alumni

2025 • Issue 1

MAYO CLINIC

Letter from the **secretary–treasurer**

When you picked up this issue and glanced at the cover, you may have been surprised to see your own face staring back at you. With this mirror-like cover, we invite you to join us in this issue's theme of reflection.

We wanted alumni like yourself to reflect on their time learning and training at Mayo Clinic, so we asked them, "What does being an alumnus or alumna mean to you?" It may have been a while since you thought back on your time as a medical student, research student, resident or fellow at Mayo Clinic. Even so, you may find yourself nodding along in agreement as you read, recalling similar memories and stories about what sets Mayo Clinic apart.

Many alumni talked about how they learned to reflect and embody the Mayo Clinic patient-centric values they saw modeled by their attendings, colleagues and leadership. That's exactly what I value about my Mayo Clinic training and staff experience: We are part of a unique, long-standing culture that honors our past, yet embraces a future focused on the patient, staff, collaboration, teaching and mentorship. When I began my endocrinology fellowship at Mayo in 1984, I never imagined the opportunities I would have during my career.

If you'd like to share your memories, check out the back inside cover. We want to know: What's one aspect of your education or training that you wish every medical learner could experience? There's information included on how to respond, but one way is via our new Instagram account! Follow us **@mayoclinicalumni**, and please feel free to tag us in any alumni-related posts — we may reach out to see if we can feature your photos or stories in upcoming issues of the magazine.

This issue also highlights the long-lasting power of mentorship. We hope this story reminds you of a mentor who had a meaningful impact on your life and career — and inspires you to pay it forward. If it does, did you know you can sign up to be a mentor (or mentee) on our website? See page 39 for more information.

M. Molly McMahon, M.D.

M. Molly McMahon, M.D. (ENDO '87)
Secretary–Treasurer
Mayo Clinic Alumni Association
Emeritus professor of medicine
Mayo Clinic College of
Medicine and Science
Rochester, Minnesota

About the cover: By reflecting the viewer, readers can quite literally see themselves in this issue of the magazine. We hope you also see yourself as part of the Mayo Clinic alumni community and take this opportunity to consider your own time at Mayo.

Contents

04 Reflecting back

Personal stories about what it means to be a Mayo Clinic alum

20 Mirroring success

Mentors empower Ph.D. students to reach new heights

A new direction

Collaboration to tackle complex disease

Sky's the limit

40 Mayo Clinic Update

News & obituaries

The many faces of Mayo Clinic alumni: Get to know these researchers, physicians, learners, mentees and mentors in the following stories.

Photography by Mayo Clinic staff. Select photography by: Jason Little (pages 4–5 and 20–21); Kat Schleicher (Brandon Tefft, Ph.D., pages 3, 22–23 and 26); Dan Cronin (Alaa Koleilat, Ph.D., pages 3, 34–35 and 38) and Katie Jameson (Stephen Ekker, Ph.D., pages 3 and 37). Illustration on page 47 by Yeni Kim.

WHAT BEING A MAYO CLINIC ALUM MEANS TO ME

REFLECTING BACK

Alumni recall the **values and skills** they learned at Mayo Clinic.

Stella Hartono, M.D., Ph.D. (MDPH '17, IMM '17), was seeing a patient for a study at the National Institutes of Health when the patient said, "I can tell you trained at Mayo Clinic."

The patient could have been referring to many things Dr. Hartono learned while earning her dual M.D.-Ph.D. degree at Mayo Clinic College of Medicine and Science in Minnesota. The patient could have guessed that Dr. Hartono was a Mayo Clinic alumna because of her impressive list of publications, her expert knowledge, or her capacity to handle serious and complex disease.

But the patient wasn't referring to any of that. She had been to Mayo Clinic before and recognized a Mayo Clinic standard that is all too rare in medicine: Dr. Hartono was taking the time to truly listen to her.

"You can stop anybody at Mayo Clinic … and ask them what we value as an organization, and people will tell you: ***The needs of the patient come first."***

– Juliana (Jewel) Kling, M.D.

For this story, we asked Dr. Hartono and other Mayo Clinic alumni across specialties, research areas, campuses and generations, "What does being a Mayo Clinic alumnus or alumna mean to you?" We wanted to know what they valued about their time training at Mayo Clinic. What stood out to them today — a few or many years after completing their programs? What did they experience that they wish every medical student, research student, resident or fellow got to experience?

Alumni answered the call, sharing everyday insights and perspective-shifting stories. They recalled times they were puzzled by diagnoses, grieved for patients and laughed with colleagues on campus. Many alumni expressed gratitude for the privilege to pick the brains of leading experts and ground-breaking innovators.

But some noted that world-renowned medical expertise is not unique to Mayo. What sets Mayo Clinic education and training apart, they said, is also the institution's primary value: The needs of the patient come first.

"You can stop anybody at Mayo Clinic, not just the clinicians — the nurses, the volunteers, the janitors, the front desk staff — and ask them what we value as an organization, and people will tell you: The needs of the patient come first. That's how fundamental our values are to who we are as an organization," says **Juliana (Jewel) Kling, M.D.** (I '13, CMR '14), vice dean of Mayo Clinic Alix School of Medicine and the Suzanne Hanson Poole Dean of Mayo Clinic Alix School of Medicine – Arizona campus. Dr. Kling is also chair of the Division of Women's Health Internal Medicine at Mayo Clinic in Arizona.

Mayo Clinic students, residents and fellows quickly learn that this value is more than a platitude or an aspiration. They witness this value in action — in the time physicians spend with patients to learn their stories, in the institutional emphasis on shared decision-making and in the dedication to cross-disciplinary collaboration — and they learn to embody it.

"We want learners to graduate from our medical school and academic programs as physicians and scientists equipped to innovate and lead the future of healthcare, recognizing that they trained at the leading healthcare institution for serious and complex medical care and innovation," says Dr. Kling. "And at the end of the day, it still comes down to being good clinicians and researchers with strong values — putting the needs of our patients first through a team-based model, ensuring that we're making human connections with people, and treating them just like we would our parents or sisters or brothers."

In the following pages, Mayo Clinic alumni reflect on the lessons, memories and skills they garnered from their education and training.

OMAR EL KAWKGI, M.B., B.CH., B.A.O.

Facing "some of the **most challenging clinical and research questions**."

Omar El Kawkgi, M.B., B.Ch., B.A.O. (ENDO '21), Department of Endocrinology at Mayo Clinic Health System in Wisconsin

As a trainee at Mayo Clinic, it can sometimes feel overwhelming to face some of the most challenging clinical and research questions — questions that are not typically seen elsewhere. But I wish every medical learner could have this (sometimes very uncomfortable) experience.

I recall situations in which even the experts were stumped on the best course of action. Their response to my questions in these situations was usually another question. For a learner, this could feel frustrating — but also inspiring. This experience creates space for innovation, collaboration among world-renowned specialists, and sometimes humility in situations that are beyond the limits of our capabilities.

For me, these situations drove research and clinical inquiry based on a real and authentic patient experience. I wish more learners could be exposed to this. While strong medical training can be found in many excellent centers around the country, I feel that the education and training I received is unique.

JEWEL KLING, M.D.

“Our team was able to all come **together** and really listen to the needs of the patient.”

Jewel Kling, M.D. (I ’13, CMR ’14), chair of the Division of Women’s Health Internal Medicine at Mayo Clinic in Arizona and the Suzanne Hanson Poole Dean of Mayo Clinic Alix School of Medicine – Arizona campus

When I did my sub-internship at Mayo Clinic as a fourth-year medical student, my team gave me the responsibility to take care of a patient who had esophageal cancer. He had come from Chicago, and his family really wanted to bring him back to Chicago. He was really sick.

He started to decompensate, and we had to figure out a plan. Around 2:00 p.m. on a busy weekday, all the teams came together: the ICU team, our hospital team, the social work team, the palliative medicine team and nephrology. We discussed a treatment plan, then we met with him and his family to explain what we thought was in his best interest. When we left the room, the plan had changed. They wanted us to do everything possible.

He was moved to the ICU that night but passed away the next day due to advanced cancer and infection. Although it wasn’t the outcome his family hoped for, they felt heard and knew we used all available resources to treat him.

The thing that stood out to me then, and I can still remember thinking back on it now, was how our team was able to all come together and really listen to the needs of the patient. In any other institution that I’d been to, I’d never seen it done like that — so patient-centric. It just blew me away. That’s how I wanted to learn to practice medicine.

And indeed, that’s what I did. I completed my internal medicine residency at Mayo Clinic in Arizona, followed by a chief year. I’ve been on staff now for over 10 years, and there’s not a week that goes by that I don’t message, pick up the phone to call or knock on the door of a colleague to ask for their collaboration on a patient, or vice versa. The patient-centered, team-based care model is foundational to how I practice — how we practice — at Mayo Clinic, and it’s an honor to be part of it. It’s the best way to deliver care to people.

CULLEN O'GORMAN, M.B.B.S., PH.D.

"I was deeply touched by his **honesty and profound humility**."

