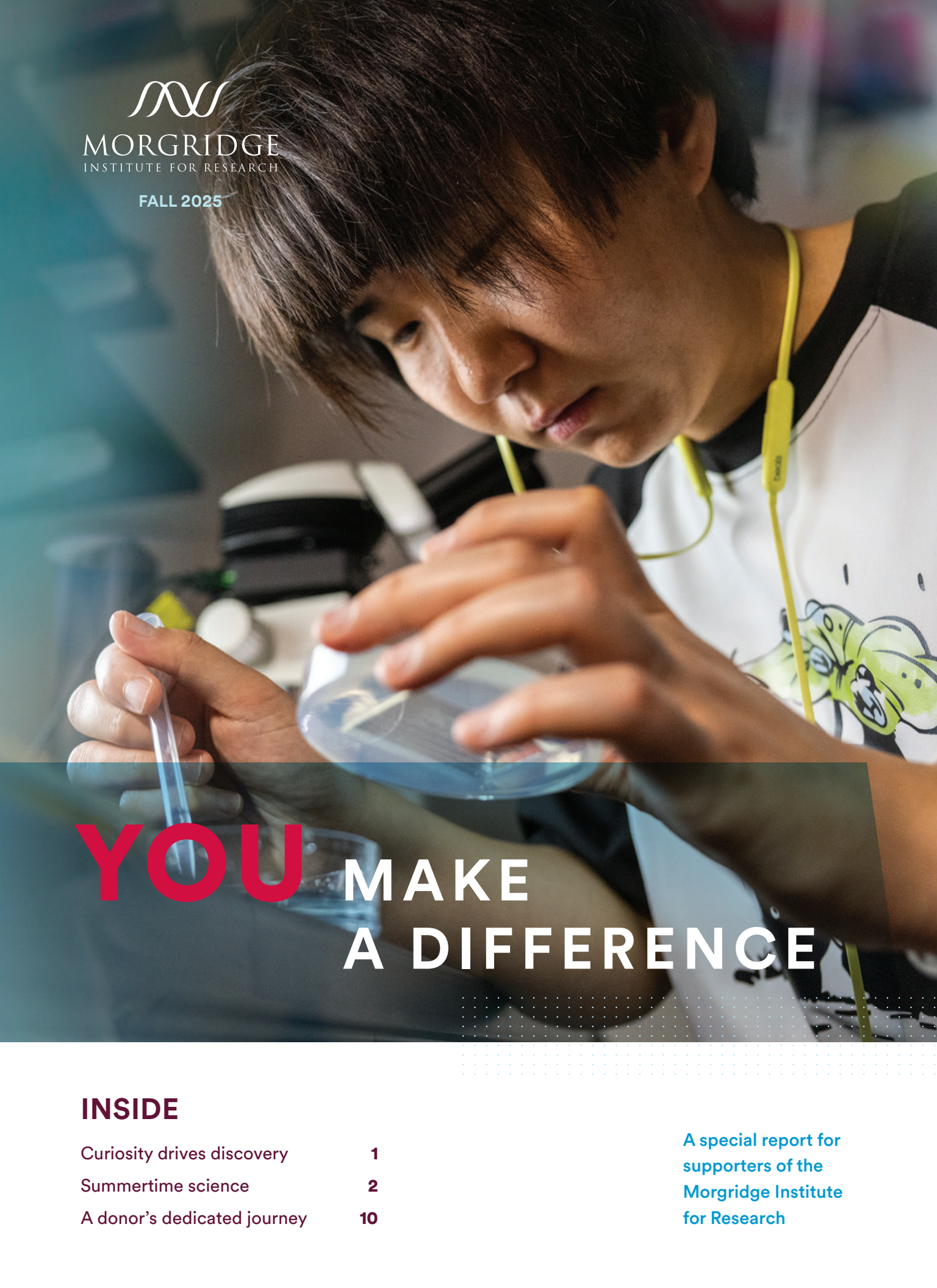




YOU MAKE A DIFFERENCE

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A special report for
supporters of the
Morgridge Institute
for Research



P.S. What's on the cover?
Poss Lab Scientist Jingwen
Shen performs a zebrafish
microinjection.

