRIVES EVERYTHING WE DO” — DELIVERED THE KEYNOTE ADDRESS FOR RFU’S ANNUAL ALL SCHOOL RESEARCH CONSORTIUM ON MARCH 16.**

Dr. Arwady offered no PowerPoint presentation, acknowledging this as “very unusual” for a medical research talk. Her goal, she said, was to challenge researchers to explain the value of their science and “how you use the work you’re doing to work on the big problems in society.” Following are lightly edited and condensed highlights from her remarks.



**Dr. Allison Arwady, MD, MPH**, is the Commissioner of the Chicago Department of Public Health (CDPH). Dr. Arwady started at CDPH in 2015 and served as Chief Medical Officer before being confirmed by the City Council as Commissioner in January 2020. As Chief Medical Officer she oversaw the disease control, environmental health, emergency preparedness, and behavioral health divisions. She has worked on disease outbreaks, immunization promotion, tuberculosis response, lead poisoning prevention, substance misuse and more. Prior to CDPH, she worked for the U.S. Centers for Disease Control and Prevention (CDC) as an Epidemic Intelligence Service officer. In that role, she focused on outbreak response, including international work on Ebola and Middle East Respiratory Syndrome. While based at the Illinois Department of Public Health, she responded to disease outbreaks across the state. She has a bachelor’s degree from Harvard University, a master’s degree in public health from Columbia University, and completed medical school and clinical training at Yale University. She is a board-certified internal medicine physician and pediatrician, and continues to see primary care patients weekly.

★ **LEARN HOW TO TELL THE STORY**

It’s amazing how the scientific community across the world has come together to answer questions and collaborate to create an amazingly effective vaccine. We’ve seen in COVID, I think more clearly than ever, that it’s not enough just to have good data or to have noticed a problem, or to have highlighted a new way of thinking. We need to tell the story of that research and then implement the findings from that research.

★ **EXPLAINER-IN-CHIEF**

My role has certainly been to stay up on COVID research, to stay committed to it. But it’s also been about how we translate that for people who may not have as much of a science background,

**“If you want to address health inequities, if you want to fight misinformation, think about building trust in the science.”**

but who we need to include if we’re going to make sure that as a society we continue to support this research. If you want to address health inequities, if you want to fight misinformation, think about building trust in the science. And one way to build trust in the science is to cut the complex language. Say instead, “Here’s what we did to explore this question. Here’s something we didn’t know. Here’s how we think this finding should change the way we think about something, the way we prioritize something, the way we implement something. And here’s how we’re going to measure whether that has happened.”

★ **THE SCIENCE OF IMPLEMENTATION — AND LACK OF IT**

I was always very interested in how, and whether, basic science and clinical science findings make their way into clinical practice, because what we see across medical fields is a big gap between when questions are answered or at least partially answered and the development of new treatments, new drugs, new approaches. Actual implementation is not often studied, but it is probably one of the most important things where we think about quality in health care. The neuroscientist Thomas Insel, who used to run the National Institute of Mental Health, in his book “Healing: Our Path from Mental Illness to Mental Health,” recognized after years of leading one of our top scientific institutions that a lot of the failure of our mental health system or lack thereof is because while a lot of research is happening, even best practices backed by good evidence are not being implemented. So I hope many of you are thinking about how your critical research question can be implemented.



## HOW SCIENCE UNDERVALUES THE ROLE OF TRUST

Trust is often a word we use. Especially for people doing clinical research, there's a lot of goals around, "How do I get folks in the community to trust the work I'm doing? How do I recruit people who look like Chicago?" That's a major challenge given the history of individual and systemic racism in the medical system and how medical research plays a role in that. A study in *The Lancet*<sup>1</sup> that looked at COVID outcomes across 177 countries related to traditional measures for pandemic preparedness found that those metrics, which historically look at health system capacity and geography and data systems, were not predictive of infections. What was more predictive than most of the other metrics was levels of trust in governments, in healthcare professions and a general level of interpersonal trust connected to community.



## HUMAN BEHAVIOR: THE GREATEST CHALLENGE

I've asked my team to also look at social science research, because what did our biggest COVID-related challenges turn out to be? In a lot of ways, it's about behavior. What motivates people to wear a mask or not? How do we identify, among different populations with various COVID mitigations, the role politics plays — this enormous outside role and identity? What drives decisions to get vaccinated? How does social media play into this? Something that has taken up a huge amount of our time is the whole world of following what's on social and those metrics and what rises and when, and how to address misinformation. That is a whole area of research that I knew nothing about prior to COVID, but it's become one of our most important tools. I want us as the health department<sup>2</sup> to think about what works, what doesn't work, why things are being taken up, why they are not being taken up and how we expand our capacity. That evaluation piece is often not the part that we think about when we're imagining the science.



## WHAT SHE WORRIES ABOUT

Our biggest weakness as a country when it comes to COVID is that we have trouble telling the story.<sup>3</sup> And we've also seen a big drop in trust in science, in doctors, in government. And if we cannot rebuild some of this, it doesn't matter how good and interesting our work is, because it won't impact the big questions. There are real concerns about how we make sure that our amazing scientific work in this country continues to get financial support, and also how we fund implementation and evaluation — taking data, moving it into action and studying those outcomes. We need to be willing to publish and admit the negative findings. That's why the paper in *The Lancet* is so important. We have to be honest and straightforward. I worry a lot that one of the biggest outcomes from COVID is going to be continued growth of distrust in science and public health and medicine. I urge all of you, as you continue to work on your research, to challenge yourself to share the story with regular people. Because if you can't turn your research into something that fits what people are thinking about and talking about, people won't recognize the importance of it. And I worry distrust will grow. ✕

Previous spread: In photos posted by the City of Chicago, Dr. Arwady receives and administers COVID-19 vaccinations in early 2021. Opposite: Dr. Arwady, seen in screenshots of her March 16 address to ASRC participants, has hosted a daily Q&A livestream called "The Doc Is In: Ask Dr. Arwady" throughout the pandemic.

<sup>1</sup> **Pandemic preparedness and COVID-19: an exploratory analysis of infection and fatality rates, and contextual factors associated with preparedness in 177 countries, from Jan 1, 2020, to Sept 30, 2021.**  
thelancet.com/journals/lancet/article/PIIS0140-6736(22)00172-6/fulltext

<sup>2</sup> **The Chicago Department of Public Health provides guidance, services, and strategies that make Chicago a healthier and safer city.**  
chicago.gov/city/en/depts/cdph.html

<sup>3</sup> **The Chicago Department of Public Health COVID Response Center** connects the public with resources that include testing options, vaccine providers and updated guidance on mitigation requirements.  
chicago.gov/city/en/sites/covid-19/home.html

**DR. ALLISON ARWADY**  
@DRARWADY  
@CHIPUBLICHEALTH

**TUESDAYS AT 11 AM!**  
#ASKDRARWARDY

Dr. Arwady will answer your questions about COVID-19 and the vaccine LIVE! Watch on @ChiPublicHealth, and ask your questions using #AskDrArwady.

Questions about COVID-19 or the vaccine?

**Ask Dr. Arwady**

on Facebook/Twitter Live | #AskDrArwady

Tuesdays at 11am

CDPH



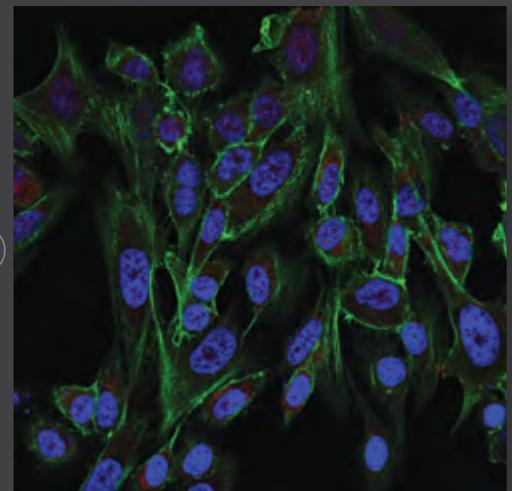
MORE DR. ARWADY

# ASRC 2022

## SCIENTIFIC PROGRAM SPOTLIGHTS STUDENT RESEARCH

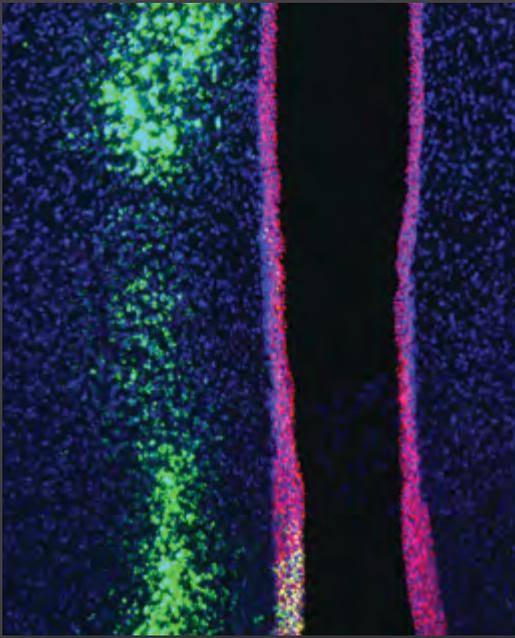
The university's 17th Annual All School Research Consortium, held March 16, featured the research efforts of nearly 100 RFU students, postdoctoral trainees and resident clinicians. ASRC is a truly interprofessional medical and scientific forum, highlighting the work of students from across all of RFU's colleges and schools. The event also gives students and postdocs an opportunity to demonstrate proficiency in communicating about research — an essential part of their professional development.