Cullen O'Gorman, M.B.B.S., Ph.D. (NACF '14, NEMG '15), Department of Neurology at Princess Alexandra Hospital in Queensland, Australia

My time at Mayo Clinic provided a bedrock of expertise that I rely on daily to diagnose and treat patients. The depth and richness of my experience there includes countless examples of superlative clinical care, compassion, commitment to excellence and dedication to the needs of the patient. To work at Mayo Clinic is to be immersed in a fast-moving tide of new medical discoveries and treatments — it may feel like you are swimming hard, but the sheer force of the waves carries you farther than you could have ever traveled alone.

I draw upon many fond memories of mentors and colleagues from my time at Mayo Clinic. An example I have never forgotten comes from the first neurologist I worked with — a senior colleague with tremendous clinical acumen and wisdom. He shared with me an experience from his own training, when he had learned much from a mistake. I was deeply touched by his honesty and profound humility. His openness and willingness to teach through example has remained with me, and I hope that I can measure up to his example with my own trainees.

LISTENING TO THE NEEDS OF THE PATIENT

*"The sincere emphasis on the words 'the needs of the patient come first' is transmitted to learners and has **fundamentally influenced how I approach diagnosis and treatment decisions**. Every day I look at ways to individualize care to each patient using shared decision-making tools. Even outside of patient interactions, I advocate for personalized education methods that cater to the unique needs of each learner."*

— Omar El Kawkgi, M.B., B.Ch., B.A.O.

*"'The needs of the patient come first' was a core Mayo Clinic value that I was taught and observed throughout my Mayo Clinic training. **Nothing else I learned was more important than this.** It has impacted me throughout my career on a daily basis when I see patients. It reminds me to always strive for the best outcome for every patient I interact with."*

— Stephen Wisniewski, M.D.

JASMINE MARCELIN, M.D.

"She expressed emotions in a way that I didn't think doctors were allowed to."

Jasmine Marcelin, M.D. (I '14, INFD '17), Department of Internal Medicine at University of Nebraska Medical Center in Nebraska

My first internal medicine residency rotation was in the emergency department, and **Annie Sadosty, M.D.** (EM '99), was one of my first attendings. Early in my time there, we had a young woman come in who was critically ill and unresponsive, but we didn't immediately know exactly why she was sick. It seemed like a severe overdose, with a delayed presentation that made it difficult to reverse despite appropriate treatment. This was my first code experience, and her resuscitation was very difficult. Her family was there, and things were happening so quickly that we didn't really have a good chance to understand what happened before the patient came to the hospital. We were trying everything that we could, and I remember the medical student and I getting up on the stool to do compressions, because we were the shortest ones there.

Dr. Sadosty was the leader of the code and modeled so many behaviors that I wanted to soak in as a future educator. As she walked into the room, it seemed like all of the chaos melted away. When she looked at me and the medical student and gave us instructions on what to do, we felt like we weren't just bodies doing compressions; we were equal members of this coordinated team that was trying to keep this woman alive.

Annie Sadosty, M.D.

Despite our efforts to save her, the patient did not survive. I didn't know what to do with my emotions, but I knew that I was deeply affected by her death and by the whole experience. It was really traumatic for me. It was even more traumatic for the family, who witnessed portions of the code.

Afterwards, Dr. Sadosty did something that I had not yet seen many other physicians do. She felt the emotions of this loss and allowed me to witness her feeling them. Dr. Sadosty made space for me to feel my own emotions and articulate that I was affected by this experience. She invited me to go with her to talk to the family, and I witnessed her model the most important lesson of being a physician: how to be fully present with a patient or family member, especially on what might be the most devastating day of their lives. She recognized that me accompanying her would be helpful as I processed this patient's death — and an impactful part of my physician journey.

Dr. Sadosty also debriefed the team. She normalized addressing both the medical and the personal or emotional aspects of delivering care to our patients. She expressed emotions in a way that I didn't think doctors were allowed to, and that day was probably the most educational for me moving forward in my career. Dr. Sadosty taught me that when we experience trauma or difficult outcomes in healthcare, it's OK for us to take a beat, feel the things that we feel, embrace those emotions and then invite the learners to reflect and debrief on them. I saw Dr. Sadosty in 2019 at a conference, and we talked about how impactful the experience was on the entire team.

I only worked with her that one rotation, but after that experience I recognized in her the type of teacher that I wanted to be: one who made it a safe learning environment for people who felt big emotions — and those who didn't. I've had many meaningful mentors since that first rotation, but I will never forget Dr. Sadosty for that lesson.

Today, in every teaching rotation I attend with my students, residents or fellows, I make space to acknowledge that our patients can impact us just as we impact them. I think that's how we retain our humanity as physicians. We're not superheroes, and by remembering our humanity and our patients in that way, we can continue to navigate some of the emotionally challenging experiences that come with providing extraordinary care to our patients.


ENOUGH

JOHN WILKINSON, M.D.

“You may **never leave**.”

John Wilkinson, M.D. (MED ’78, FM ’81), Department of Family Medicine at Mayo Clinic in Minnesota

I was in the third class of Mayo Medical School and one of the first graduates to join the staff. I’ve been on the staff now for over 43 years.

Early in my career I was fortunate to be able to continue to consult with my teachers and mentors. In recent years, I’ve been fortunate to be able to get to know and rely upon younger colleagues who represent an unbroken chain of world-class skills and knowledge.

You may think you’re coming here for a short period of time as a medical learner, but you may never leave. I am very proud of my lifetime of involvement with Mayo Clinic.

BOSHRA AL IBRAHEEM, M.D.

“Medicine is about **compassion and connection**, not just diagnoses.”

Boshra Al Ibraheem, M.D. (FMEC ’27), resident in Family Medicine at Mayo Clinic Health System in Wisconsin

What sets my education apart is the strong focus on patient-centered care that I’ve learned at Mayo Clinic. As Maya Angelou said, “People will never forget how you made them feel.” I strive to make sure my patients feel heard and respected.

During my first week as a family medicine resident, I worked with a patient who had multiple chronic conditions. My attending physician took the time to help me create a care plan, saying, “Every patient has a story.” This taught me the importance of listening to patients and understanding their experiences. It reminded me that medicine is about compassion and connection, not just diagnoses.

THE LIGHTER SIDE

“When I was in the primary care clinic, one of us was going in to see a patient and needed to do a particular physical exam on the patient’s leg. Sometimes teachers explain or maybe draw the technique. ***Henry Schultz, M.D.*** *(I ’78, CIM ’79), got on the floor and said, ‘Here, do this. This is what you’re going to feel.’ And I was just like, ‘Wow, this man is on the floor, and he’s teaching us how to do this physical exam maneuver.’ And it got us excited about primary care; it got us excited about learning. He was* ***willing to go to whatever lengths necessary*** *to make sure that you got it.”*

— Jasmine Marcelin, M.D.

“It’s easy for physicians to just say, ‘Go do this,’ whether that’s referring them to a colonoscopy or prescribing a complicated medicine regimen. When I was a medical student at Mayo, ***they wanted us to understand what we were asking of patients****. A hilarious example: the 24-hour urine test. Do you realize what you’re asking your patient to do? You have to walk around with a jug, collecting your urine. Some people might find that a little gross. So they had us — the whole class — do it. That stuck with me. I’ve had patients complain about how bitter steroids taste, so I’ve tasted them. I go to CVS and check out the prices of over-the-counter medication.*

— Stella Hartono, M.D., Ph.D.

MICHAEL BRENNAN, M.D.

“I still feel so **woven into the culture** of the organization.”

Michael Brennan, M.D. (I ’75, ENDO ’77), emeritus professor of medicine at Mayo Clinic College of Medicine and Science in Minnesota

The period of residency is critically important and, to a great extent, determines the future trajectory of your career. When you leave medical school, your head is filled with facts and data. But it’s during residency that you start to harness all that information and align it to really become an effective and compassionate physician. During that period, you’re heavily influenced by your instructors and the culture of your organization.

After attending medical school in my native Ireland, I came to Mayo for my residency in internal medicine and a subsequent fellowship in endocrinology before joining the consulting staff in 1977. I quickly became aware of the very strong Mayo culture of putting the needs of the patient above all other considerations. The culture was learned through the formal curriculum — or what was said — but more importantly, by observing the values-driven behavior modeled by supervising faculty and staff.

One essential piece of Mayo’s culture is valuing all members of the team and encouraging and supporting your team members. I remember arriving at Saint Marys Hospital on my first day as a resident. It was a Saturday morning in June, and I did rounds with the wonderful gastroenterologist **Lloyd Bartholomew, M.D.** (I ’53, deceased 2015). He could probably sense that I was nervous and questioning whether I justified my selection as a resident at this famous medical center.

After rounds, we had coffee, just the two of us in Saint Marys cafeteria. He talked to me a little bit about teamwork and collaboration. And then he said, “Michael, you are now a valued member of this team.”

What a wonderful thing to hear on your first day at work. It was a building block of collegiality, and it made you feel that you belonged there. And with that, you realized that you had certain responsibilities to continue to justify the trust and confidence that the Dr. Bartholomews of the world had placed in you.

Experiences like this throughout my training helped me form my professional identity and increased my competence, confidence, self-belief and growing aspiration to one day achieve the same level of professional excellence that was modeled by my instructors.