Great science begins with curious minds



BRAD'S UPDATE

Curiosity is the spark that drives us at the Morgridge Institute for Research. It is indispensable to our scientific work and woven into our culture.

The best researchers are driven by their innate curiosity. It is this kind of curiosity-driven research that has unfailingly brought the greatest benefits to society. If you tell a scientist to work on a project and they lack the interest, they're not going to apply the same energy and relentless refusal to give up on a problem if that project doesn't motivate them.

Tashia Morgridge gave us a parallel from her work in education: curiosity-driven learning. If you tell someone they have to learn about something, they learn it just enough to satisfy a test. But when people are confronted with something that interests them, their curiosity gets them off the couch to consult the world around them for answers.

Our culture and values at Morgridge help us attract and retain top researchers who possess that insatiable curiosity, deep passion, and unrelenting determination. I often say that if you took one of our scientists and dropped them onto a deserted island, they would find a way to do research.

We work hard to create an environment where scientists feel free to do research well, understand its practicality, and know that they have support from our entire community.

Morgridge scientists have the freedom to follow their curiosity, and the freedom to take what they've learned in new directions. Some call this the "freedom to fail." But that term misses the mark. I think the better terminology is the freedom to take advisable risks, to pursue experiments that will teach us what does and doesn't work.

This fall's update details some of the impressive products of that research. It also profiles Jim Neupert, whose father's struggle with heart disease and heart failure led him to endow a research chair at Morgridge.

Jim's compelling story is more evidence that our donors are central to our work, helping us to advance scientific discovery and build the future of medicine.

Because of the vision of our friends and supporters we can continue to nurture the curiosity that triggers high-impact advances in human health.

Thank you for sharing that vision with society through our work at Morgridge.

A handwritten signature in black ink that reads "Brad Schwartz". The signature is fluid and cursive, with a long, sweeping underline.

Brad Schwartz, M.D.

Carl Gulbrandsen Chair
Chief Executive Officer
Morgridge Institute for Research

Students envision their futures in STEM at Summer Science Camp

The Morgridge Institute's Summer Science Camps stoked young people's interest in science, technology, engineering and math (STEM) for the 19th straight year.

Over three weeklong sessions, 65 high school students from 13 Wisconsin school districts experienced science firsthand and got a taste of college life during their stay on UW–Madison's campus.

"My students and I had an incredible week of science and memory-making at this camp," says Darlington High School teacher Cristina Wolfe. "Every one of them came home excited about their futures in a different way than when we arrived, with both academic and life experiences that they were able to see themselves as people with futures in science."

During the week, students are immersed in an environment right alongside Morgridge Institute and UW researchers to explore the breadth and depth of careers in STEM fields. They studied fruit fly genetics and how they are used to understand human diseases, learned how engineers develop and build advanced microscopes, explored the potentials and the limitations of artificial intelligence tools in research, and more.

"I'm 16 and trying to figure out what I want to do [as an adult]. This camp is helping me venture into the science of medicine, and I'm excited to learn more," says one Woneewoc-Union Center student.

In addition to the science activities, students had the opportunity to get a glimpse of college life during their stay in the university dorms. During the week, they explored the university campus and received personalized advising from UW–Madison Admissions and Student Financial Aid.

THANK YOU

For opening the door to science education for Wisconsin high schoolers through our Summer Science Camps.

"My students made lasting memories, explored phenomenal opportunities not possible in our home district, and connected with students and scientists doing real-world research," says Scott Kelley, a teacher at Burlington High School. "Huge thanks to Morgridge for hosting us, we can't wait to return with more bright and eager minds!"





HTCondor marks 40 years powered by community

The high-throughput computing community — including scientists, researchers, developers, administrators and facilitators — gathered at UW–Madison this summer to celebrate 40 years of “The Condor Project,” now known as HTCondor.

The brainchild of Miron Livny, Morgridge’s lead investigator of research computing and director of the Center for High-Throughput Computing, HTCondor uses a vast network of computing resources to power research projects globally.