The daylong virtual event included three research symposia as well as the poster presentations, which allowed attendees to interact with the student researchers and ask questions about their projects. The annual "Art from the Benchtop" exhibit, followed by the awards for best scientific talk and poster, closed out this year's event. ASRC is organized by RFU's Graduate Student Association and supported by Executive Vice President for Research Ronald Kaplan, PhD; the deans of the colleges and schools; and the Executive Student Council. ✕

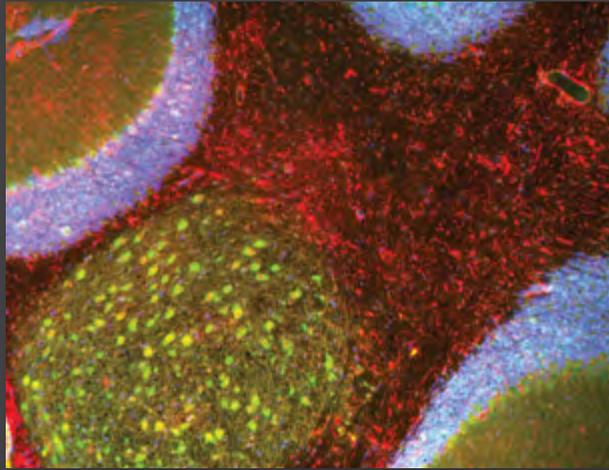


The 2022 ASRC leadership team included, left to right, Wacey Gallegos, PhD candidate; Elise Webber, PhD candidate; Alexandra Ritger, MD/PhD candidate; Carolina Caloba, PhD '21; and L.P. Adhikari, PhD candidate.

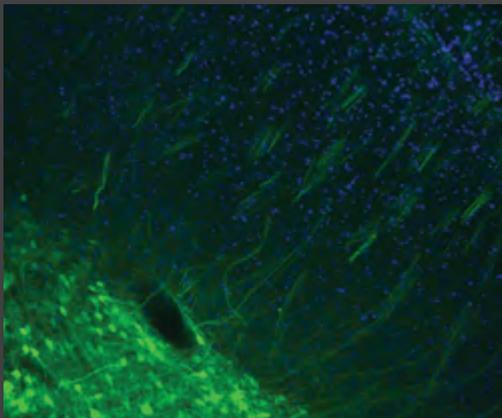




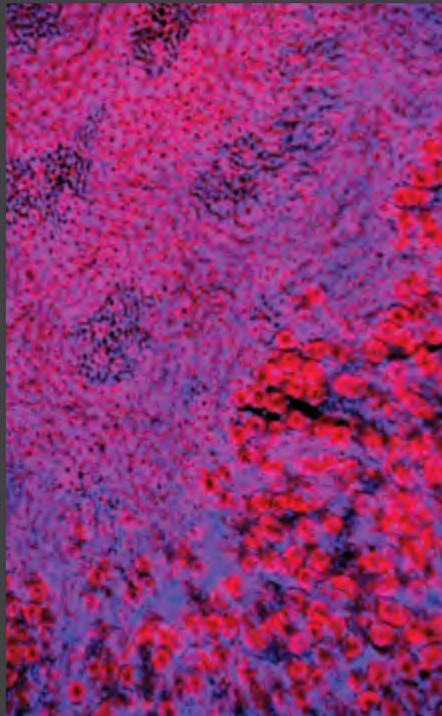
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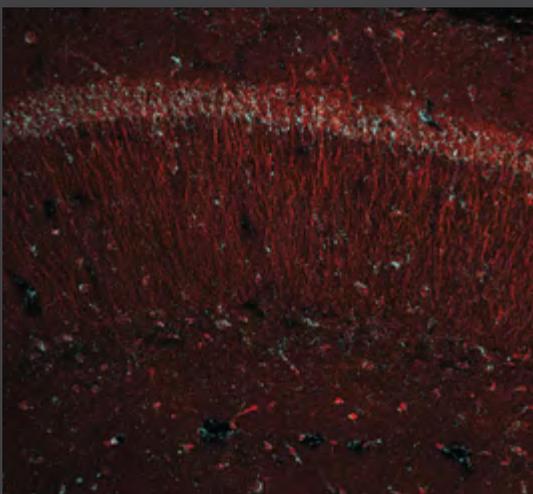
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D



G



E



H

**A:** "The Eldritch Terror,"  
Olivia Powrozek,  
laboratory research  
assistant, Center for  
Cancer Cell Biology,  
Immunization, and  
Infection

**B:** "She Persists,"  
Valentina Olivera-  
Pasilio, SGPS '22

**C:** "Neon Lights,"  
Alexandra Ritger, MD/  
PhD candidate

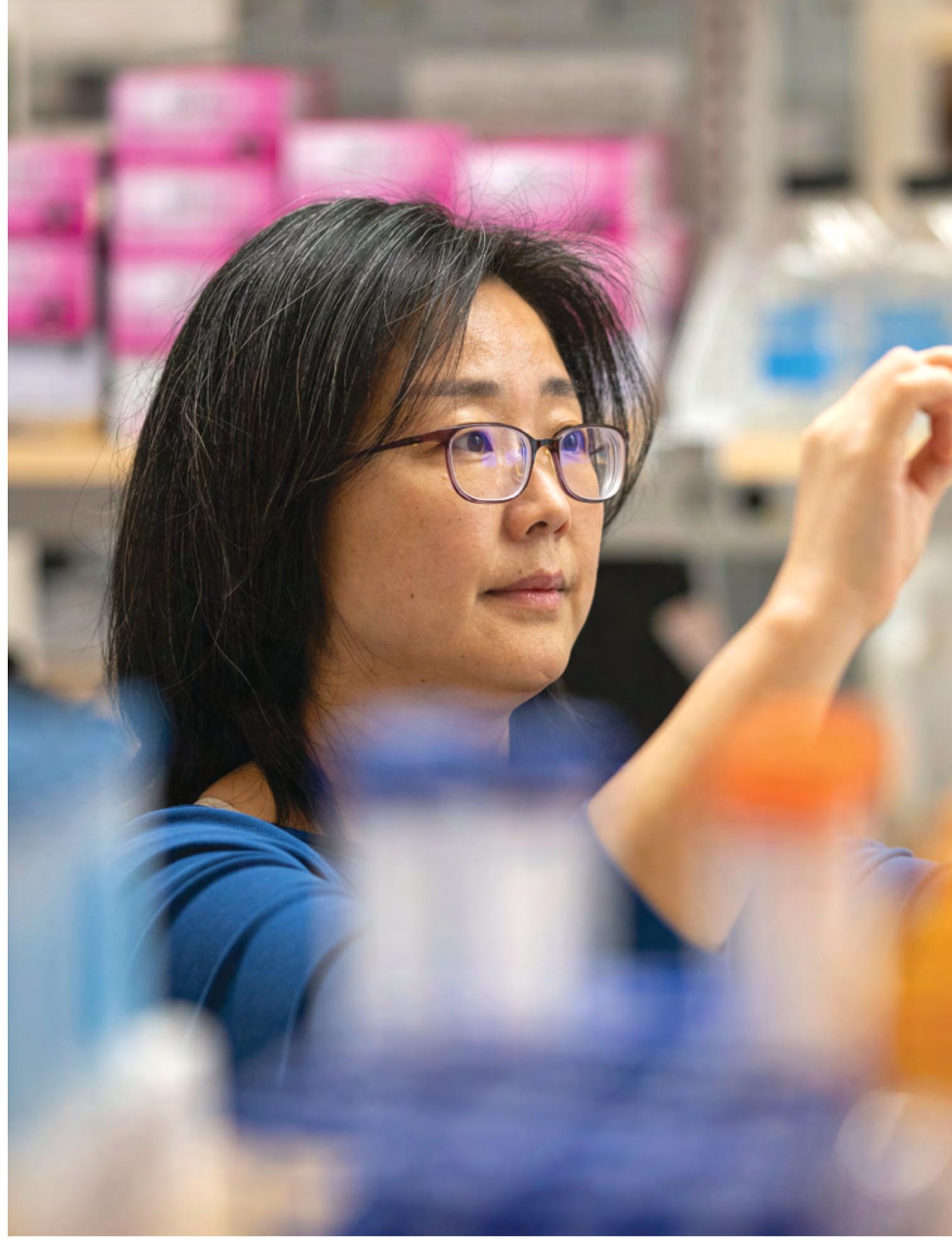
**D:** "Snowfall,"  
Alexandra Ritger, MD/  
PhD candidate