Another example: I was on diabetes service as a young resident, and I was examining a patient who was going to have surgery. And who came into the room? Only Mayo Clinic’s famous neurosurgeon **Thoralf Sundt Jr., M.D.** (N ’64, NS ’65, deceased 1992), with his retinue of residents and fellows and nurses. I immediately stepped back and said, “Oh, excuse me, I’ll come back later.” He introduced himself to me and said, “No, no, what you’re doing is very important so that the patient’s blood sugars are properly controlled during surgery. We can come back later. You finish your work.” Where else would you experience such collegiality?

As learners develop into practicing physicians, they express and model the formative experiences they internalized during residency training — to the benefit of patients, learners and colleagues. The desire to nurture and preserve these values of collegiality, teamwork and emphasis on patient care led me to become a founding member of the Mayo

Clinic Program in Professionalism and Values. The program strives to acculturate newer members of Mayo's training programs and newly appointed staff who have trained elsewhere.

This culture of valuing and respecting colleagues continues into retirement. I retired in 2015 and am now the chair of the executive committee of the Mayo Clinic Emeriti Association in Rochester. I'm not seeing patients, but I don't feel like I am actually fully retired — I still feel so woven into the culture of the organization.

The Mayo Clinic Emeriti Association enjoys the generous support of Mayo leadership, including well-appointed space in the Plummer Building, dedicated administrative support and retention of many privileges. In being so supported, emeriti can continue to pursue professional and academic interests and socially engage with colleagues with whom they have shared their life's work.

I have witnessed Mayo Clinic President and CEO **Gianrico Farrugia, M.D.** (I '91, GI '94), lay a wreath in Memorial Hall in the Plummer Building in honor of our deceased colleagues. I think it speaks to the mutual respect for Mayo staff that continues into retirement and beyond — exemplifying the enduring commitment to the culture and values of Mayo Clinic.

ALYX PORTER UMPHREY, M.D.

"Everyone you encounter **is your teacher.**"

Alyx Porter Umphrey, M.D. (I1 '04, N '07, NONC '08), Department of Neurology at Mayo Clinic in Arizona

I love contributing to the legacy of Mayo Clinic, particularly at Mayo Clinic in Arizona. What's happening on this campus is very special and as an Arizona native, it's an honor for me to work in the place that I was born and raised.

My first exposure to the distinct and values-driven Mayo Clinic culture came from my experience as a trainee at Mayo Clinic in Rochester. To learn from people who live, walk and talk the Mayo values, who are giants in their respective fields, and to have access to them as a learner was something that was immediately impressed upon me. Training at Mayo in Rochester also helped give me a perspective of just the tremendous impact we can have as an organization — and as individuals — because of the excellence and values that have led to the reputational weight of the organization. The three shields that have become synonymous with our institutional priorities were one of the first things that struck me as a trainee back in 2003, and we continue to achieve excellence as we innovate in all three. For many years, I was so grateful to be here and wondered how I would also contribute to the greatness of Mayo Clinic. Now, 21 years later, it's nice to be able to see that I've also been able to contribute in small part to the Mayo Clinic legacy both here in Arizona and across the enterprise.

I tell every learner I encounter, whether they're an undergraduate, a Mayo medical student rotating through neurology, or a resident or fellow that I have the privilege of staffing, "Everyone you encounter is your teacher." If we're lucky, we should find ourselves in a perpetual state of learning. There's always something to be learned from a patient, from a colleague, from a volunteer, and we end up, hopefully, incorporating what we learn to be even better.

STELLA HARTONO, M.D., PH.D.

"Everyone said, '**We'll do whatever you need**.'"

Stella Hartono, M.D., Ph.D. (MDPH '17, IMM '17), Baz Allergy, Asthma and Sinus Center in California

I was doing my pediatric rotations at Mayo Clinic in Rochester, and we had a high-risk patient with a shunt who needed antibiotics. We prescribed an antibiotic, discharged her, and then we cultured the bacteria and found that the bacteria were actually resistant to the antibiotic that we gave her.

Typically, I would just call and explain that we need to switch the antibiotic. But this patient lived in a rural religious community with limited phone access and no internet. She was a high-risk patient, and she needed the antibiotic. What could we do?

I called the pharmacy, and said, "If we can deliver this medication to this child, can you prep it and have it ready?" And they said, "We can do that." I called the police department where the patient lived, saying, "If we can send someone over there, can you meet them and escort them to the property? They said, "We'll do you one better: We'll meet the police department from Rochester halfway and we'll deliver it to the kid."

So I had the Rochester Police Department meet me at Saint Marys. I picked up the medication from the pharmacy and gave it to them. They drove it 30 or 60 miles and then the other police department picked it up and made sure the patient got it.

Thinking about my time training elsewhere, they would have laughed at me if I had asked people to do this. It took a lot of phone calls and a lot of coordination. But I didn't mind doing it, because everyone said, "We'll do whatever you need. Just tell us what you need." I think it just illustrates that the principle of "the needs of the patient come first" is embraced not only by Mayo Clinic physicians, but by the whole Mayo Clinic team — and the surrounding community.

STEPHEN WISNIEWSKI, M.D.

“I have never had someone **listen to me like you have.**”

Stephen Wisniewski, M.D. (PMR ’06, SPMD ’07), chair of the Division of Musculoskeletal Rehabilitation at Mayo Clinic in Minnesota

Mayo really prides itself on an unhurried clinical encounter, with a significant amount of time during patient care visits so the patient can feel heard. We frequently hear, “I have never had someone listen to me like you have,” and “I’ve never had someone do such a thorough physical exam.”

As a resident and then as a fellow, that meant that I usually wasn’t rushed and truly could take significant time listening to the patient, thereby improving my history-taking and physical examination skills. I was also able to take time to discuss cases with my supervising consultants. The dedication of the consultants I worked with to teaching was remarkable. They would always find time for education before, during and after the clinic day. They would discuss and demonstrate important physical exam findings, review imaging studies and discuss an expanded differential diagnosis. This allowed me to quickly grow and develop as a physician.

I tell medical students interviewing with our residency program that I think that’s one of the things that really stands out about Mayo Clinic training. We have time during the day while we’re seeing patients to go the extra step and review things on a deeper level than if you’re just trying to work through numerous

patients and get through your day, so to speak. Those days certainly can happen and of course we have busy times, but we're really fortunate that this is really something that's valued, Mayo Clinic-wide. •

THE POWER OF COLLABORATION

"I wish every medical learner could have the opportunity to shadow a diverse group of specialists during their clinics. I was amazed at how different fields of medicine collaborate to provide the best care for patients. Watching these specialists discuss cases and share insights highlighted the importance of teamwork in healthcare. It was a ***powerful reminder that no one person has all the answers*** *and learning from each other is essential to provide comprehensive care."*

— Boshra Al Ibraheem, M.D.

"The frequency with which my supervising consultants would call other physicians to ask questions, and in turn, frequently receive questions from others, was inspiring and different from my experience at other healthcare systems. This was ***all in the name of trying to provide the best care for each and every patient****."*

— Stephen Wisniewski, M.D.

"It was inspirational to me to see transdisciplinary collaboration and colleagues within neurology working together to advance medical knowledge and scientific understanding ***without the barriers of ego and institutional silos****."*

— Cullen O'Gorman, M.B.B.S., Ph.D.

MIRRORING SUCCESS

By offering guidance, expertise and inspiration, mentors empower Ph.D. students **to reach new heights**.

"It is a great thing to make scientific discoveries of rare value," William J. Mayo, M.D., said in 1935. "But it is even greater to be willing to share these discoveries and to encourage other workers in the same field of scientific research."

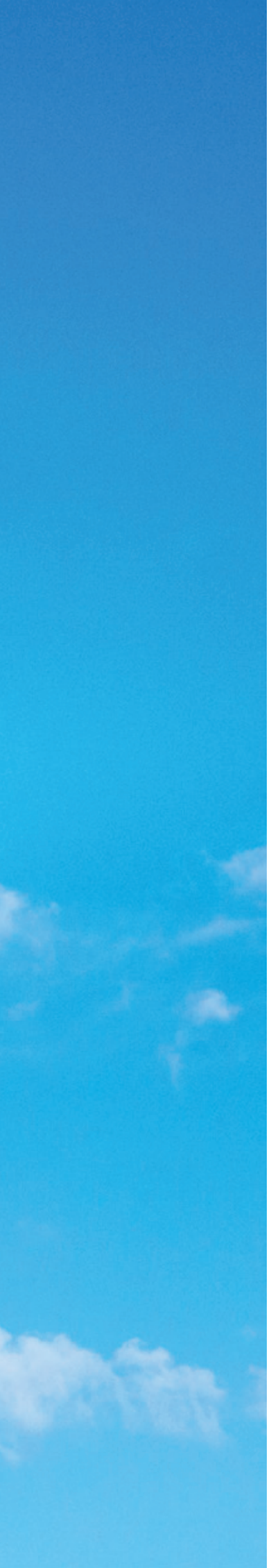
Every day at Mayo Clinic, Ph.D. mentors step up to this challenge, helping to inspire and empower the next generation of researchers.

They set powerful examples for their mentees, who may aspire to their mentors' international renown, groundbreaking research or firm resolve to cure the world's most complex diseases. Mentors offer practical assistance: making line edits to manuscripts, answering texts about scientific concepts, and writing letters of recommendation for awards and grants.

It's time-consuming work. But when done right, mentorship benefits everyone, buoying mentees' careers and giving mentors fresh perspectives and deep fulfillment. And eventually, mentees pass on what they learned to mentees of their own.