HTCondor distributes computing power by matching and prioritizing jobs with available machines depending on the needs of the user and their datasets. This workload management system streamlines the influx of large datasets and computational inquiries that are born from curiosity-driven research.

“We are powerful enablers of scientific discovery,” Livny says in his opening remarks to kick off Throughput Computing Week HTC25, an annual conference in June.

In addition to 40 years of HTCondor, this year’s conference recognized several other milestones for high-throughput computing resources developed at UW–Madison: 20 years of OSF, five years of PATH, and two years of Pelican.

This suite of technologies support hundreds of registered users and institutions studying genomics, astrophysics, climate systems, artificial intelligence, wildlife populations, and more. While the research areas are varied, they all share the same problem: massive amounts of scientific data requiring massive amounts of computing power.

Erik Wright, assistant professor of biomedical informatics at the University of Pittsburgh, leads

research in antibiotic resistance and is the number one user of these high-throughput computing resources in the field of biology.

“All of us across all these different domains are connected by the unfathomable scale of the things that we study,” he says in his keynote presentation at HTC25, leaning into the overarching theme of community during the conference. “This is a game changer for research.”

At the HTCondor celebration event, several speakers offered their reflections from the past 40 years. Each emphasized that the impact of the project has never come just from building the technologies, but from building a community.

The concept of community didn’t grow out of necessity but rather was planted at the very beginning in Livny’s PhD dissertation as a guiding principle for what was to come: a shared resource built from communities of computers *and* communities of people.

“It’s really the underpinning element of what I’m trying to do with my involvement at the Morgridge Institute, it’s the community and it’s the people,” Livny says.

As an independent research institute, Morgridge has a distinct approach to pursue “fearless science” — giving scientists the freedom to drive innovation and pursue high-risk, high-reward endeavors.

“The flexibility that Morgridge provides to Miron and his team is a fantastic example of how we can support scientific collaborations with UW–Madison and other partners,” says Morgridge CEO Brad Schwartz. “It’s a remarkable advance in their field. They have created a resource that they continue to improve upon, and in return, that facilitates the achievements others. This is the hallmark of a highly impactful breakthrough.”

Livny says the success of the past 40 years was built on relationships and trust — and this is just the beginning.



**WE CREATED AN
ECOSYSTEM OF
PEOPLE WHO DEPEND
ON US, THEIR SCIENCE
DEPENDS ON US.
THIS IS A NON-TRIVIAL
RESPONSIBILITY THAT
WE MUST CONTINUE
AND CARRY ON AS WE
CELEBRATE 50, 60, 70
YEARS, BECAUSE WE
ARE NOT DONE YET.**

MIRON LIVNY

THANK YOU

**Your generosity supports
innovations that benefit the
global scientific community.**



Morgridge spinoff founder awarded for entrepreneurship

Greg Piefer, founder of Morgridge spinoff company SHINE Technologies, is among three outstanding recipients of the 2025 Chancellor's Entrepreneurial Achievement Award.

The award recognizes UW–Madison innovators and alumni who have contributed to economic growth and the social good.

Piefer and SHINE are focused on a four-phase strategy to first commercialize near-term technologies on the way to generating fusion energy: industrial neutron testing to inspect aerospace and defense components; medical isotope production to address global shortages of materials used in cancer and cardiac care; nuclear waste recycling to reduce environmental and security risks; and ultimately, generating clean, abundant, and affordable fusion energy.



Jing Fan honored with endowed chair in metabolism research

Morgridge Investigator Jing Fan has received the new Arthur C. Nielsen, Jr. Chair in Metabolism, named after the market research pioneer and UW–Madison alumnus who developed the famous Nielsen television rating system. Nielsen was also a former president and trustee of the Wisconsin Alumni Research Foundation (WARF) Board of Trustees.

Fan and her team study how immune cell metabolism is reprogrammed in response to changes in cellular state and environments. This dynamic remodeling is an especially critical during immune cell activation and in response to cancer tumor environments.