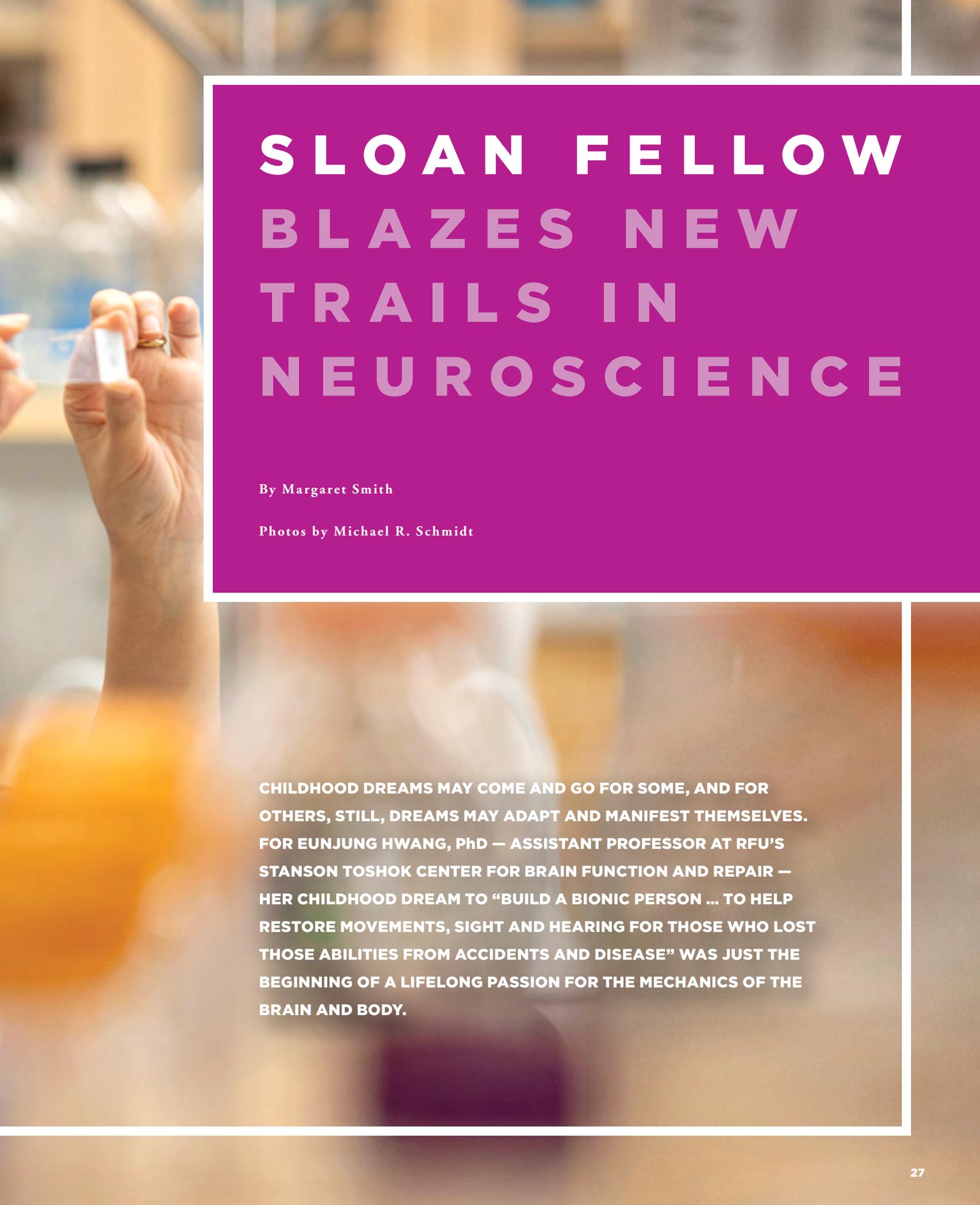
**E:** "Pathways," Sarah  
Mustaly, PhD '21

**F:** "Cherry Limeade,"  
Jessica Centa, PhD '21

**G:** "You Got to Be  
Kidney Me," Jessica  
Centa, PhD '21

**H:** "The Swarm,"  
Rachel Chudoba, PhD  
candidate



A photograph of a person's hand holding a small, clear vial with a white cap. The background is a blurred laboratory or clinical setting with various pieces of equipment and a person in a white lab coat. The image is overlaid with a large purple rectangle containing white text.

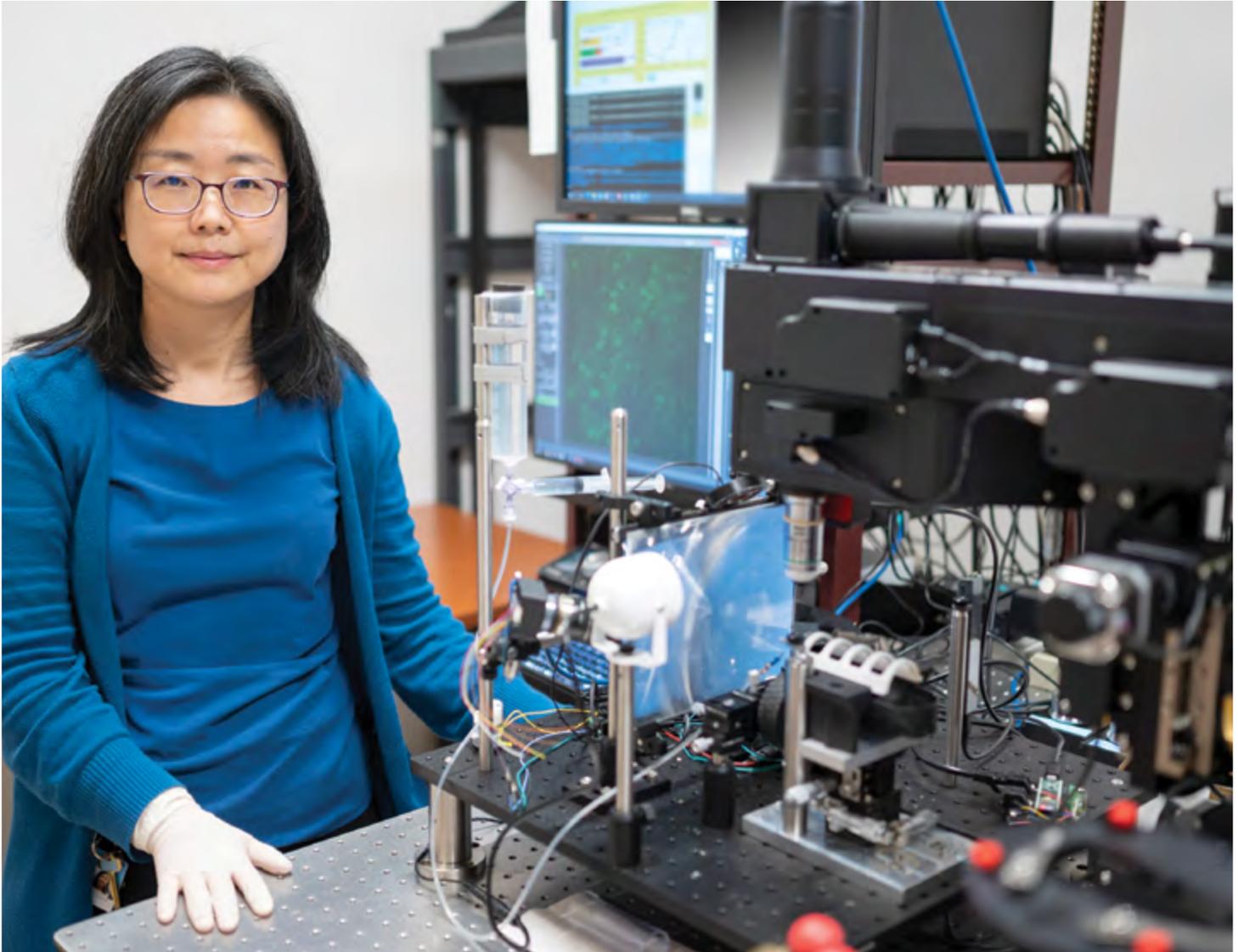
# SLOAN FELLOW BLAZES NEW TRAILS IN NEUROSCIENCE

By Margaret Smith

Photos by Michael R. Schmidt

**CHILDHOOD DREAMS MAY COME AND GO FOR SOME, AND FOR OTHERS, STILL, DREAMS MAY ADAPT AND MANIFEST THEMSELVES. FOR EUNJUNG HWANG, PhD — ASSISTANT PROFESSOR AT RFU'S STANSON TOSHOK CENTER FOR BRAIN FUNCTION AND REPAIR — HER CHILDHOOD DREAM TO “BUILD A BIONIC PERSON ... TO HELP RESTORE MOVEMENTS, SIGHT AND HEARING FOR THOSE WHO LOST THOSE ABILITIES FROM ACCIDENTS AND DISEASE” WAS JUST THE BEGINNING OF A LIFELONG PASSION FOR THE MECHANICS OF THE BRAIN AND BODY.**

This devotion to her field came to fruition in February, when Dr. Hwang was named one of the recipients of the 2022 Sloan Research Fellowship — a grant bestowed on early-career, tenure-track faculty in a variety of STEM fields. The award recognizes young scientists who have potential to revolutionize their field and is offered under the auspices of the Alfred P. Sloan Foundation. She is the first scientist from RFU to be awarded this honor.



Dr. Hwang earned bachelor and master of science degrees in electrical engineering from Seoul National University. She completed her PhD in biomedical engineering at Johns Hopkins University in 2004 followed by postdoctoral research positions at California Institute of Technology and the University of California, San Diego.

Dr. Hwang joined RFU as assistant professor of cell biology and anatomy in August 2020. When she submitted her Sloan application in the field of neuroscience, she was humbly caught off guard by her success.

“Actually, the first notification email went to my trash box accidentally. When I received the second email from the foundation that started with ‘I hope you have seen the good news we sent out last week,’ I thought it was spam. It was hard to believe, and I felt extremely honored to be selected among 16 early-career neuroscientists in the nation,” the Johns Hopkins University graduate said.

Dr. Hwang classifies her work as “investigating the neural circuit mechanisms for decision-making and motor control” — meaning in layman’s terms, “My research goal is to understand how brain cells are connected and communicate with each other to control our decisions and movements. Our life is made of decisions and movements.” She made an analogy to applying the brakes in a car when a pedestrian is crossing the street, something most of us do “effortlessly.” But for those who experience impairing neurological conditions, it is not as easy — her research aims to illuminate the brain’s misfirings and the ways to correct them.

Aside from a confidence boost, the prestigious award will also position Dr. Hwang to have more leeway as she navigates her career. While she has no immediate plans to shift gears from pursuing her first R01 grant from the National Institutes of Health and recruiting a postdoc, she hopes the traction she has gained from the award will assist her as she builds a research lab full of passionate, dedicated trainees.

“With this award, I feel that my research program goes beyond the level of fulfilling my personal intellectual curiosity and is being recognized as one of those that can potentially make a significant difference to the world. It brings an extremely gratifying and stimulating perspective to my research,” she said.

Those who work alongside Dr. Hwang were pleased to hear of her award, though not entirely surprised. William Frost, PhD — who directs the Stanson Toshok Center and hired Dr. Hwang — is one of those people.

“Talented young scientists need to be encouraged to think outside of the box. We all know that science depends on innovation and creativity, but it also requires belief in oneself, that you may be just the person to challenge current thinking and reveal new truths — in Dr. Hwang’s case, about how the mind works,” Dr. Frost said. “Being awarded a Sloan Research Fellowship just as you are starting your independent career sends a valuable message that those in a position to know feel you have the right stuff to blaze brightly in science.”