In the following pages, Mayo Clinic Ph.D. mentees and their mentors testify to the power of mentorship.

Brandon Tefft, Ph.D., benefited from mentorship during his time as a cardiovascular disease research fellow at Mayo Clinic in Minnesota.



A NEW **DIRECTION**

Mentors like Amir Lerman, M.D., challenged what Brandon Tefft, Ph.D., thought he knew about **caring for patients** — and his own career path.

When **Brandon Tefft, Ph.D.** (CV ’18), enrolled as a cardiovascular disease research fellow at Mayo Clinic School of Graduate Medical Education, he came with an impressive résumé, a belief that he knew how to help patients and a career plan to work in the biomedical industry.

Instead, Dr. Tefft ended up in academia with a transformed understanding of how to prioritize patients. Today, he’s an associate professor of biomedical engineering in the Marquette University and Medical College of Wisconsin joint Department of Biomedical Engineering and the recent recipient of a groundbreaking National Science Foundation grant.

Dr. Tefft credits much of this career redirection and enrichment to his mentors, including **Amir Lerman, M.D.** (I ’89, CV ’94), a consultant in the Division of Ischemic Heart Disease and Critical Care at Mayo Clinic in Minnesota and a Barbara Woodward Lips Professor.

“Even as a postdoc, I was still planning to go into the biomedical industry,” Dr. Tefft says. “Dr. Lerman

"You commit yourself to the individual's career and success. ***Mentorship never stops.****"*

– Amir Lerman, M.D.

was quite instrumental in me ultimately deciding to pursue a career in academia instead."

INTRO TO ACADEMIA

Dr. Lerman's career intrigued Dr. Tefft, showing Dr. Tefft a side of academia he hadn't considered.

"I saw you could eventually evolve to where you're not only managing small research groups and teaching classes, but you can really become this internationally renowned expert," he says. "It was appealing to me that you could have a global impact."

But Dr. Lerman didn't merely inspire; he helped make such a career possible for Dr. Tefft. An example: During Dr. Tefft's time at Mayo, Dr. Lerman helped Dr. Tefft apply for and secure a competitive National Institutes of Health K99/R00 grant, known as the Pathway to Independence Award.

By funding mentored research for up to two years and then independent research for up to three years, the grant helps recipients launch their academic research careers. In Dr. Tefft's case, he used the grant to explore nanotechnology as a way to develop next-generation magnetic biomaterials for prosthetic blood vessels and heart valves, ideally freeing patients from the need for antiplatelet and anticoagulation medication.

"Dr. Lerman was extremely supportive of me applying for that award. I had to put it together pretty quickly, because I learned about it right before I was about to lose eligibility," he says. "He easily could have said, 'No, it's too late.' But I am grateful that he said, 'Yes, go for it.'"

That's just one example of Dr. Lerman's practical support, Dr. Tefft says. Along with Dr. Lerman, Dr. Tefft's other mentors — including **Gurpreet Sandhu, M.D., Ph.D.** (MBIO '92, BIOC '94, CV '03, CVIC '04), **Dan Dragomir-Daescu, Ph.D.** (PHYS '04), and **Robert Simari, M.D.** (CV '92, CVIC '93) — put Dr. Tefft's success and needs ahead of their own, Dr. Tefft says.

"Even as a junior faculty member, I've tried to pay that forward, to be less worried about my own career and my own career advancement, and more focused on what might be best for my students and my trainees," Dr. Tefft says.

Dedication to your mentee is a long-term commitment, Dr. Lerman says. He's been acting as a mentor for over two decades and takes the responsibility of mentorship seriously.

Amir Lerman, M.D., Division of Ischemic Heart Disease and Critical Care at Mayo Clinic in Minnesota

Brandon Tefft, Ph.D., discusses options for developing tissue-engineered heart valves with Marquette University–Medical College of Wisconsin biomedical research mentees Aysan Hedayat Nazari, Shashanka Kammaje Narashimha, Ph.D., and Aleksandra Zielonka.

"I really appreciated that my mentors were big thinkers. ... They really wanted to make a difference and improve healthcare for patients. And to do that, ***you have to take risks, and you have to think big.****"*

– Brandon Tefft, Ph.D.

"You commit yourself to the individual's career and success," Dr. Lerman says. "Mentorship never stops. I still call my mentor. You can leave the lab, you can initiate your own lab, but you will always feel comfortable calling your mentor for advice and questions."

THINKING BIG FOR THE PATIENT

Working with mentors like Dr. Lerman, a clinician investigator who sees patients, clued Dr. Tefft in to patient needs in a way that his biomedical engineering doctoral degree did not, he says.

"I realized a lot of the things I was reading in the literature as a graduate student were kind of off the mark. When you go and talk to the clinicians, they say, 'That's what the engineering community thinks we need, but really we need this thing over here,'" Dr. Tefft says. "I had just graduated with a Ph.D. from Northwestern, and it was kind of humbling to say, 'All right, I'm just getting started here. I have a lot I need to learn about doing translational research and what the needs of patients are.'"

Dr. Tefft's mentors not only helped him better understand patient needs but emboldened him to aim high to meet those needs.

"I really appreciated that my mentors were big thinkers," Dr. Tefft says. "I think they could have all had really nice careers seeing their patients and publishing moderate-impact papers. But that wasn't what they wanted to do. That wasn't their mentality. They really wanted to make a difference and improve healthcare for patients. And to do that, you have to take risks, and you have to think big.

"That really rubbed off on me, and I think that's been a big part of my success with bringing in grants and

defining my own research directions. I haven't been afraid to think outside the box and to make big plans."

Dr. Tefft is certainly thinking big. In 2024, he received a Faculty Early Career Development (CAREER) award from the National Science Foundation to create a living heart valve prosthesis for children born with congenital heart disease. A biodegradable scaffold would act as the initial support structure and would be seeded with cells from the patient. The hope is that with time, the cells would create their own extracellular matrix and degrade the artificial scaffold, creating a living, functional heart value that would ideally be indistinguishable from a native valve.

"A child needs a valve that can not only last indefinitely, but that can also grow with them. And of course, existing heart valve prostheses don't grow and they don't last indefinitely," Dr. Tefft says. "We're going to try to mimic that embryonic developmental pathway in our engineered valves to hopefully end up with bioengineered tissue that more accurately replicates native tissue."

For this project, Dr. Tefft is still drawing on the lessons learned from his mentors at Mayo Clinic, such as the value of collaborating with clinicians and basic scientists, he says. And as always, Dr. Tefft is striving to consider the needs of the patient first.

"Dr. Lerman is a clinician investigator. He has an M.D., so everything we did was about helping patients," says Dr. Tefft. "I definitely brought that perspective to this National Science Foundation award." •

Brandon Tefft, Ph.D., and Amir Lerman, M.D., pictured in 2017.

COLLABORATION TO TACKLE **COMPLEX DISEASE**

Harry Min, Ph.D., and Stephanie Oatman, Ph.D., made **important neurodegenerative disease discoveries** by building on the expertise of mentor Nilüfer Ertekin-Taner, M.D., Ph.D.

Nilüfer Ertekin-Taner, M.D., Ph.D., enterprise chair of the Department of Neuroscience and the Roy E. & Merle Meyer Professor of Neuroscience at Mayo Clinic

The work and research of **Nilüfer Ertekin-Taner, M.D., Ph.D.** (NSCI '03, I1 '04, N '07, NBN '08), is dedicated to finding cures and diagnostics for Alzheimer's disease and related disorders.

That's a monumental task. These disorders are incurable, epidemic and undiagnosable until late in the disease course, she says, with many possible disease pathways.

"Every patient gets Alzheimer's disease for their own set of reasons. We think of it as a single disease, but it's infinitely complex," says Dr. Ertekin-Taner.

So it's a good thing that at the start of her career, Dr. Ertekin-Taner was able to lean on the resources and expertise of her mentors — and that her own mentees have similarly benefited from her knowledge, skills and consistent mentorship.

Dr. Ertekin-Taner and her mentees **Stephanie Oatman, Ph.D.** (BMB '24), and **Yuhao (Harry) Min, Ph.D.** (CTSA '24), have made important discoveries related to neurodegenerative disease — discoveries that were all made in an open, cooperative environment with strong mentor support.

"The collaborative spirit is what sets Mayo apart. That gives us this very unique opportunity to work on very big, important problems in biology, but in a way that's really pertinent and translatable to humans," Dr. Ertekin-Taner says.

BUILDING ON A SOLID FOUNDATION

Dr. Ertekin-Taner is a physician-scientist, enterprise chair of the Department of Neuroscience and the Roy E. & Merle Meyer Professor of Neuroscience at Mayo Clinic. She sees dementia patients in her practice and is principal investigator of the **Genetics of Alzheimer's Disease and**

"Mentoring is hard work. It's time consuming and it's a lot of responsibility, but it's also ***an aspect of my job that brings me a lot of joy.***"

– Nilüfer Ertekin-Taner, M.D., Ph.D.

Endophenotypes lab at Mayo Clinic in Florida. The lab is made up of over 20 individuals and has been fully funded by the National Institutes of Health since its inception.