Fan joins several other Morgridge PIs with chairs established by WARF emeritus trustees to honor the foundation's status as a founding partner of the institute, including Paul Ahlquist, director of the John W. and Jeanne M. Rowe Center for Research in Virology; Melissa Skala, Carol Skornicka Chair in Biomedical Imaging; Josh Coon, Thomas and Margaret Pyle Chair in Metabolism; and Phil Newmark, Burnell R. Roberts Chair in Regenerative Biology.

MORGRIDGE MILESTONES



Coon's expertise, mentorship win proteomics award

Josh Coon received the 2025 Donald F. Hunt Distinguished Contribution in Proteomics Award based on scientific achievement and mentorship within the field. The award recognizes a focused or singular achievement in the field of proteomics.

Coon holds the Thomas and Margaret Pyle Chair at Morgridge and is a professor of chemistry and biomolecular chemistry at the University of Wisconsin–Madison. His program specializes in developing and applying novel chemical instrumentation and molecular analysis methodologies.



Dahlberg recognized for innovation

James Dahlberg, Morgridge trustee and former interim chief executive officer, was named one of the Bayh-Dole Coalition's 2025 Faces of American Innovation for his achievements.

The coalition's annual report honors a select group of researchers, entrepreneurs, and administrators whose groundbreaking work, made possible by the Bayh-Dole Act, has changed the lives of millions in the United States and abroad. Dahlberg, an emeritus professor of biomolecular chemistry and co-founder of Third Wave Technologies, is widely known for his pioneering research in gene variation.

"Dr. Dahlberg's work has made a difference in the lives of millions of people affected by conditions like HPV, colon cancer and cystic fibrosis," says Joseph P. Allen, executive director of the Bayh-Dole Coalition. "His story underscores the importance of the Bayh-Dole Act, which enabled him to transform his research into a practical solution by launching his own startup."

IN MEMORIAM



Morgridge loses a scientific visionary

David Mangelsdorf, a visionary scientist at UT Southwestern in Dallas and one of our most recent additions to the Morgridge Scientific Advisory Board, died unexpectedly on Aug. 3 at the age of 67.

Known as “Davo” to friends and colleagues, Mangelsdorf studied cellular signaling pathways and his discoveries advanced our knowledge of diabetes, obesity, alcohol intoxication and other disorders.

“Davo was an amazing person and scientist,” says Morgridge CEO Brad Schwartz. “All of us who had the privilege to know him experienced his enthusiasm and optimism that filled the room wherever he was. He was the keynote speaker at our first scientific retreat and after participating in the entire retreat, he told us that he admired what the Morgridge Institute was doing and would like to help however he could.

“Hearing that from Davo, who was the personification of curiosity and the joy of being a scientist, was a gratifying endorsement of our efforts and resulted in his joining our SAB. It is hard to believe he’s gone, and I hope we will all think of him often.”

DONOR PROFILE

Jim Neupert's quest to fight heart disease has deep family roots

John Neupert built a blue-collar life for his family as a milkman, bread delivery driver, and in insurance sales. But a years-long battle with heart disease and heart failure beginning in the 1960s eventually took his life in 1973 at age 57.

At the time, treatment options were limited and, after a series of heart attacks, doctors considered what was then a new procedure: open heart bypass graft surgery. But Neupert's left ventricle was too damaged to proceed.

The determination with which he faced and survived multiple heart attacks left a deep and lasting impression on his son, Jim. His father's struggle and eventual death sparked his son to explore a career in finding solutions for heart disease and identify new treatments to help spare other families the tragedy the Neuperts endured.

"My dad knew he didn't have a chance to recover and have a normal life," says Jim, who grew up in

Monona, a small city bordering Madison. "He just hoped the doctors would learn something about his condition that would be helpful to others and to how treating heart disease might be advanced in the future."

John Neupert died while Jim and his brother were attending the University of Wisconsin–Madison as undergraduates.

John's wife, Caroline, went back to work to help make ends meet. The brothers worked their way through school, earning a combined five degrees. Jim earned a bachelor's in business and an MBA, while Richard earned a bachelor's, master's, and doctorate and went on to become a professor of film studies at the University of Georgia.

"We worked summers, weekends, and nights so we could pay for 100% of our tuition and cost of living," Jim says.