As Dr. Frost mentioned, the next generation of scientists needs stimulation and encouragement from mentors like Dr. Hwang — who is actively using “startup funds to set up a lab and hire a team to help collect preliminary data for grant applications,” he said. “Beyond that, she’s rapidly integrated herself into the research community here, and contributes incisively to discussions of research at journal clubs, seminars and as a member of PhD student research committees.”

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**“I encourage young professionals to be persistent and tenacious if you love what you’re doing.”**

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With her attention on the future of the field, Dr. Hwang wants to note to those who follow behind her that it is not always an easy journey.

“It took a long time for me to land on a faculty position. There were moments of doubt and despair about my future during my long training period. Now as a PI, finally running my own research program that I have dreamt of, my long and patient pursuit feels totally worth it,” she said. “So, I encourage young professionals to be persistent and tenacious if you love what you’re doing. In the end, those who are resilient will survive and find the way to their long-term aspiration.” ✕

*Margaret Smith is a Chicago-based freelance editor and writer whose work largely focuses on current sociopolitical happenings.*

## THE SLOAN RESEARCH FELLOWSHIPS

“seek to stimulate fundamental research by early-career scientists and scholars of outstanding promise,” according to information posted by the New York City-based Alfred P. Sloan Foundation. Among the other details about the annual awards program, which was established in 1955 and has awarded more than 6,100 fellowships during its history:

**\$75,000** ON SEPT. 15 OF THE AWARD YEAR

Funds may be spent over a two-year term for any expense judged supportive of the fellow’s research, including staffing, professional travel, lab expenses, equipment or summer salary support.

**NOMINATED CANDIDATES** are typically several years past the completion of their PhD in order to accumulate a competitive record of independent, significant research.

**CANDIDATES** must be tenure-track, and their faculty position must carry a regular teaching obligation. Tenured faculty are not eligible.

**SUCCESSFUL CANDIDATES** generally have strong research accomplishments that demonstrate creativity and the potential to become future leaders in the scientific community.

- CHEMISTRY
- COMPUTER SCIENCE
- EARTH SYSTEM SCIENCE
- ECONOMICS
- MATHEMATICS
- NEUROSCIENCE
- PHYSICS

**RUI COSTA, DVM, PhD**, professor of neuroscience and neurology and director and CEO of the Zuckerman Institute at Columbia University

**YISHI JIN, PhD**, professor of cellular and molecular medicine, professor of biological sciences and investigator with the Howard Hughes Medical Institute at the University of California, San Diego

**BERNARDO SABATINI, MD, PhD**, the Alice and Rodman W. Moorhead III professor of neurobiology and principal investigator of the Sabatini Lab at Harvard University

Find out more: [sloan.org/fellowships](http://sloan.org/fellowships)

AWARD

RECIPIENT PROFILE

FIELDS OF STUDY

NEUROSCIENCE SELECTION COMMITTEE



# DIFFERENTIATING PATHWAYS

## KEYS TO ALZHEIMER'S MIGHT VARY FROM MALE TO FEMALE

By Dawn Rhodes

Photos by Michael R. Schmidt

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**The majority of Alzheimer's disease patients are women, but scientific research focusing on females — or even including them — has become more common only within the last few years.**

Holly Hunsberger, PhD, is trying to push that more inclusive approach to research even higher as she prepares to publish postdoctoral research showing clearer links between anxiety and dementia in women, and launches experiments into how Alzheimer's manifests differently between sexes.

Dr. Hunsberger, an assistant professor in Foundational Sciences and Humanities, launched her Alzheimer's and aging lab at RFU in November 2021. Using male and female mice, the behavioral neuroscientist also is assessing how anxiety and aging affect the progression of the degenerative disease. The links between depression and Alzheimer's have been extensively researched, but the impacts of anxiety are less clear, even though anxiety is common in AD patients.

The goal, Dr. Hunsberger said, is to create individualized treatments for men and women that can account for different pathologies of Alzheimer's disease.

"We always kind of group depression and anxiety together; they get entangled," Dr. Hunsberger said. "Alzheimer's is a multifaceted disease. You're going to have some patients that just have depression comorbid with Alzheimer's, and you're going to have some patients that have anxiety with Alzheimer's; you have patients that have both. So, we're going to need some type of combinational therapy, and I think it'll be important for personalized medicine to know which brain regions are affected so that these patients get the correct type of drug or intervention."

Dr. Hunsberger said she "kind of stumbled into" this line of research.

Studying for her PhD at West Virginia University, she'd only used female mice in studying how glutamate, an amino acid, varies in Alzheimer's disease versus aging and other conditions. When she started her postdoctoral research with Christine Denny, PhD, at Columbia University, that lab only used male mice, Dr. Hunsberger said.

“That’s kind of when something clicked, and I was like, ‘Oh ... what does this look like in females?’” Dr. Hunsberger said. “And that really started me down this whole path of sex differences.”

The timing was serendipitous. In 2016, the National Institutes of Health implemented a “Policy on Sex as a Biological Variable” requiring researchers to design studies that include male and female animals or cells in grant applications.

There are a few reasons why it took the scientific community so long to stop predominantly relying upon males for research, Dr. Hunsberger said. One was cost; it’s more expensive to include male and female animals in labs, and NIH grant payouts have not changed.

Another was a longstanding belief that female animals were too variable because of their reproductive cycles and would compromise data from a study. Dr. Hunsberger credits Northeastern University researcher Rebecca Shansky, PhD, for debunking that myth and explaining that researchers were losing key insight into how sex influences health outcomes, pathologies and other key issues by excluding females.



**NATIONAL INSTITUTES OF HEALTH**

In detailing its policy on sex as a biological variable, the National Institutes of Health highlighted key differences between men and women to illustrate how **“an over-reliance on male animals and cells may obscure understanding of key sex influences on health processes and outcomes”...**

**Migraines are twice as common in females as in males**, and the brain is affected differently in females compared with males.

**Women who get a half dose of the flu vaccine** produce as many antibodies as men who receive a full dose.

**Tears of the anterior cruciate ligament (ACL)**, the ligament that runs through the front of the knee, are more common in females than in males.

**Females are less prone to liver cancer than males**, possibly due to estrogen’s protective effect against inflammation in the liver.

**White male teens and young adults are 55% more likely to die of melanoma**, the most serious type of skin cancer, than their female peers of the same age.

**Before age 45, more men than women have osteoarthritis**, but after age 45, the condition is more common in women.

**“...is this behavior (from female mice) because of their disease or whatever you’re studying, or is it because the maze was made for a male mouse, and so they’re reacting differently?”**

“The other interesting part is that all of these tests that we use were made for male mice,” Dr. Hunsberger said. “And now we have to think ... is this behavior (from female mice) because of their disease or whatever you’re studying, or is it because the maze was made for a male mouse, and so they’re reacting differently?”

Combining her lab work with Columbia University biostatistician Seonjoo Lee, PhD, to explore human data, Dr. Hunsberger will soon publish her postdoctoral research showing more anxiety in females with dementia, and how having anxiety and Alzheimer’s pathology accelerates dementia in women compared to men. At her RFU lab, she’s launched an array of behavioral, cognitive and anxiety tests with her mice to dive deeper into the potential links among anxiety, aging, sex and Alzheimer’s.

“I always start all of my experiments with behavior first. In my opinion, if there’s not a functional outcome, it doesn’t matter what’s happening in the brain,” Dr. Hunsberger said.

After that, Dr. Hunsberger can study the brain tissue — one approach involves implanting a lens into the brain to record activity while the animal is doing a task. She can get a snapshot of the entire brain in the first approach, and a dynamic view into a specific region of the brain in the second.

“The idea is to correlate those,” Dr. Hunsberger said. “Maybe we’ll find a brain region that’s, you know, off or not firing as much, or firing more in females versus males.”

As Dr. Hunsberger gets up and running with her lab, she hopes to publish the first iteration of the research within the next two years.

“My grad student mentor used to joke and tell me to get out of aging research, because it takes so long to publish,” she said, laughing. “And we are actually going to start with a young age group first. ... Using this calcium imaging is pretty new. They haven’t really looked at Alzheimer’s mice with this technology. I’m hoping we’ll be able to publish comparing the sexes to two different time points, looking at neuron firing and all these different tasks, and kind of showing differences that we see between age, Alzheimer’s and sexes.” ✕

*Dawn Rhodes is a Chicago-based writer and editor. She’s worked in journalism for more than a decade.*

Above: Dr. Hunsberger with laboratory technician Lainey Toennies, at left, and intern Olivia Godek.

Source: NIH Office of Research on Women’s Health  
[orwh.od.nih.gov/sex-gender/sexgender-influences-health-and-disease/how-sexgender-influence-health-disease-z](http://orwh.od.nih.gov/sex-gender/sexgender-influences-health-and-disease/how-sexgender-influence-health-disease-z)

**THROUGH THE MICROSCOPE** is a reoccurring *Helix* column that poses an issue to our community of experts.

**NEW PSYCHOLOGY FACULTY EXPAND DEPARTMENT'S EXPERTISE**

"Dr. Feinstein and Dr. Waszczuk are helping us expand our attention to individuals from diverse groups broadly defined. They and our other excellent faculty members are helping us supply the field with professionals who deliver high-quality care and use empirical literature to guide their practice."

—**Rachel Neff Greenley, PhD**,  
Psychology  
Department professor  
and chair

Opinions expressed in "Through the Microscope" columns are solely those of the authors and are not intended to represent those of Rosalind Franklin University.

# TREATING 9/11 FIRST RESPONDERS CAN GENETICS PREDICT SEVERITY OF PTSD?

By **Monika Waszczuk, PhD**

**Last September, people across the United States and the world commemorated the 20th anniversary of the 9/11 attacks on the World Trade Center (WTC) in New York.** Thousands of people died that day, while survivors of the attacks, including those who worked in rescue, recovery and cleanup operations, were exposed to psychological trauma and severe toxins from the dust cloud. Many 9/11 responders have since developed respiratory diseases, cancers, mental health problems and neurodegenerative disorders as a result of these toxic exposures. In response, the WTC Health Program has been established to provide screening and treatment to individuals affected by the 9/11 attacks.