But she got her start at Mayo Clinic working in the lab of **Steven Younkin, M.D., Ph.D.** (PHAR '95), emeritus professor of pharmacology at Mayo Clinic College of Medicine and Science in Florida, focusing her thesis on genetic factors that lead to Alzheimer's disease. She was mentored by Dr. Younkin and **Neill Graff-Radford, M.D.** (N '89), a consultant in the Department of Neurology at Mayo Clinic in Florida and the David Eisenberg Professor, and had access to brain and blood specimens from deeply characterized patients who had been recruited by Dr. Graff-Radford and other Mayo Clinic physicians.

"It was my luck that I was in this phenomenal environment with access to these biospecimens and the know-how from clinicians and scientists," she says.

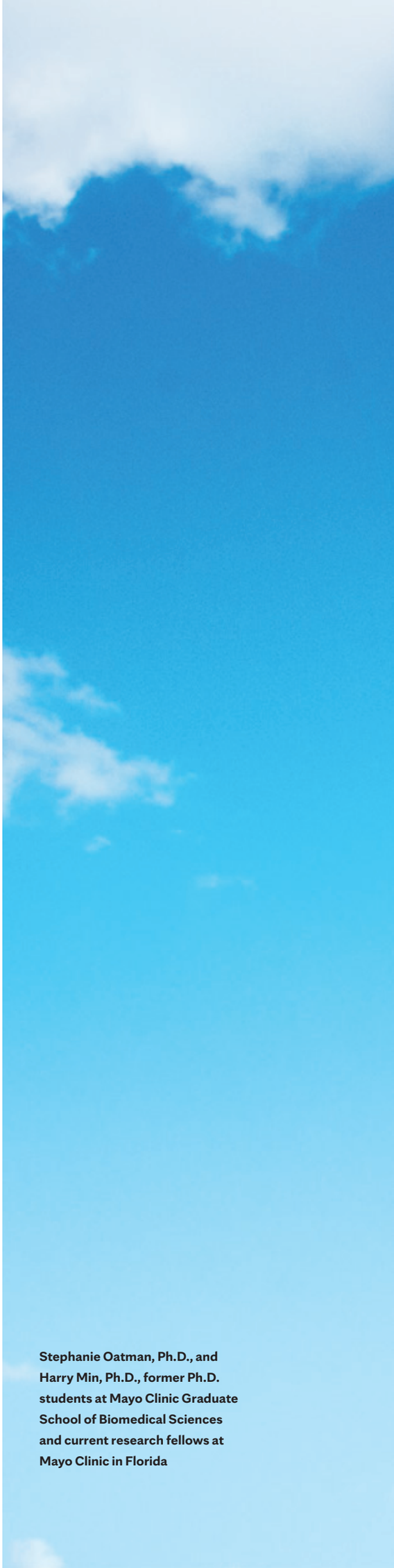
Building on Dr. Younkin's and Dr. Graff-Radford's analysis and foundation of knowledge of these specimens, she conducted a pioneering study for her thesis, introducing the use of plasma amyloid-beta levels as a phenotype in genetic studies of Alzheimer's disease.

"I owe Dr. Graff-Radford and Dr. Younkin a debt as a mentee, and it's impossible to fully pay that debt. But one way may be to try and be the best mentor that I can be," Dr. Ertekin-Taner says. "Mentoring is hard work. It's time consuming and it's a lot of responsibility, but it's also an aspect of my job that brings me a lot of joy."

Dr. Oatman and Dr. Min have both benefited from this dedication and have already made important research findings that are "directly related to patients," Dr. Ertekin-Taner says.

BENCH TO BEDSIDE

Dr. Min was drawn to study in Dr. Ertekin-Taner's lab because of her fascinating and impactful research and



Stephanie Oatman, Ph.D., and Harry Min, Ph.D., former Ph.D. students at Mayo Clinic Graduate School of Biomedical Sciences and current research fellows at Mayo Clinic in Florida

Stephanie Oatman, Ph.D., and Harry Min, Ph.D., in the Genetics of Alzheimer's Disease and Endophenotypes lab headed by Nilüfer Ertekin-Taner, M.D., Ph.D., at Mayo Clinic in Florida. The pair are observing the 10x Genomics Chromium Connect instrument, which automates the preparation of samples into libraries for single cell sequencing.

her status as "the leading expert on Alzheimer's disease and omics research," he says.

He found Dr. Ertekin-Taner to be a consistent and dedicated mentor, willing to take the time to help him establish himself as a researcher.

"When you first onboard as a Ph.D. student, you don't know what you're doing. I had to constantly go to her and say, 'OK, I have these results. What do I do next? What's the big picture? What's the question we want to address? How does it impact human health?'" he says. "You don't get that by reading papers. You have to be in the field for a long time to have those kinds of ideas."

Dr. Ertekin-Taner's commitment to helping Dr. Min find his way paid off. Dr. Min **found molecular changes** in the brains of patients with progressive supranuclear palsy (PSP), an incurable brain disorder with symptoms that mimic Parkinson's disease and dementia. The condition leads to rapid, progressive decline and death.

These were **significant findings**, as these molecular changes could act as potential treatment targets for PSP. But Dr. Min didn't stop there. Thanks to Dr. Ertekin-Taner's mentorship, he's working to take his findings from bench to bedside.

"We're developing actual therapy. It is amazing that working with Dr. Ertekin-Taner, we can continue the therapeutic development and hopefully bring it to clinical trials," he says. "Her role as a physician-scientist and years of experience in this field helped me go from the basic science discovery to translation into a potential product."

Dr. Min's work also has the potential to make a broader impact across other neurological conditions.

"Because PSP shares similar biology with other neurological disorders such as Alzheimer's disease, we hope our findings might also benefit drug discovery efforts in other neurological disorders," he says.

THE CYCLE CONTINUES

Dr. Oatman's work also has important implications for treating patients. Her **research** is focused on connecting the pathological changes in brains with Alzheimer's to molecular changes via epigenetics and transcriptomics.

"Stephanie's work has helped unravel the complexity of the biochemical changes in a patient's brain," Dr. Ertekin-Taner says. "That's essential for developing future therapies for patients with Alzheimer's disease."

For this work, Dr. Ertekin-Taner taught Dr. Oatman to handle the sometimes unwieldy big data involved in omics.

"There are a lot of ways to get really lost in all that data. Nilüfer has a really good way of taking a step back and seeing the important things," says Dr. Oatman. "It's making sure that you understand what you're doing and why you're doing it, rather than throwing the entire kitchen sink of data analysis at it."

Dr. Oatman already had a chance to pass that knowledge along when she mentored then-high school student Kristi Biswas in benchwork and genome analysis as part of Mayo's 10-week SPARK Research Mentorship Program. Dr. Oatman taught Biswas to focus her big data research and says it was rewarding to mentor Biswas so that she "really understood what was happening and why she was doing it."

Biswas found that a genetic variant associated with brain levels of Alzheimer's disease-related proteins also was associated with disease-related features, like the amount and location of tau and amyloid deposits. She ultimately placed in the Biomedicine and Life Sciences category at an international student science and engineering fair and says her time in the SPARK program was a "life-changing experience."

"I wasn't really a basic science person, but once I got into research, I realized how fun it is and really limitless," Biswas says. "There's no end to what you can learn." •

"Once I got into research, I realized how fun it is and really limitless. ***There's no end to what you can learn."***

– Kristi Biswas

Harry Min, Ph.D., Nilüfer Ertekin-Taner, M.D., Ph.D., and Stephanie Oatman, Ph.D., celebrating Dr. Oatman and Dr. Min's successful thesis defenses, which occurred during the same week.

Alaa Koleilat, Ph.D., was empowered by her mentors during her time as a Ph.D. student at Mayo Clinic Graduate School of Biomedical Sciences.

THE SKY'S **THE LIMIT**

The whole-hearted support of mentors Lisa Schimmenti, M.D., and Stephen Ekker, Ph.D., emboldened Alaa Koleilat, Ph.D., to **push the bounds of medical knowledge**.

Ask **Alaa Koleilat, Ph.D.** (CTSA '20, LGG '23), about her mentors during her Ph.D. program in the Clinical and Translational Science Track at Mayo Clinic Graduate School of Biomedical Sciences, and she'll detail the many ways in which **Lisa Schimmenti, M.D.** (CGEN '15), and **Stephen Ekker, Ph.D.** (BIOC '07), provided practical support to propel her career. That included imparting research skills, providing thesis feedback and facilitating professional connections.

But beyond this pragmatic assistance, what Dr. Koleilat keeps returning to is how her mentors made her feel.

"They believed in me. They made me feel that if there was any goal I wanted to achieve, I could do it," Dr. Koleilat says. "They made me feel like the sky was the limit."

They did that by enveloping Dr. Koleilat in holistic support and affirming her at every turn: Yes, I have time to talk to you. Yes, you can pursue opportunities that don't directly relate to your thesis. Yes, you can succeed as a parent and a scientist. Yes, you can challenge the accepted wisdom.

Dr. Schimmenti, Department of Clinical Genomics at Mayo Clinic in Minnesota, views mentorship as an "incredible honor" and a chance to set students up for success. That involves helping them achieve concrete goals like publishing papers and submitting successful grant applications. But she says it's also about solidifying their professional identity.

"It's helping them to really see themselves as a scientist," she says. "It's helping them to think about what they can do with their life, how they can use science to make the world a better place."