Jim applied his business expertise in the medical technology industry in marketing, sales, and business development at Edwards Labs, Eli Lilly's Medical Devices Division, and Guidant. Most of his work over some 30 years centered on implantable cardiovascular devices, such as implantable defibrillators and coronary stents.

In his role, Jim worked with top researchers, surgeons, interventional radiologists, and other specialists globally to improve patient outcomes. As a business development leader in the industry, he helped identify new technologies and anticipate what the future of cardiovascular treatment would look like.

THANK YOU

**Your gifts empower
scientists working on
life-changing biomedical
research.**

“I thought a lot about my about my dad’s journey in heart failure, and what his life and the life of my mom, my brother and I would have looked like if more advanced technology had been available 20 years earlier,” Neupert says. “I’m convinced he would have lived another five to 10 year and seen Richard and I graduate from the UW if more advanced solutions had been available in his era.”

Now retired in Atherton, Calif., Neupert continues his keen interest in advancing solutions for heart disease by supporting leading-edge research at the Morgridge. In 2024, Jim’s gift established the James W. Neupert Investigator in Regenerative Biology, to support the research of Ken Poss, Morgridge’s director of regenerative biology.

Poss investigates fundamental rules of organ regeneration in zebrafish, which raises exciting questions about whether similar capabilities could one day be unlocked in humans to repair heart and spinal cord damage.

“This is maybe one of those things out there in the future — that my dad was hoping would show up,” Jim says. “It’s part of his timeline. I look at it as part of his life, part of his journey.”

Jim is an enthusiastic supporter of scientific research and has also made gifts to support Morgridge’s Summer Science Camps, an immersive program for high school students and teachers in rural communities and from historically underrepresented groups in science.

He is also a passionate UW–Madison supporter. He served for 20 years on an advisory board for the School of Business MBA program and established a scholarship named for his mother, which supports underrepresented, low-income university students.

“The UW had a major impact on how my brother and I defined our futures,” says Jim. “It prepared us for the fields we entered after graduation.”

Being able to support research that could lead to new treatments to treat heart disease gives Jim a special sense of satisfaction.



WITH THIS RESEARCH CHAIR, MY DAD’S MEMORY AND HIS PERSONALITY TRAITS OF DETERMINATION AND OPTIMISM WILL BE WALKING THROUGH THE FRONT DOOR OF THE MORGRIDGE INSTITUTE FOR RESEARCH FOR MANY DECADES TO COME. I’M SURE HE’D BE HONORED TO BE REMEMBERED AS THESE SCIENTIFIC BREAKTHROUGHS ARE MADE.

JIM NEUPERT



RESEARCH UPDATES

THANK YOU

Your enthusiastic support
helps scientific curiosity and
discovery thrive.



Report advocates for a new communications model

In a new, polarized communications landscape, the science community needs to rethink how it engages society in scientific discovery, controversy, and policy.

A recent report says the science community should invite more public conversations, incorporate personal morals and values, create a level playing field for input, and embrace uncertainty.

The report was co-authored by Morgridge Investigator **Dietram Scheufele**. “Scientists do a good job of answering the technical questions they think are relevant, about the risks and the benefits, but these are not the questions communities are asking,” he says. “Communities are asking about what the science means for their personal identities, and what it means for their fears about a future that will look very different from what we have now.”