Many WTC responders have generously agreed to take part in research studies, and scientists are analyzing the health data generated from the medical records. A better understanding of how traumatic and occupational exposures impact health in the long term can help reduce burden and improve treatment in WTC responders. Such insights may help other occupational groups, including firefighters and first responders.

I had a great opportunity to contribute to this research program, which I continue at RFU. My main interest is if genetics — the blueprint of As and Ts, Gs and Cs in our DNA code — can help predict future health. Using advanced computer models, we can add together the influence of the hundreds, even thousands, of DNA variants associated with a given disease into what is called a "polygenic score."

I have co-led a project that has obtained polygenic scores from WTC responders. In a published work, my collaborators and I found that genetic differences between responders predicted the severity and the progression of post-traumatic stress disorder (PTSD). This suggests that, in the future, genetics may help identify people at a higher risk for PTSD and other negative mental health outcomes following trauma exposure. Such individuals might benefit from more resilience training and frequent screenings.

My collaborators and I are building on this finding and the generated genetic resource in three recently funded studies on WTC responders. First, we investigate the combined impact of polygenic scores, severity of trauma exposure and mental health on cognitive decline. Second, because we know that trauma exposure and PTSD worsen chronic kidney disease, we investigate if genetics play a role in this association. Finally, emerging evidence suggests that genetic differences between people may contribute to the severity of COVID-19 symptoms. We investigate the contribution of polygenic scores to COVID disease severity and negative post-COVID outcomes.

The results of this study will help better understand the impact of COVID on WTC responders, identify sub-populations at increased risk of negative outcomes and inform targeted interventions to manage these risks. ✕

*Dr. Monika Waszczuk is an associate professor in the Department of Psychology at RFU. Her program of research uses molecular genetic methods to predict severity and long-term course of mental and physical health conditions across the lifespan. Dr. Waszczuk also studies the interplay between genetics and other established clinical risk factors, such as trauma exposures, maladaptive behaviors and low social support.*



**In the future, genetics may help identify people at a higher risk for PTSD and other negative mental health outcomes following trauma exposure.**



# INVISIBLE AND STIGMATIZED WHAT UNIQUE HEALTH DISPARITIES AFFECT BISEXUAL INDIVIDUALS?

By Brian A. Feinstein, PhD

**Nationally representative surveys reveal that 3% of adults and 6% of adolescents in the United States identify as bisexual, and these numbers are on the rise.** Of concern, bisexual people are disproportionately affected by a range of adverse health outcomes, such as depression and anxiety and suicidal thoughts and behaviors, compared to both heterosexual and gay/lesbian people. These health inequities are rooted in the stigmatization of bisexuality. In the United States, societal acceptance of gay/lesbian people has continued to increase over the past two decades, whereas attitudes toward bisexual people are often negative and remain neutral at best.

As the director of the Sexuality, Health, and Gender Lab at RFU, I lead a team of researchers committed to understanding and addressing the health inequities affecting the bisexual community. Our research has identified unique forms of stigma affecting bisexual people, such as: beliefs that they are confused about their sexual orientation; stereotypes that they are promiscuous and unfaithful in relationships; assumptions that they are heterosexual or gay/lesbian based on the gender of their partner; and pressure from their partners to stop identifying as bisexual. Further, our research has demonstrated that these and other forms of bisexual stigma contribute to adverse health outcomes noted above as well as other psychosocial consequences (e.g., the internalization of negative societal attitudes, expectations of future rejection, concealment of one's identity).

In recent years, researchers have developed interventions to improve the health of sexual minority people, but there has been a lack of attention to bisexual people in particular. This is problematic for several reasons: bisexual people do not benefit as much as gay/lesbian people do from existing interventions; bisexual people describe negative experiences with healthcare providers; and clinicians report lower competence for affirmative practice with bisexual clients compared to gay/lesbian clients.

To begin to address the need for affirmative interventions for bisexual people, my colleagues and I have described a multi-level approach for improving bisexual people's health; we have identified intervention preferences among bisexual men and treatment targets to improve sexual health among bisexual male youth; and we recently developed and tested a sexual health promotion program for bisexual adolescents.

I hope you will join me in taking action to challenge bisexual stigma, to celebrate sexual diversity and, ultimately, to create a more inclusive and affirming society for us all. ✕

*Dr. Brian Feinstein is an associate professor in the Department of Psychology and the director of the Sexuality, Health, and Gender Lab at RFU. His program of research focuses on identifying, understanding and addressing the health inequities affecting sexual and gender minority populations across the lifespan, with a particular emphasis on bisexual people. He is also a licensed psychologist in Illinois.*

**In recent years, researchers have developed interventions to improve the health of sexual minority people, but there has been a lack of attention to bisexual people in particular.**

**Individual interventions have the potential to improve bisexual people's health, but structural interventions are needed to directly address the root of the problem — societal stigma. Moving forward, we can all be a part of the solution by:**

- 1. Engaging in self-reflection:** What do you believe about bisexuality? Are any of your beliefs reflective of the stereotypes noted here?
- 2. Learning more:** You can begin to challenge stereotypes that you may have accepted as facts and you can prepare yourself to be a better ally.
- 3. Challenging stigma:** If you hear someone express a stereotype about bisexuality, let them know it's harmful. The burden of intervening in situations like this typically falls on bisexual people themselves, which further contributes to health inequities.
- 4. Celebrating bisexuality:** Bisexual people describe a host of positive experiences related to their sexual orientation (e.g., not feeling limited by gender when it comes to romantic and sexual experiences). Supporting bisexual people not only involves challenging stigma, but also celebrating their unique strengths.



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**A shortage of personal protective equipment (PPE) in the first year of the COVID-19 pandemic put the lives of frontline health workers at risk and sparked a chaotic competition by health systems, schools, businesses and state and local governments to find and buy the masks, gloves, gowns and other supplies they desperately needed.**

# FINDING SOLUTIONS WHEN THE NEED IS GREAT

By Judy Masterson

Niral Patel, MS, DPM '22, was among hundreds of RFU community members who found ways to help. He was a second-year podiatric medical student in February 2020 when he helped found Fabric Medical as part of a small team determined to help existing textile manufacturers in China produce and export FDA-approved KN95 respirators, with the goal of providing them to U.S. organizations in need.

"The need was dire," Mr. Patel said. "Consumer demand was high, but retail supply remained very limited. We donated what we could."

The fledgling company prioritized safety. It gathered and shared feedback from health workers in Illinois, Indiana, Michigan and Texas to improve the standard KN95 design — a head and neckband ensured a tighter seal over ear-loop designs — and sent sample masks for testing to a CDC-approved lab in Ohio.

Mr. Patel studied by day and by night spent hours on the phone with factories in China. A disrupted supply chain posed the greatest challenge. The team had to plan dimensions of shipping boxes down to a fraction of an inch for freight transport by land, air and sea.

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**"I did many years of self-study on starting a business before COVID, but that was negligible compared to what I learned in the first six months of Fabric Medical."**

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"Logistics was a huge problem," said Mr. Patel, a native of Indianapolis and a graduate of Indiana University. "It was difficult to get things across the ocean. But we had a good relationship with shipping companies, and we were able to get masks in faster than most — in weeks rather than months."

Fast-forward to spring 2022. Mask mandates have eased. KN95 and N95 face mask availability and pricing have improved. Fabric Medical handles several orders for masks, gowns, gloves and other PPE, per month, down from 30. It has shifted its business model, seeking out customers in the market for PPE and connecting them with inventory from factories across Asia and the United States and facilitating sales negotiations.

"I did many years of self-study on starting a business before COVID, but that was negligible compared to what I learned in the first six months of Fabric Medical," he said. "I'm looking forward to residency and I am excited to practice. I also want to explore the entrepreneurial possibilities within health care. We need to find ways to improve health outcomes — and healthcare access."

Mr. Patel began his podiatric medical and surgical residency at Ascension St. Vincent Hospital in Indianapolis in June. ❖

NIRAL PATEL  
MS, DPM '22

“As a primary care physician or any healthcare provider busy balancing the needs of many patients — you never want to miss something.”



## NEW WEB-BASED SIMULATION HELPS RAISE AWARENESS ON POTENTIAL DELAYED EFFECTS OF PSYCHOSTIMULANT USE

By Judy Masterson

Photos by Michael R. Schmidt

**Gregory Friedman died in 2017 after taking tainted MDMA, also known as ecstasy or molly. Despite seeking medical treatment, he continued to experience hallucinations and suffered a psychotic break. He was 28.**

His legacy includes a new web-based case simulation designed to improve clinician understanding of those who experience adverse effects from street drugs. Developed with key input by Baldwin Institute faculty Jim Carlson, PhD '12, PA-C '01, and Robin Dyer, MD, OTR, the tool is available on Full Code, a popular app and web-based medical simulation for practice in clinical decision-making. It has been used by thousands of students and clinicians to improve learning around diagnosis and treatment of patients who fall ill after using psychostimulants.

Development of the MDMA simulation case was funded and inspired by the GPF Foundation, established in memory of Mr. Friedman, who grew up in RFU neighbor community Lake Forest. Dr. Dyer used her medical experience, in addition to experience with other patients, to write a case study and script for a standardized patient simulation, a manikin case and ultimately the Full Code simulation.

“Greg’s experience really struck a chord,” said Dr. Dyer, an instructor in the Department of Healthcare Simulation. “As a primary care physician or any healthcare provider busy balancing the needs of many patients — you never want to miss something.”

In overdose cases, clinical care often focuses on the immediate toxic effects. But complications from taking ecstasy at a concert can manifest for days, weeks or months later. Patients and providers may not make the connection.