Dr. Ekker is now a professor of pediatrics and associate dean of innovation and entrepreneurship at Dell Medical School, part of the University of Texas Medical Center. He also played a pivotal role in

Lisa Schimmenti, M.D., conducts clinical research studies, as well as studies using zebrafish as a model for human hearing and vision.

helping Dr. Koleilat believe in her scientific abilities — and encouraged her not to set limits on them.

"Steve thinks anything is possible. He was always the guy saying, 'Why not? Why can't we do this? What's stopping us?'" Dr. Koleilat says. "It made me think in every aspect of my work: Why can't we do this?"

With such strong support from her mentors, Dr. Koleilat quickly adopted this can-do mindset, writing a thesis that explored an entirely new type of treatment for genetic hearing loss. Today, she's an assistant professor of molecular and medical genetics at the Oregon Health and Science University (OHSU) School of Medicine. Her work is still pushing the bounds of medical knowledge; today, she's aiming to improve genetic testing technologies for inherited disorders and cancer.

WHY NOT?

During her time at Mayo Clinic, Dr. Koleilat worked in Dr. Ekker and Dr. Schimmenti's zebrafish labs, focused on finding pharmaceutical treatments using the zebrafish model for Usher syndrome type 1. The genetic disorder is marked by profound hearing loss or deafness at birth, severe balance problems that delay sitting and walking, and

"They believed in me. They made me feel that if there was any goal I wanted to achieve, I could do it. ***They made me feel like the sky was the limit.***"

– Alaa Koleilat, Ph.D.

progressive vision loss. The only available treatment for this type of hearing loss is cochlear implants.

Both mentors helped her keep patients at the center of her project. Dr. Schimmenti frequently sees patients with Usher syndrome, insight which gave Dr. Koleilat's project "a foot in the clinic," Dr. Koleilat says. And though Dr. Ekker is not a clinician, he had a similar emphasis on patient benefit.

"He had a mentality that if we discover something in the lab and it doesn't make it to patients — so what?" Dr. Koleilat says. "He had that constant drive of, 'Let's get this into the clinic.'"

Dr. Ekker also helped Dr. Koleilat witness the experience of patients with hearing loss firsthand by suggesting she do a clinical rotation in otolaryngology. Dr. Koleilat asked, "Can we do that?"

Dr. Ekker's answer was typical: Why not?

Although an unusual move for a first year Ph.D. student, Dr. Ekker realized that a clinical rotation could allow Dr. Koleilat to network, provide a clinical perspective to her research and identify gaps in care that she could try to address.

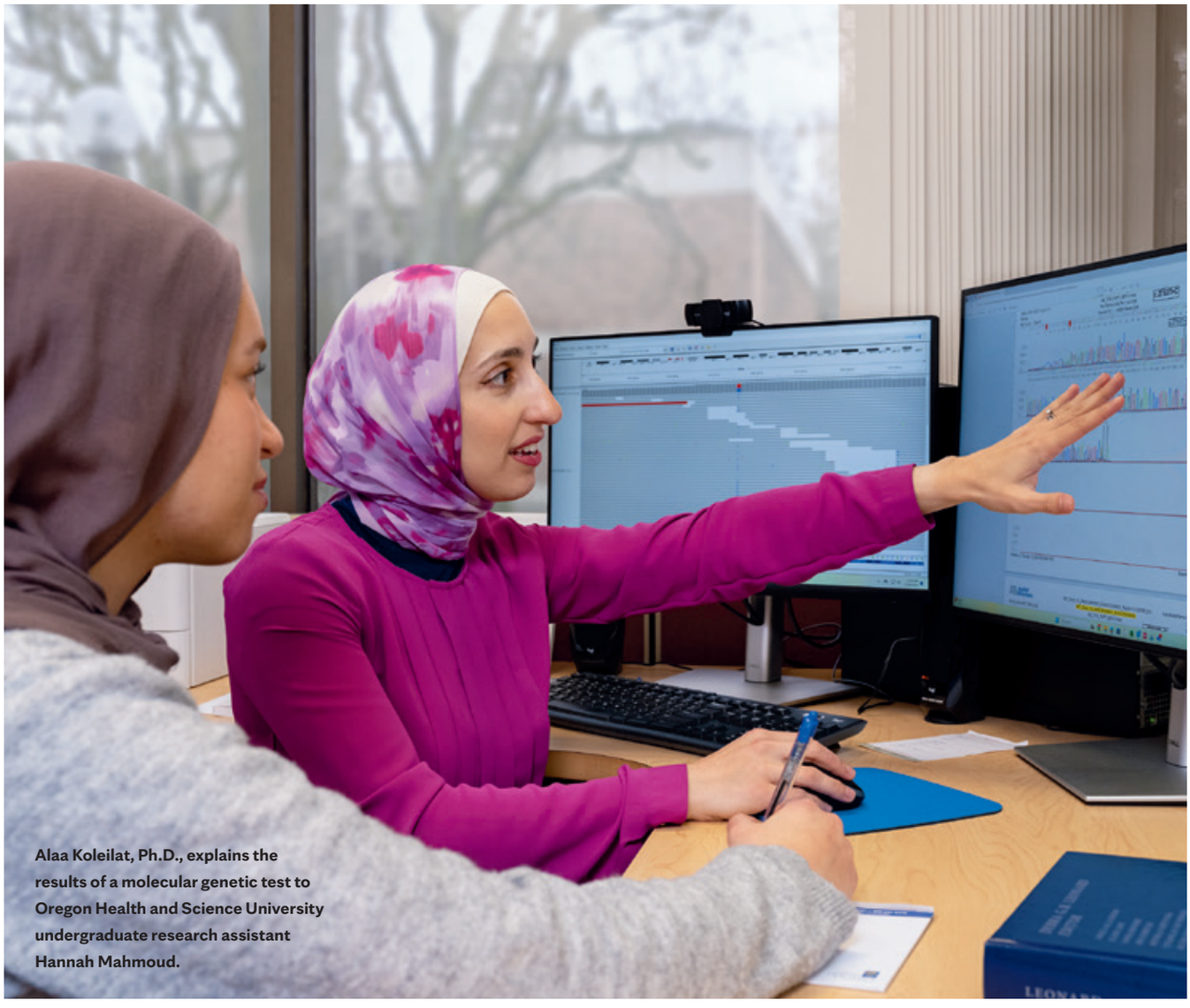
Dr. Ekker's instinct was correct. Through that otolaryngology rotation, Dr. Koleilat ended up meeting then-Mayo Clinic audiologist **Gayla Poling, Ph.D.** (AUDI '15). The pair designed, validated and tested a unique tablet-based hearing assessment tool (known as **GoAudio**) designed to broaden access to hearing testing. Dr. Poling, who now works at the National Institute on Deafness and Other Communication Disorders, ended up being a close mentor, says Dr. Koleilat.

"Lisa and Steve see everything as an opportunity," Dr. Koleilat says. "Other mentors are very focused on, 'What are the immediate outcomes, the tangibles, the paper?' They saw training as holistic."

TAKING TIME

At the time, Dr. Ekker was the dean of Mayo Clinic Graduate School of Biomedical Sciences, Dr. Schimmenti was chair of the Department of

Stephen Ekker, Ph.D., former dean of Mayo Clinic Graduate School of Biomedical Sciences



Alaa Koleilat, Ph.D., explains the results of a molecular genetic test to Oregon Health and Science University undergraduate research assistant Hannah Mahmoud.

Clinical Genomics, and both had busy labs. But they always made time for Dr. Koleilat, an example she now follows with her own mentees.

"Anytime someone walks into my office, I step away from my computer and I give them my full attention. That's how you feel like this person cares about what you have to say," Dr. Koleilat says. "Lisa and Steve are far busier than I am. So I tell myself, 'If they can do it, I can definitely do it.'"

Dr. Schimmenti would patiently explain or draw out concepts she didn't understand, Dr. Koleilat says — and crucially, didn't make her feel deficient for not knowing the answers.

"She made me feel like we were learning it together sometimes, and that made me comfortable to ask questions and throw out ideas," says Dr. Koleilat. "I think that actually helps the research process, because you're more innovative when you can throw out ideas and not feel any judgment about it."

That's an important dynamic for Dr. Schimmenti, who believes that listening to your mentee can improve your science.

"A lot of times mentees don't make any assumptions. As a career scientist, sometimes you make some assumptions and may not even realize it, just thinking, 'Oh, everybody in the literature says that.' And then you realize 'Oh, maybe the literature's not right,'" she says. "It's better for science and it's better for me because it allows me to take a step back and really try to see the world through their eyes — and then we find something new."

PAYING IT FORWARD

When Dr. Koleilat had her first child during her Ph.D., she experienced a new level of wholehearted support from Drs. Ekker and Schimmenti. Before she left for maternity leave, Dr. Koleilat met with her mentors to make sure everything was set up to continue while she was away.

"Steve said, 'The baby blues are real. Take care of yourself.' Lisa

told me, 'After you have your kid, we understand, your family will come first.' They said, 'Come back when you're ready. Whatever that looks like, even if it's a few days a week.' They made me feel like I could do it with no judgment and with support," Dr. Koleilat says. "I thought to myself, 'Wow, I really have hit (mentorship) gold.'"

It's a joy to support mentees through their professional and personal journeys, Dr. Schimmenti says.