Journal: *Proceedings of the National Academies of Sciences*



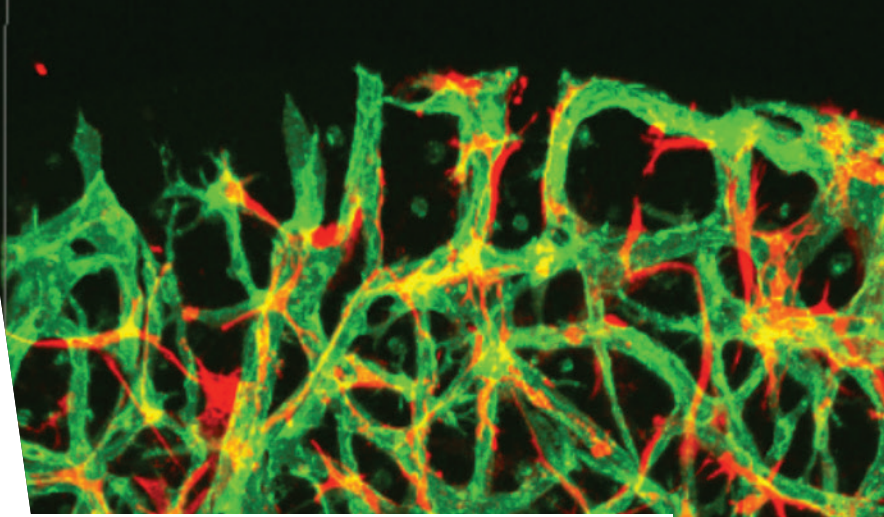
Immune cells powered by dynamic shifts in metabolism

Research in the **Jing Fan** Lab found that neutrophils, the first responders of the immune system, require dynamic flexibility through metabolic pathways that provide energy.

While most cells derive their energy from their mitochondria, often called the “powerhouse of the cell,” the study showed neutrophils don’t use their mitochondria to maintain energy levels. “As they differentiate, they switch energy production from mitochondria to other metabolic pathways, such as breaking down sugar,” says Jorgo Lika, an MD/PhD candidate, recent graduate of the Jing Fan Lab, and first author of the study.

The findings are part of the lab’s mission to explore fundamental questions to better understand the metabolic changes that impact human health.

Journal: *Frontiers in Immunology*



Environmental conditions alter dependence on a key metabolic enzyme

Morgridge researchers in the lab of Investigator **Jason Cantor** have shown that the nutrient-rich solution used to grow cells in a dish — known as growth medium — also plays a role in shaping cell behavior.

The common growth media used across scientific research were developed more than 70 years ago and support rapid cell growth but under conditions different from those cells may face in the human body. Cantor created a reagent called Human Plasma-Like Medium (HPLM), to better mimic human cellular growth conditions in a dish.

Researchers combined the powers of CRISPR gene editing and HPLM to understand why the relative importance of a specific gene for supporting cancer growth further depended on cell culture in HPLM versus conventional media.

The study, led by Kyle Flickinger, focused on the enzyme NADK, which plays a key role in reductive metabolism, by helping to mediate the production of NADPH, a coenzyme critical to a variety of cellular processes.

Given the crucial role that NADPH plays across an array of metabolism, NADK has received attention as a high-interest potential target for cancer therapy.



Journal: *Nature Metabolism*



Science drives a transcontinental path back to Madison

Pierre Gillotay's transatlantic journey to Madison began by coincidence seven years ago at the Memorial Union, just blocks away from the Morgridge Institute for Research.

Gillotay's first visit to Madison came in 2018, when he attended a conference on biomedical research using zebrafish. Between sessions, he'd sneak out to the Terrace periodically to watch World Cup soccer matches on a big-screen TV.

But even more captivating for Gillotay — then a doctoral student at Université Libre de Bruxelles in his native Belgium — was a presentation by a postdoctoral scholar in the Duke University laboratory of regenerative biology pioneer Ken Poss.

He was so fascinated by the presentation, which focused on using DNA from the fish to trigger cell proliferation in mice, that when he finished his PhD Gillotay contacted Poss to inquire about joining his Duke University lab.

”

THERE IS A WIDE RANGE OF WORK BEING DONE HERE THAT IS STIMULATING AS MUCH IN THE TECHNICAL REALM AS THE CONCEPTUAL ONE.

PIERRE GILLOTAY



“I was very stressed to contact him,” he recalls. “And I got a response about five minutes later. But it was an automated out-of-office message. That day was an emotional rollercoaster.”

But the two managed to connect and in 2022, Gillotay joined the Poss Lab. And when Poss last year accepted an offer to become director and James W. Neupert Investigator in Regenerative Biology at Morgridge, Gillotay completed the circle by moving to Madison to continue his research.

The Poss Lab studies the cellular and molecular mechanism of innate regeneration in model systems like zebrafish, known for their ability to regenerate injured tissues. It hopes to use those examples to improve the poor regenerative capacity of human tissues such as the heart, spinal cord, and limbs.