“Ecstasy causes a release of all the brain’s neurotransmitters at once,” Dr. Dyer said. “So in the moment, you may feel fantastic. But then you don’t have any more serotonin left. You don’t have any more dopamine left. You don’t have any more norepinephrine left. You’re left with like an empty tank, which contributes to these secondary delayed episodes of psychosis and depression. You crash.”

“When an overdose patient with latent symptoms initially sees a primary care provider, it’s a question of ‘Will you recognize it?’”

Practice with the MDMA simulation case will help increase awareness around a clinical blindspot on the delayed effects of psychostimulant use. Players can interact with a virtual patient to collect information, order tests, and make diagnosis and treatment decisions.



“When an overdose patient with latent symptoms initially sees a primary care provider, it’s a question of ‘Will you recognize it?’” said Dr. Carlson, vice president for interprofessional education and simulation. “Health care is learned by repetition. The strongest reasoners are the ones who see the patterns — this is the way a patient presents with this condition. But they also recognize when something is just not quite right in terms of the pattern, and they are able to back up — I call it Sherlock mode — and start asking all the deductive questions. They’re very deliberate about those questions to tease out the problem. They think, ‘I don’t want to miss anything here.’”



Dr. Carlson, who is a 2021-22 AMA Health Systems Science Scholar, reached out to Minerva Medical Simulation Inc., the company behind Full Code, in January 2020 to express interest in creating patient cases.

“They were looking to begin working with healthcare professionals and medical schools,” he said. “We were one of the first to gain access to Full Code’s authoring tool.”

“When the foundation first approached us, they were looking for us to build a simulation to do within RFU, among our medical, physician assistant and pharmacy students,” Dr. Dyer said. “And it can be used that way. But Jim had the idea that if we deployed it in Full Code, we could reach many more people. In the first month our simulation was deployed, there were over 10,000 case plays. Thousands of providers and future providers explored the case and, hopefully, learned something about this challenging topic.”

“That’s the magic of virtual case studies — you can achieve such scale,” Dr. Carlson said. “The technology is getting better and better at emulating near-real experiences. Full Code case players can make a decision for a patient, receive feedback from the program on strengths and weaknesses, and practice again without risk to an actual patient. The web/app-based platform allows delivery across a large scale and limitless number of providers. That’s the power of Full Code and web-based case players.” ✕

More than **16,000** AMERICANS DIED IN 2019 FROM AN OVERDOSE

involving psychostimulants with abuse potential, which was a 28% increase from the previous year. Nearly 23% of all drug overdose deaths in 2019 involved psychostimulants.

Approximately **5 million** AMERICANS MISUSED PRESCRIPTION STIMULANTS

in 2020, which is approximately 1.8% of the U.S. population aged 12 years and older.

From 2019 to 2020, the rate of drug overdose deaths involving **PSYCHOSTIMULANTS WITH ABUSE POTENTIAL**

**increased 50%**, from 5.0 to 7.5 per 100,000 standard population.

Psychostimulants with **abuse potential** **INCLUDE BOTH ILLICIT DRUGS, SUCH AS METHAMPHETAMINE AND ECSTASY,**

as well as prescription stimulants.

There were an estimated

**100,306** DRUG OVERDOSE DEATHS

in the United States during the 12-month period ending in April 2021, an increase of 28.5% from the 78,056 deaths during the same period the year before.

Source: CDC — National Center for Health Statistics.  
cdc.gov/drugoverdose/deaths/

Opposite page: Drs. Dyer and Carlson demonstrating the Full Code process in spring 2022. Above: MDMA simulation cases as they appear in the Full Code app, with information that includes a patient’s general status and what exams have been performed.



## ‘PERHAPS THE GREATEST CHALLENGE’: HOW TO GET CAPITAL BEHIND CONCEPTS

By Judy Masterson

**Michael Beaubaire, MD, who was named the first Entrepreneur in Residence for Helix 51, is the principal of Beaubaire LLC, an advisory group that provides scientific diligence, entrepreneurial operating services and capital market strategies to emerging biotechnology, device and service companies.**

### You left Wall Street for medicine and you left medicine for biotech. Why?

After college, I worked as an investment banking analyst at Salomon Brothers, but I realized I wanted to do something more ennobling than spreadsheets for a living. I attended Northwestern Medical School and completed a residency in internal medicine. I practiced for a couple years, then worked for Advocate Health Care running a physician hospital organization. But I was always drawn to innovation and hope. So I started looking for and working with companies that offered that hope. They were trying to change cancer, heart disease, cure diabetes.

### What challenges do most startups face?

Articulating their idea. Understanding the problem they’re solving and the path to proving their hypothesis. Part of that path is the foundation of the research and the capability of those leading research to commercial opportunity — developing a new tool or product that ultimately someone wants to buy or a new drug that solves an unmet need or is delivered better. Raising capital is perhaps the greatest challenge. If you can’t finance development, how are you going to be successful? Another challenge is envisioning a successful exit or next chapter — either selling or going public — which most emerging or startup companies need to address to attract initial investment.

### How do you help Helix 51 startups meet these challenges? What is your role?

I help companies understand the landscape: why they’re not getting funded just because they have a great idea. I help them understand what they need to do to put a presentation together, to then go out and talk to companies. I hope I help them network and introduce them to people who are smarter than me, who can help assess their idea and leverage their network. I try to be that devil’s advocate, particularly for founders coming out of academia. I don’t want to say they haven’t seen failure, but I don’t know how many have heard the word “no.” You have to develop a thick skin. There will be rejection. So hopefully, I can provide some interpretation to that so that it’s an iterative process: You continue to hone your message. You also realize when the message is drifting away from what you originally wanted to say and you get back to center.



### What key ingredients make for a successful startup?

I look at any startup as a three-legged stool. You need the science/technology, the human capital or business talent, and the financial capital. You can be successful with two of the three legs provided that one of the legs is financial capital. Some might argue it’s the science that’s the most critical ingredient. If the goal is accomplishing the scientific hypothesis, that would be true. But the goal of a good startup is not only having something interesting in the science, but also being able to pivot because most ideas fail. If you have the science/technology and financial capital, you can find the human capital.

“I try to be that devil’s advocate, particularly for founders coming out of academia. I don’t want to say they haven’t seen failure, but I don’t know how many have heard the word ‘no.’”

Dr. Beaubaire with Michael S. Rosen, MBA, managing director of RFU’s Innovation and Research Park and Helix 51 Incubator.

## What is more important in a startup: The technology or the CEO?

I used to make a cliché statement: “The science never goes bankrupt. The company does.” Extrapolating from that, I’d say the technology is most important. But I think it’s very much intertwined with the team, and I really emphasize team — moving the technology in a direction that is attuned to the marketplace and that equally values the science/technology and the business side. Did I waffle enough on that one? It’s usually the technology, because that’s the gateway. If the technology’s not compelling enough, even the best CEO is going to come in and say, “This won’t work.” But they may try to make it work.

## Why do startups fail?

They fail because the science doesn’t prove out or they run out of money or don’t have access to it. When the science doesn’t prove out, I don’t think that’s a failure. But how you address that problem is critical. Can you pivot? Is there something in the thought that has value? The immunotherapy company that doesn’t get seminal results in a trial and can’t raise more money for a preclinical trial doesn’t have the money to then go back and ask, “Does it work in infectious disease or does it work in a different tumor?” It goes back to my cliché. The science doesn’t go bankrupt. One of the hardest parts about startups is how much help you need. How much help can you leverage at the least amount of cost? Dollars are very precious. Can you use your equity? Can you use favors? Can you tap into friends? A lot of people want to help. But in a world of clichés, you get what you pay for. ✕



**LEARN MORE ABOUT HELIX 51 ENTREPRENEURS IN RESIDENCE** and watch the Biomedical Educational Seminars they presented in 2022 by visiting: [rosalindfranklin.edu/calendar/biomedical-educational-seminars](https://rosalindfranklin.edu/calendar/biomedical-educational-seminars)



“For RFU, the patent portfolio serves not only to invest in the professor and a potential startup, but to find commercial partners that will take that innovation into clinical trials.”

# PATENT PORTFOLIOS BRIDGE THE GAP BETWEEN INNOVATION AND THE PUBLIC GOOD

By Judy Masterson

**Entrepreneur in Residence Peter Paredes, JD, advises Helix 51 incubator companies and other startups, universities and investment firms on strategic intellectual property acquisition, licensing and enforcement. A graduate of the University of Chicago and Chicago-Kent College of Law, he has practiced patent law for 17 years.**

## Why should a startup build a patent strategy?

A startup is founded on a great idea, and with this great idea, you’re trying to solve a healthcare problem or fill an unmet social need. If they don’t have the proper strategy to protect that great idea, it will be very difficult to get investment to be able

to bring your great idea to market. One of the top questions a venture capitalist or angel investor will ask is, “How are you protecting your technology?” And “What is your approach or roadmap to not only protect this technology, but protect anything downstream that follows from it?” Investors are looking for a return on their money, which can take a startup from “seed” to series A-D funding for research, pre-clinical studies, regulatory, or validation studies.

**Why is it important for a university to have an intellectual property portfolio?** The Bayh-Dole Act of 1980 allows federally-funded research to be patented by universities and for universities to own the resulting inventions. Those universities have the obligation to patent all inventions it elects to own and commercialize or license those inventions, to ensure that innovation serves the greater good and potentially reaches the general public. For RFU, the patent portfolio serves not only to invest in the professor and a potential startup, but to find commercial partners that will take that innovation into clinical trials. If it is a therapeutic or diagnostic tool, the innovation must go through FDA clearance. The university itself doesn’t have the resources or tools to do that or to commercialize the innovation. The IP portfolio bridges that gap.

## What invention have you helped to patent that has improved human health?

I’ve been counsel for quite some time to PhotoniCare, a spinout of the University of Illinois at Urbana-Champaign. They developed an inner ear diagnostic tool — the FDA-approved OtoSight™ Middle Ear Scope — which uses optical technology to look at the tympanic membrane, making it easier to diagnose ear infections, especially in little kids. The technology can prevent the overprescription of antibiotics and invasive surgical procedures. The product is launching now across clinics and hospitals.