"You get to watch people succeed," she says. "I'm still hearing from students that were in my lab 20 years ago and hearing how they're doing. And they've got labs and are doing cool research and they have families and kids and dogs. It's kind of like having more kids myself — I get to watch them grow up.

"And then the fun thing is that they pay it forward. They help the next generation."

Dr. Koleilat is passionate about mentorship in her current role at OHSU, but she started paying it forward during her time at Mayo. She started a mentorship program within the Department of Laboratory Medicine and Pathology for lab technicians, with a focus on underrepresented minorities. The project, Dr. Koleilat says, was "all inspired because I benefited so much from mentorship."

"I thought, 'I wish everybody could have this.' How many people need that extra push to achieve their goal but haven't been able to get a mentor to help them?" she says. "You can work hard all you want, but then to have someone put you up for opportunities or advocate for you — those things are important as you move up in your career." •

Lisa Schimmenti, M.D., and Alaa Koleilat, Ph.D., celebrating Dr. Koleilat's master's degree graduation from the University of Minnesota. Dr. Schimmenti, then on the university's faculty, was Dr. Koleilat's mentor before Dr. Koleilat came to Mayo Clinic.

Need a mentor?

Interested in finding a Mayo Clinic alumni mentor? If so, visit the Mayo Clinic Alumni Association (MCAA) website and click "Find a Mentor" under the "Resources" tab or follow the QR code above. This service is open to research and clinical professionals at any stage of their career.

Want to be a mentor?

If you've benefited from an impactful mentor and are looking for a way to pay it forward, you can also sign up to be a mentor on the MCAA website. Click "Be a Mentor" under the "Resources" tab or follow the QR code above.

Mayo Clinic Update

Timucin Taner, M.D., Ph.D., chair of the Division of Transplantation Surgery at Mayo Clinic in Minnesota (at right), performs a surgical operation with Patrick Starlinger, M.D., Ph.D., Division of Hepatobiliary and Pancreas Surgery at Mayo Clinic in Minnesota.

Mayo Clinic performs its first paired living liver transplants

In 2024, surgeons performed Mayo Clinic's first paired living liver donation transplants, a significant first step in helping more people with liver failure get a lifesaving transplant.

At any given time, there are approximately 10,000 people on the waiting list for a liver transplant in the U.S. Approximately 20% of people on the list will die waiting for a transplant. Living liver transplant offers another option, but only 6% of liver transplants performed in 2023 came from living donors, according to the Organ Procurement and Transplantation Network.

People can donate up to 70% of their liver because the liver has the unique ability to regenerate itself within a month. While paired living donation is commonly used for kidney transplants, it is relatively rare for liver transplants.

In paired donation, potential donors and their recipients aren't the best match for a transplant. Donors and recipients are then matched with other donors and recipients, creating a so-called "liver chain." Only a handful of transplant centers in the U.S. offer paired liver donation because it is a major logistical undertaking, requiring a large healthcare team of nurse coordinators, physicians, social workers and others who can match patients.

In the case of Mayo Clinic's first paired liver donation, altruistic donor Michael Broeker, M.D., agreed to give a portion of his liver to a stranger, helping to kick-start the swap. He had previously donated a kidney and wanted to do more.

Timucin Taner, M.D., Ph.D. (S '10, TRNS '12), chair of the Division of Transplantation Surgery at Mayo Clinic in Minnesota, led the team that completed the clinic's first paired liver donation transplant. He expects that Mayo Clinic will do more paired liver donations in the future and encourages people who are healthy and between the ages of 18 to 60 to consider becoming a living liver donor.

"The biggest misconception about living donation is sometimes people think that they won't be able to have a normal life after the donation, which is wrong," Dr. Taner says. "It is a big operation, and it is important for patients to understand that. But once it is over, the liver regenerates to its full size, and the vast majority of people don't have long-term consequences after donation."

Mayo Clinic Platform_Accelerate to lead program for Japanese health tech companies

Mayo Clinic Platform_ Accelerate has announced a strategic agreement with the Japan External Trade Organization (JETRO) to implement a two-phase program aimed at enhancing U.S. healthcare and business immersion opportunities for Japanese health technology companies.

In the first phase, 16 Japanese companies will gain insights through an educational immersion program led by Mayo Clinic Platform_ Accelerate that aims to provide firsthand experience in observing how healthcare professionals use or would benefit from artificial intelligence (AI) in their clinical practices. In the second phase, up to five companies will be selected for onboarding into Mayo Clinic Platform_Accelerate.

Using Mayo Clinic Platform's global, de-identified data network, Mayo Clinic Platform_Accelerate helps health technology startups focus on validation and clinical readiness of their AI-driven solutions in line with healthcare industry standards. The program provides participants access to Mayo Clinic experts in regulatory, clinical, technology and business domains.

"We are excited to welcome 16 innovative Japanese digital health companies into the first phase of this program. We look forward to supporting their journey and fostering their growth as they prepare to make a potentially significant impact on global healthcare," says Jamie Sundsbak, senior manager of the Accelerate program.

New insight into pancreatitis organ damage

Researchers at Mayo Clinic have discovered how high levels of triglycerides can rapidly damage organs during acute pancreatitis. They discovered that circulating triglycerides swiftly break down into fatty acids that can damage organs. Blocking this breakdown prevented such damage from occurring. The findings, published in the Journal of Clinical Investigation, open a new therapeutic avenue for treating pancreatitis by halting the breakdown of triglycerides.

Vijay Singh, M.B.B.S., M.D.

"This discovery not only provides a deeper understanding of the mechanisms behind triglyceride-induced organ damage in pancreatitis but also offers a promising strategy to improve patient outcomes," says senior author **Vijay Singh, M.B.B.S., M.D.** (I '05, GI '08), Division of Gastroenterology and Hepatology at Mayo Clinic in Arizona.

An estimated 30% of patients with acute pancreatitis have a form of the disease marked by high levels of triglycerides. Patients with hypertriglyceridemia-associated acute pancreatitis have a higher risk of persistent organ failure and severe pancreatitis, which often requires life support, prolongs hospitalization and increases mortality rates. Despite these severe outcomes, the mechanisms driving this form of acute pancreatitis have remained unclear until now.

In this study, the researchers analyzed triglyceride and fatty acid levels in blood samples from 269 patients with acute pancreatitis. They found that patients with very high triglycerides had more severe disease and higher levels of fatty acids.

In addition, they did experiments in preclinical models to see how metabolizing triglycerides into fatty acids affected organ health. In animals, this process led to organ failure, which could be prevented by blocking lipase, an enzyme that plays a crucial role in triglyceride metabolism.

The finding could inform new ways to manage triglyceride elevation during pancreatitis. Current treatments, such as the use of the blood thinner heparin to reduce triglycerides, have shown minimal benefit in reducing organ damage or the severity of pancreatitis. Mayo Clinic researchers, led by Dr. Singh, are currently developing alternative therapies for acute pancreatitis that block the breakdown of triglycerides.

Vijay Singh, M.B.B.S., M.D. (center), pictured in 2019 with Biswajit Khatua, Ph.D. (left), and Cristiane de Oliveira, Ph.D.

Distinguished Educator Awards, Outstanding Emerging Educator Awards honor faculty members

DISTINGUISHED EDUCATOR AWARDS

These awards recognize Mayo Clinic faculty who have significantly contributed to education excellence throughout their career; demonstrated leadership in education, education research or administration; have been recognized or honored by students or faculty; have shown a commitment to diversity; have created new ways of teaching or applied innovative techniques that foster the educational process; have contributed to the body of knowledge and methodology in medical education; and have actively mentored education faculty. The 2024 award winners are:

ARIZONA

John Fryer, Ph.D. (NSCI '11)
Department of Neuroscience

FLORIDA

Nancy Dawson, M.D. (I '03, ADGM '04)
Division of Hospital Internal Medicine

MINNESOTA

Denise Dupras, M.D., Ph.D. (MDPH '89, PHAR '89, I '92, ADGM '93)
Division of Community Internal Medicine, Geriatrics and Palliative Care

MINNESOTA

Michael Silber, M.B., Ch.B. (N '92)
Division of Sleep Neurology

OUTSTANDING EMERGING EDUCATOR AWARDS

These awards recognize faculty members who have demonstrated exceptional leadership, innovation and commitment to biomedical education early in their careers. The awards recognize physicians, scientists and allied health staff who have served in an education role for 10 years or less at Mayo Clinic. The 2024 award winners are:

ARIZONA

Natalie Strand, M.D. (MED '05, TY '06, PAIN '10)
Department of Anesthesiology and Perioperative Medicine

FLORIDA

Abdallah El Sabbagh, M.D. (CV '17, CVIC '18, CVHD '19)
Department of Cardiovascular Medicine

MINNESOTA

Kevin Koo, M.D. (U '20)
Department of Urology

MINNESOTA

Dare Olatoye, M.D. (ANES '18, PAIN '19)
Division of Pain Medicine

MINNESOTA

Julio Sartori Valinotti, M.D. (I1 '10, I '12, DERM '15, DPTH '16)
Division of Clinical Dermatology

2024 Mayo Clinic Distinguished Inventor Award recognizes Svetomir Markovic, M.D., Ph.D.

Svetomir Markovic, M.D., Ph.D. (I '96, HEMO '99), Division of Medical Oncology at Mayo Clinic in Minnesota, has been honored with the 2024 Mayo Clinic Distinguished Inventor Award.