“My current project focuses on adult zebrafish and how their ability to regenerate tissues could affect spinal cord regeneration,” says Gillotay. “There is a proportion of the fish that do not show a perfect regenerative outcome and remain paralyzed. If we know what’s failing in those cases and can rescue it, maybe we could trigger a non-regenerative animal to get to the point of regeneration.”

There are few scientists conducting research along the same lines.

“That’s a good thing,” Gillotay says. “You have a little more freedom to explore more risky options. There’s not the constant pressure of ‘I need to be fast, otherwise I’m going to get scooped,’ because there are 100 others doing the same work.”

Gillotay arrived at Morgridge in the fall of 2024 but quickly sensed a scientific culture that encourages curiosity and collaboration.

“It is stimulating. It’s very chill and welcoming,” he says. “There is a wide range of work being done here that is stimulating as much in the technical realm as in the conceptual one.”

Gillotay grew up in Brussels, the son of two chemists — a father who works in a government lab studying the physics of high-atmosphere

chemical reactions and a mother who works at the university in the nuclear waste management department.

“We were always on the university campus growing up. It was a kind of playground,” he says. “I was never really pushed toward science, but that’s what we grew up surrounded with. My parents always gave us the freedom to do what we wanted to do.”

As a doctoral student, Gillotay credits his mentor, Sabine Costagliola, for deepening his scientific rigor and providing him an academic role model. His doctoral work involved using CRISPR to identify factors important in thyroid development and functional maturation in zebrafish.

“She was extremely talented at fostering people’s curiosity and independence,” he says. “She was extremely fair but still demanding. And she put a lot of effort into providing a working environment that people enjoyed.”

Gillotay is eyeing an academic future as a principal investigator.

“I was lucky enough to see the very encouraging aspects of what PI life can be through my graduate mentor. I want to give that chance I had to other people by opening a lab, and show that you can be humane, you can do good science, and still make people enjoy it,” he adds.

THANK YOU

Your support deepens the experience of early-career scientists, laying the groundwork for discovery.

What is curiosity-driven research?

Laying the foundation
for life-saving discoveries



Chances are 9 in 10 that when you reach into your medicine cabinet, you're encountering not just the power of modern medicine but of curiosity-driven research. Nearly every major biomedical breakthrough began with a fundamental question about life. How does this work? Why does this happen?

Curiosity-driven research is unique — and it's under threat. That's why we're bringing its defining features into sharper focus:

The long game

Curiosity-driven research doesn't promise quick results or profits. But it lays the foundation for discoveries that save lives. The median time from discovery to an approved therapy is more than three decades, according to Keith Yamamoto, former president of the American Academy for the Advancement of Science.

Consider this: More than 30 million Americans take statins to reduce their risk of cardiovascular disease. COVID-19 vaccines are estimated to have prevented over 14 million deaths. And 40 million MRIs are performed in the U.S. each year, helping to diagnose everything from brain tumors to torn knee joints.

These broad impacts trace back decades — and in some cases centuries — with one generation of scientists after another building on discoveries unearthed by curiosity-driven research.

Prepared minds favored by chance

Pursuing curiosity also means the path to innovation can be unpredictable, with technology advances emerging from seemingly unrelated work.