## What’s the most fulfilling part of your work?

Building value for a company that allows them to attract investment, validate their product or get FDA approval, to eventually fulfill an unmet social need or fix healthcare problems. ✕

## HOMECOMING: PHYSICAL THERAPY ALUM NAMED NEW CHP DEAN



**Lisa L. Dutton, PT, MS '93, PhD, an alum of RFU's Department of Physical Therapy whose academic career began as an adjunct instructor with the department in the 1990s, will rejoin the university as dean of the College of Health Professions on Aug. 1.**

"Rosalind Franklin University holds a special place in my heart, and I am honored and excited to have the opportunity to return as dean of the College of Health Professions," she said.

Dr. Dutton's career most recently included a four-year term as dean of health sciences with the Henrietta Schmoll School of Health at St. Catherine University in St. Paul, Minnesota. Her tenure at St. Catherine's included service as associate dean and chair of the Schmoll School of Health (2012-18) and director of the Doctor of Physical Therapy Program (2011-18), for which she was also a tenured professor.

She will succeed Patrick Knott, PhD, PA-C, who has served as interim dean since August 2021 and guided the college's 700 students and 100 faculty members. ✕

"Rosalind Franklin University holds a special place in my heart, and I am honored and excited to have the opportunity to return as dean of the College of Health Professions."



## CARE COACH ROLLS TO ACCEPT AAMC HONOR

**Efforts by RFU's Community Care Connection to provide health services and expand COVID-19 vaccination outreach to underserved communities received a third-prize honor in the 2022 Innovations that Bolster Community Trust in Science Awards from the Association of American Medical Colleges (AAMC).**

The CCC's entry, titled "A Pivot to Reduce COVID-19 Vaccine Hesitancy and Improve Health Equity," was submitted by Judith A. Potashkin, PhD, who highlighted the work of Martin Yorath, DPM, and Lupe Rodriguez, APN, both of whom provided leadership on COVID mitigation programs throughout the pandemic.

According to the AAMC, this year's ninth annual Innovations award program — which saw the highest number of applicants in the program's history — was focused on "pioneering approaches to bolstering community trust and engagement in scientific developments that promote human health." ✕

The Community Care Connection's Care Coach has provided thousands of COVID-19 tests and vaccinations for hard-to-reach populations by circulating among 30 sites during the pandemic, including village halls, senior centers and homeless shelters.

## HELIX 51 BIOMEDICAL INNOVATION

The life science hub Helix 51 continues to expand its roster of startup, early-stage and international companies, adding Katz Diagnostics and its fibromyalgia research in late spring. On Sept. 22, Helix 51 and the Innovation and Research Park will partner with RFU research faculty on an inaugural Biomedical Innovation Day.

“It’s no surprise we’ve seen this incubator grow and thrive. ...This incubator and research park will only continue to make Lake County a leader, not only in our state but the entire region of biomedical research and innovation.”

U.S. Sen. Tammy Duckworth, D-Illinois, during February 2022 visit to RFU

The event is aimed at creating regional awareness about the state-of-the-art research into novel approaches for diagnosing and treating a range of diseases. The event will be open to students, faculty, staff, researchers, alumni and the broader community. x

### GI infection research

COVIRA SURGICAL

### Fibrotic disease research

BLR BIO

### Diagnostic kits

EVERYPLACE LABS

### Cardiovascular research

(cardiac arrest, heart attack damage repair)

RESUSCITATION THERAPEUTICS

TARGACELL

### Cancer research

(cancer vaccines, cancer therapies)

ENZYME-BY-DESIGN

ARTEC BIO

INSTIL BIO

## BEHAVIORAL NEUROSCIENTIST JOINS RFU FACULTY

By Sara Skoog



**Nicole Ferrara, PhD, a postdoctoral fellow in the lab of Brain Science Institute Director Amiel Rosenkranz, PhD, will join the Center for Neurobiology of Stress Resilience and Psychiatric Disorders on Sept. 1 as an assistant professor of physiology.**

“I’m excited to join the Stress Center, where my research program will investigate the impact of the environment on innate and learned fear and social behaviors, and the regulation of these behaviors by cortical-amygdala-hippocampal circuits throughout the lifespan,” said Dr. Ferrara. “I’m really happy to have the opportunity to explore these interests at RFU with so many supportive and innovative researchers.”

“Dr. Ferrara is an outstanding scientist and was the top-ranked candidate in our national search for a research-intensive faculty,” said center director Janice Urban, PhD. “The study of developmental timepoints throughout adolescence is particularly impactful and has significant implications for stress-related illnesses that emerge during development. Even at this early stage of her career, Nicole’s work is well-received within the scientific community.”

After earning her PhD in behavioral neuroscience at the University of Wisconsin-Milwaukee in 2018, Dr. Ferrara came to RFU for her postdoctoral work. In 2019, she secured a grant from the National Institute of Mental Health for her research applying a variety of electrophysiological and molecular approaches to understand how the maturation of neural circuits impacts developmental differences in social behavior. In 2020, she served as an organizer of RFU’s Virtual Brain Science Institute Innovation Seminar Series as well as RFU’s inaugural Neuroscience Research Symposium.

Dr. Ferrara is an active member of the International Behavioral Neuroscience Society and serves on the Pavlovian Society executive committee. She is also co-executive director of Women in Learning, a non-profit organization that provides opportunities for students and postdoctoral fellows to seek advice, support and career guidance from notable female neuroscientists. x

“...my research program will investigate the impact of the environment on innate and learned fear and social behaviors.”

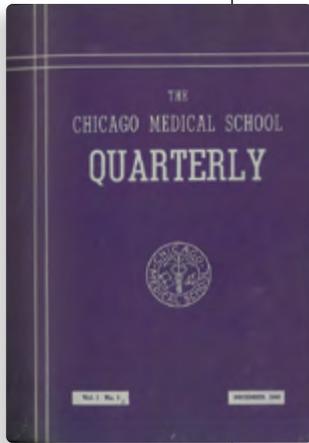


### RESEARCH PUBLICATIONS AND EXTRAMURAL FUNDING

Rosalind Franklin University’s researchers are nationally recognized for their work in basic and clinical sciences. Our research funding is substantial, despite an increasingly competitive grant environment. Visit our 2021-22 list of publications and extramural funding: [rosalindfranklin.edu/research/researchers/recent-publications-or-grants](https://rosalindfranklin.edu/research/researchers/recent-publications-or-grants)

## DOCUMENTING A GENERATION IN THE CMS TIMELINE

By Kelly Reiss



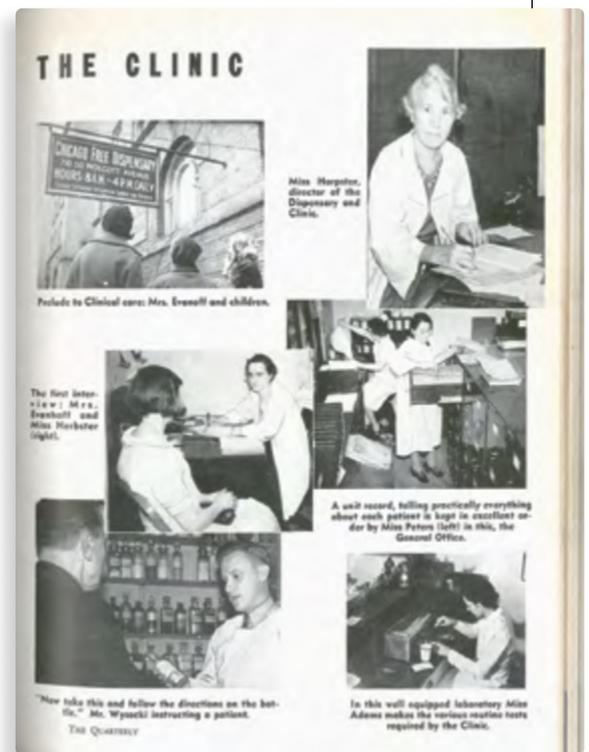
**For more than 30 years, from 1940 through 1972, CMS published *The Chicago Medical School Quarterly* three to four times a year out of the campus at 710 S. Wolcott Avenue in Chicago. This publication mirrored the research projects and interests of the faculty, students and alumni. In the first edition, a student editorial extolls that “we, as students, alumni and faculty of the Chicago Medical School have an opportunity to hear our own fellow colleagues and to be heard by them.”**

To encourage a collective channel of communication, the publication was sent to all alumni, who were encouraged to “subscribe” and contribute monetarily to sustain it. The entire student body subscribed, as noted in the first few volumes. Students comprised the personnel of the publication with an advisory committee, and consulting editors made up of faculty and friends of the school were noted on the attribution page.

Student-led scientific journals had been a long-standing tradition of medical schools, preparing students for the role of physician scientist and offering initial opportunities for publication. Research articles, book reviews, abstracts, essays of perspective on the history of medicine or about the experiences of a medical student, and an introductory editorial framed most issues of the *CMS Quarterly*. Illustrations accompanied the text and varied throughout the issues. Views of Chicago Medical School history can be found in the publication through photographs of research efforts and clinical experiences, as well as portraits of new faculty members, and medical photography of gross and microscopic tissues. Diagrams, graphs, hand-drawn illustrations and cartoons provided further content and character to the publication.

Even the advertisements in the back of the issues give a sense of the time and place through details of the restaurants, book dealers and instrument providers from the unique landscape around Cook County Hospital and the growing medical district.