This award recognizes a member of the Mayo Clinic voting staff whose career demonstrates great distinction in innovative and significant contributions to the betterment of human health through the invention of new healthcare solutions.

Dr. Markovic, a consultant in the Departments of Oncology and Immunology, is a professor of medicine and oncology and the Charles F. Mathy Professor of Melanoma Research. He is chair of the Rare Cancer Disease Group within the Mayo Clinic Comprehensive Cancer Center.

His primary area of focus is on the development of more effective and less toxic therapies for patients with advanced cancers. His work involves the development and clinical testing of nanoparticles, immune-boosting agents, novel agents that reconstitute immunity in patients with cancer, and combination therapy directed at enhancing antitumor immune responses.

Svetomir Markovic, M.D., Ph.D.

Dr. Markovic holds numerous awards and is a founding member of Mayo Clinic's melanoma program. He has taught or made significant contributions to the development of nearly 100 academic courses, mentored numerous physicians and researchers, and has been involved in hundreds of inventions, commercialized technologies, licenses and more.

Louis V. Gerstner Jr. family donation establishes Mayo Clinic AI translation program

A $25 million gift from the Louis V. Gerstner Jr. family has established the Gerstner Scholars Program in AI Translation at Mayo Clinic. Through this program, junior and early-career clinicians and clinician investigators will collaborate with leading experts in artificial intelligence (AI), data science and informatics to drive breakthrough cures for patients.

Mayo Clinic established Mayo Clinic Platform in part to advance AI innovations globally and ensure these solutions reach patients everywhere. Supported by the world's largest privacy-protected global dataset, these solutions focus on enhancing early disease detection, improving treatment accuracy and supporting diagnostics. Mayo Clinic is a leader in responsible and ethical AI and is committed to patient-centric solutions, with rigorous safety, regulatory and privacy measures, including physician oversight of all patient care solutions.

The Gerstner Scholars Program will accelerate these advancements by providing critical funding and dedicated time for clinicians to pursue high-impact AI projects across Mayo Clinic and ensure more AI-powered solutions are available to patients.

"We are deeply grateful to Lou and Robin Gerstner for their long-standing friendship and support," says **Gianrico Farrugia, M.D.** (I '91, GI '94), Mayo Clinic's president and CEO. "Lou's remarkable generosity over many years has been instrumental in pushing the boundaries of innovation, allowing us to deliver the best care to our patients. This gift further empowers our clinicians to lead practice-changing advancements in healthcare through the strategic and ethical application of AI."

Louis V. Gerstner Jr. and Robin Gerstner

Mayo Clinic awards investigators across campuses

DISTINGUISHED MAYO CLINIC INVESTIGATOR AWARDS

These awards recognize individuals whose research careers demonstrate evidence of great distinction, highly distinguished scholarship, creative achievement, and excellence in education and administrative responsibilities. The 2024 recipients are:

Amir Lerman, M.D. (I '89, CV '94), Division of Ischemic Heart Disease and Critical Care at Mayo Clinic in Minnesota, has had a substantial impact on the understanding, diagnosis and treatment of coronary atherosclerosis and microvascular function and has been a pioneer in cardiovascular and vascular disease research. Dr. Lerman is a consultant, clinician investigator and a Barbara Woodward Lips Professor. He has led several centers and departments, including the Department of Cardiovascular Medicine and the Center for Coronary Physiology and Imaging. He has a long history of funding from the National Institutes of Health, including grants from the National Heart, Lung, and Blood Institute and the Aging Institute. He has been a member of the faculty of the National Heart, Lung, and Blood Institute Cardiovascular Training grant at Mayo Clinic for over 25 years. In addition to holding eight patents, Dr. Lerman has an extensive publication record of over 870 manuscripts and has been recognized nationally and internationally for his groundbreaking work.

Lewis Roberts, M.B., Ch.B., Ph.D. (I '95, GI '98), Division of Gastroenterology and Hepatology at Mayo Clinic in Minnesota, has worked to understand the epidemiology and molecular pathogenesis of hepatobiliary cancers, including hepatocellular carcinoma, cholangiocarcinoma and gallbladder cancer. Dr. Roberts is a consultant, clinician investigator and professor of medicine. He is also the director of Research Longitudinal Experience at Mayo Clinic Alix School of Medicine and the Peter and Frances Georgeson Professor of Gastroenterology Cancer Research. Dr. Roberts' laboratory has made major, unique and widely acknowledged contributions to the understanding and treatment of hepatocellular carcinoma and cholangiocarcinoma through basic and patient-oriented studies that span the development, progression and metastasis of liver and biliary cancers. His humanitarian work, mentoring of underrepresented minorities and health disparities research have been recognized worldwide.

ARIZONA AND FLORIDA INVESTIGATORS OF THE YEAR

These awards honor researchers who have made significant advances that have strongly influenced their fields of research. The 2024 recipients are:

Mitesh Borad, M.D. (HEMO '08), Division of Hematology and Medical Oncology at Mayo Clinic in Arizona, has been honored as the Arizona Investigator of the Year. Dr. Borad is a professor of medicine and the Getz Family Research Professor. As a specialist in medical oncology, drug development and genomics, Dr. Borad has been extensively involved in developing new cancer therapeutic platforms that use genomic medicine and gene and virus therapies, with a focus on tumors of the liver, bile ducts and pancreas. In a groundbreaking effort initiated in 2010, along with his colleagues at Mayo Clinic and the Translational Genomics Research Institute, Dr. Borad accomplished one of the first successful implementations of whole genome and transcriptome sequencing in a clinical workflow, providing the push for routine clinical genomic profiling in the clinic only a decade and a half later.

Eduardo Chini, M.D., Ph.D. (NEPH '95, ANES '01), Department of Anesthesiology and Perioperative Medicine at Mayo Clinic in Florida, has been honored as the Florida Investigator of the Year. Dr. Chini is a professor of anesthesiology and pharmacology and the associate director of the Robert and Arlene Kogod Center on Aging. He is an expert in nicotinamide adenine dinucleotide (NAD) metabolism, which regulates cellular functions that include metabolism, the body's stress response, DNA repair and gene expression. Dr. Chini is globally recognized for his paradigm-shifting research on the role of the enzyme CD38 on NAD metabolism, recognized for its association with many diseases, including cancer, obesity, cardiovascular disease and diabetes. In addition, his research in obesity and polycystic kidney disease paved the way for potential new therapies for these diseases.

Mayo Clinic, Carnegie Mellon research implantable device for diabetes and obesity

Research teams from Mayo Clinic in Florida and Carnegie Mellon University will work on a federally funded project to accelerate the development and testing of a new device to treat patients with type 2 diabetes and obesity.

The bioelectrical device, known as Rx On-site Generation Using Electronics, or ROGUE, is being developed at Carnegie Mellon University. It will act as a "living pharmacy" using engineered cells capable of producing therapy to treat patients with both conditions. At the conclusion of device development, Mayo Clinic will conduct a first-in-human clinical trial to test the viability of ROGUE in humans for wider applicability.

The goal for the device is to produce regulated levels of glucagon-like peptide 1 (GLP-1)-based therapies, which can improve glucose levels in patients with diabetes and also promote weight loss.

The Advanced Research Projects Agency for Health made the award to Carnegie Mellon and the project's principal investigator, Itzhaq Cohen-Karni, Ph.D.

"There is great potential for ROGUE to expand access and decrease the costs of these medical therapies for at-risk patients who may not otherwise be able to use these agents for diabetes and obesity," says **Susan Samson, M.D., Ph.D.** (ENDO '20), chair of the Division of Endocrinology at Mayo Clinic in Florida. Dr. Samson is the clinical team lead and principal investigator of the project at Mayo.

ROGUE is an implanted device designed to make biological drugs more accessible to patients by reducing development and manufacturing costs while making it easier for patients to follow their treatment plan. The device, implanted during a minimally invasive outpatient procedure, will be designed to deliver continuous therapeutic peptides.

"Our team will be engaged throughout the project to provide expertise from the clinical side to ensure that the device is usable, safe and comfortable for patients down the line," says Mayo physician-scientist and co-principal investigator **Maria Daniela Hurtado Andrade, M.D., Ph.D.** (ENDO '19), Division of Endocrinology at Mayo Clinic in Florida.

A phase one clinical trial will be conducted at Mayo Clinic in Florida, the sole clinical site for testing the device in humans.

Susan Samson, M.D., Ph.D.

Maria Daniela Hurtado Andrade, M.D., Ph.D.

Obituaries

Andrew Engel, M.D. (I '61, N '62), died October 20, 2024.
Donald Klass, M.D. (NPSY '58), died December 15, 2024.
John W. Lee, M.D. (OR '63), died November 14, 2023.
Richard Lewallen, M.D. (OR '82), died November 28, 2024.
Dennis Manning, M.D. (CIM '80), died October 29, 2024.
John Mullen, M.D. (OR '76), died August 5, 2022.
Norbert Ott, M.D. (PHYS '71, I '73, NEPH '75), died October 18, 2024.

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ABOUT THE MAGAZINE
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ASK & ANSWER

What's one aspect of your education or training that you wish **every medical learner could experience**?

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