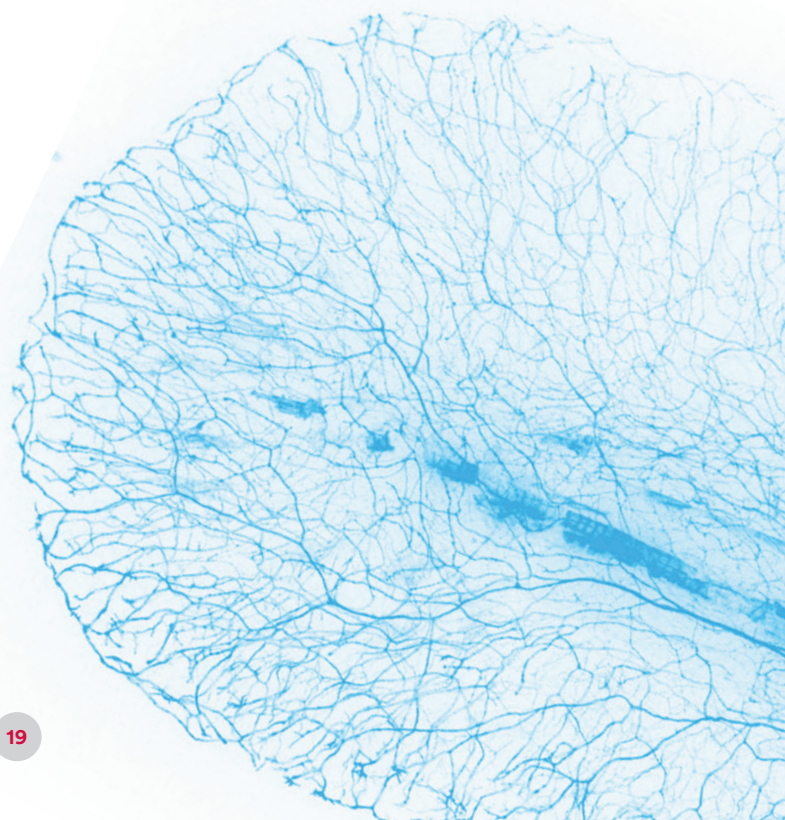
For example, the fluorescent proteins routinely used to visualize subcellular life began with a simple question decades prior about glowing jellyfish. The gene-editing tool CRISPR? Born

from two scientists' curiosity about bacterial immune systems. Researchers at Morgridge and around the world use now use CRISPR to do path-breaking science in model organisms — and to transform the treatment of cancer and genetic diseases.

Productive partnerships

Since World War II, the federal government has been one of the biggest funders of curiosity-driven science at research institutions across the country. This partnership has produced countless health advances, kept the world safe from once-common diseases, and has trained the scientific workforce needed to respond to emerging threats.

It has also generated profound economic growth. In Wisconsin alone, funding from the National Institutes of Health supports more than 6,700 jobs and \$1.38 billion in economic activity, according to United for Medical Research.



But it's not just the Fed. You play a critical role. The share of curiosity-driven research supported by philanthropic has grown steadily since the 60s — and is more important now than ever. Support from donors like you is essential to help provide the freedom and flexibility that scientists need to pursue transformational ideas.

Fearless Science at Morgridge

The Morgridge Institute's approach to curiosity-driven research is Fearless Science — a commitment to taking the risks that will advance new knowledge. This ethos is rooted in our origin story. Jamie Thomson's basic research into the embryology of non-human primates led to his pioneering work in stem cells, catalyzing the founding of the Morgridge Institute in 2006 and making Wisconsin a national leader in regenerative biology.

Now we are home to 20 investigators who are pursuing new frontiers in biomedicine and training the next generation of scientists. We are laying the groundwork for:

- ▶ **a new era of broad-spectrum antivirals that can thwart a wide range of viruses,**
- ▶ **new treatments for schistosomiasis, a grave tropical disorder that sickens more than 200 million people annually, and**
- ▶ **new technologies that are helping make cancer immunotherapy more effective for more patients.**

These and countless other advances are made possible by your support. Thank you!



WHY IT MATTERS

Without sustained support for curiosity-driven research, the pace of discovery slows, promising treatments are delayed, and talented researchers may leave the field. By investing in curiosity-driven research, you help build the foundation for the breakthroughs of tomorrow.

Our only limit is our curiosity.

Create a Legacy of Discovery

No matter your stage in life, it's never too early — or too late — to plan for your future.

Legacy gifts are a meaningful way to honor your life and make an enduring impact. You can help us improve human health through curiosity-driven research and develop the next generation of scientific leaders.

Through a legacy gift, you can support future *Fearless Scientists*, educators, and students. Your commitment to curiosity-driven research will long be remembered and serve as an inspiration to others.

**Contact Bill Swisher,
Chief Development Officer, today.
bswisher@morgridge.org
(608) 316-4364**

morgridge.org/give/legacy





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