In a letter to the editors in 1941, John J. Sheinin, MD, PhD, then dean of CMS, described the journal as “reflecting the academic, ethical and social spirit in the march of progress of our institution.” The *Quarterly* traces the activity of the school during World War II; political activism of the students in the 1950s through descriptions of student organizations like the Association of Interns and Medical Students; fraternal developments; alumni notes; details of seminars at the school; new books in the library; and the comings and goings of faculty. Even the advertisements in the back of the issues give a sense of the time and place through details of the restaurants, book dealers and instrument providers from the unique landscape around Cook County Hospital and the growing medical district. Last published in the middle of the last century, the *CMS Quarterly* is an enduring glimpse into the life of the school and the student experience of several generations of alumni. ✕



*Kelly Reiss is director of the Rosalind Franklin University Archives and the Feet First Exhibition.*

Closed end of stomach

A

Incision anastomosis

After working in Philadelphia, he then joined the staff of the Ohio State Medical School as an instructor in Pathology, and in 1915 was promoted to assistant professor in Pathology, which position he held until 1918. In 1918, he returned to the University of Pennsylvania, where he was appointed to the position of assistant professor in Pathology. He is a member of the Ohio State Medical Society, the Ohio Society of Pathology, and the American Medical Association. At this time he will be welcome to attend the 25th Anniversary of the Chicago Medical School, which will be held in July 1940 at the University of Chicago.

**A. Robert Blivaiss, M.D., Ph.D.**

Dr. Blivaiss is native of Philadelphia, his education was completed at the University of Pennsylvania, where he received his M.D. degree in 1912 and his Ph.D. in 1915. He was an instructor in Pathology at the University of Pennsylvania from 1915 to 1918, and an instructor in Pathology at the University of Chicago from 1918 to 1920. He was an instructor in Pathology at the University of Chicago from 1920 to 1922, and an instructor in Pathology at the University of Chicago from 1922 to 1924. He was an instructor in Pathology at the University of Chicago from 1924 to 1926, and an instructor in Pathology at the University of Chicago from 1926 to 1928. He was an instructor in Pathology at the University of Chicago from 1928 to 1930, and an instructor in Pathology at the University of Chicago from 1930 to 1932. He was an instructor in Pathology at the University of Chicago from 1932 to 1934, and an instructor in Pathology at the University of Chicago from 1934 to 1936. He was an instructor in Pathology at the University of Chicago from 1936 to 1938, and an instructor in Pathology at the University of Chicago from 1938 to 1940.

**Dr. Ben B. Blivaiss**

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Dr. A. Robert Blivaiss



Dr. Ben B. Blivaiss

INDEX NUMBER

THE CHICAGO MEDICAL SCHOOL

**QUARTERLY**

VOLUME 25 WINTER 1940 NUMBER 4

The Personality of the Medical Student.....	R. Lewis	201
Aortic Insufficiency Secondary to Ascending Aortic Aneurysm: Surgical Management.....	R. Hugg, M. Ross, E. A. Dewald, C. Pitt, and C. R. M. Rao	215
The Accumulation of Oligoplasmin in Ascending Aortic Aneurysm.....	E. A. Dewald	229
Esophagitis and Role of Nuclear Plicae.....	S. G. A. Alvir, G. A. Morfitt, and K. W. Only	226
Agrypnous Bacteremia in Pregnancy.....	E. A. Friedman	241
Lactosamine in Hodgkin's Disease.....	C. M. Shapiro, A. Tatar, and S. F. Kallner	245
Cystitis Glomerulari Causa Bladder Upper Urinary Tract Obstruction.....	J. A. Bum	250
Reproductive System.....	M. L. Lippman	253
Chronic Joint Disease and Cardiac Failure.....	A. Clinical Pathology Conference, F. S. Glendon and S. A. Yelpe	260
You Can Still Read Anything You Want.....	Editorial	264
The Medical Student: His Place in Medical Journals.....	Editorial	267
Book Reviews.....	Book Reviews	270
Correspondence.....	Index	271

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METHYLATED QUATERNARY AMMONIUM SALTS:

Opposite page, top to bottom: The cover of the *Quarterly's* first issue in December 1940; a photo spread from the 1940s shows activity at the CMS Dispensary on Wolcott Avenue in Chicago. Above: A "new faculty" entry includes the arrival of Ben B. Blivaiss, PhD, who was a CMS faculty member for 56 years. Below: A cover image from the *Quarterly's* 25th Anniversary Issue in 1966.

## A DEEP DIVE INTO TOXIC PERSONALITIES

By Margaret Smith

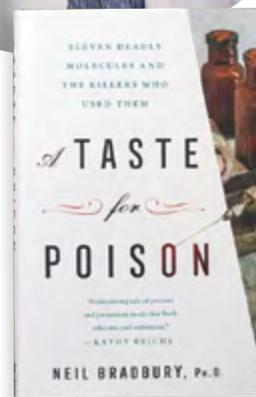
Photos by Michael R. Schmidt

Have you ever felt the book you read or movie you watched didn't go far enough? That it left out the truly intriguing bits? RFU professor of physiology and biophysics Neil Bradbury, PhD, has, which prompted him to research exactly what he was missing. These efforts are what would later manifest into his debut, non-fiction book "A Taste for Poison: Eleven Deadly Molecules and the Killers Who Used Them" — a culmination of science, murder and history, suited for even the most devoutly curious minds.

"I've always been an avid reader of murder mysteries, like Agatha Christie — who obviously used a lot of poison (in her work). But one of the things that I'd always found disappointing in those stories ... is that they never actually explained how they died," Dr. Bradbury said. "And that was very frustrating for me as a scientist and a nerdy-science-geek, so I started to explore that.

"And then I figured, 'Well, maybe why not just go ahead and write a book?' I couldn't find a book that covered the material in the way that I wanted it covered, so I figured, 'Let me write the book I would like, and hopefully other people would enjoy it as well.'"

And they have. Not only has "A Taste for Poison" been successful on review-based platforms such as Amazon or Goodreads, but it has received media attention as well — notably being named "Book of the Week" by the Daily Mail, a UK media outlet. The buzz the book has accrued is well-merited given the extensive time and research Dr. Bradbury poured into its creation.



### Among the chapters in "A Taste for Poison" that detail murders and the substances used in the slayings:

**"Insulin, Ken Barlow and a Bathtub"** In 1957, Kenneth Barlow of Yorkshire, England, reported that his pregnant wife had drowned in a bathtub. An investigation revealed he had injected her with enough insulin to treat two people over the course of a day.

**"Strychnine, Cream and Chicago"** Thomas Neill Cream, a Scottish-born and Canadian-educated doctor, provided lethal pills to patients in Chicago and a romantic rival in rural Boone County in the early 1880s before being hanged for more poisonings in London.

**"Digoxin and Charles Cullen"** Registered nurse Charles Cullen confessed to 40 overdose murders of patients in Pennsylvania and his native New Jersey from 1988 through 2003. Among the substances he used was digoxin, a medication for atrial fibrillation and other heart ailments.

**"Ricin and Georgi's Waterloo Sunset"** In a dark episode of the Cold War, Bulgarian dissident Georgi Markov was crossing Waterloo Bridge in London when he was surreptitiously and fatally shot — possibly by a KGB agent using a rigged umbrella — with a pellet smaller than a pinhead and laced with ricin.

Over the course of two years, Dr. Bradbury researched and compiled the book — meditating heavily on textbooks, historical transcripts and even old newspaper accounts — finding rich, gruesome stories as close as Chicago and as far away as London. While academic writing is inseparable from Dr. Bradbury's career, this book is his first venture into less-structured literature. Yet, he hopes it will not be his last.

For curious readers, Dr. Bradbury notes that "A Taste for Poison" is less of a guide on the uses of poison and more for entertainment purposes only. And, on a serious note, that not all chemicals are inherently bad — however, he reminds readers, "Don't use any of the poisons in the book." x

In naming "A Taste for Poison" one of its "Six New True Crime Books to Read This Summer," *The New York Times* noted that the reader will "be able to crack a great deal of crime fiction — especially Agatha Christie mysteries, since poison was often her characters' murder weapon of choice."

# STAY CONNECTED

## Got ideas or feedback for *Helix* magazine?

Thoughts for upcoming issues? A resource to share with the research and education community? We want to hear about it!

We'll be highlighting opinions and announcements from RFU alumni, students, faculty and our community in a special section of each issue.

Send messages directly to our editors at [helix.letters@rosalindfranklin.edu](mailto:helix.letters@rosalindfranklin.edu).



Before the next *Helix* issue arrives, you can find RFU news on the following social media platforms. Be sure to tag us if you make a comment relating to RFU!

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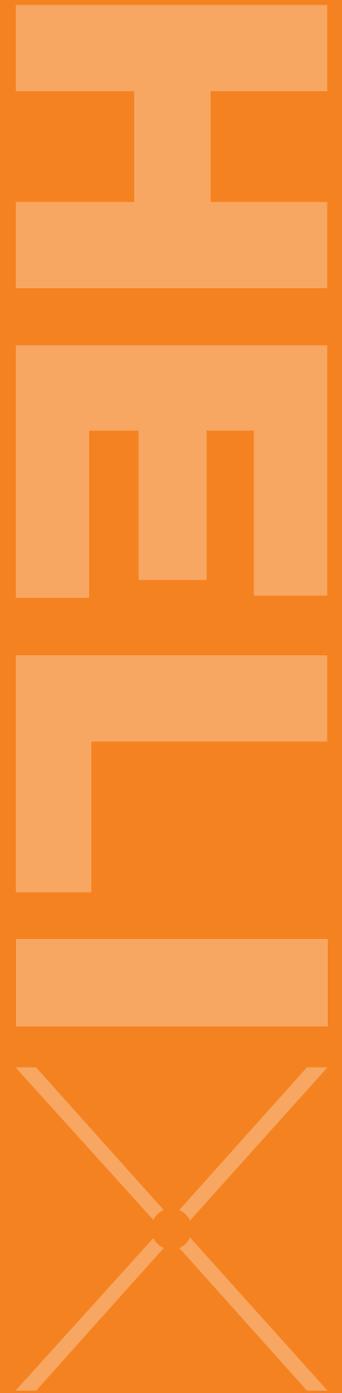
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**PAUL WEISS, Ph.D.**

Partner, Venture Investors  
*"The Role of Midwest VC's Funding New  
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