

University of Wisconsin-Milwaukee Research Foundation

2022 ANNUAL REPORT

Foster Corporate Research Partnerships | Leverage Intellectual Property Expertise | Ignite UWM Startups





Chancellor's Welcome

Our UWM innovators continue to develop exciting inventions and creative works, even in turbulent times. The Research Foundation launched programs this past year that support Milwaukee startups, encourage industry-sponsored research collaboration and drive a high level of research excellence and talent development at UW-Milwaukee and in the community. In 2022, for a third consecutive time, we celebrated achieving the R1 highest research activity rating from the Carnegie Classification of Institutions of Higher Education. This places UWM among just 146 of nearly 4,000 institutions to receive this honor. Looking ahead, the UWMRF is working closely with UWM leaders to align its support of research with the university's 2030 action plan. I look forward to continued growth in our startup and innovation ecosystems in 2023, guided by the expertise and education of the UWMRF and the Lubar Entrepreneurship Center teams.

Mark A. Mone
Chancellor, University of Wisconsin-Milwaukee



Welcome from the UWM Research Foundation Board of Directors

In these dynamic times, the new UWM 2030 plan and vision serves as a vital roadmap and compass. The UWMRF is working to ensure that we can reach that destination. We have been identifying and doubling down on the most important services in the short-term while forming strategies on how to have an even bigger impact in the years to come. The team continues to deliver new and creative ways to enhance and grow research and innovation at UWM. I am excited by the Research Foundation's latest initiatives, and I invite you to reach out to the team and board of directors to discuss ways to partner and enhance these endeavors. Without the support of our generous donors and community partners, many of the stories detailed here would not be possible.

Mike Anderes
UWMRF Board Chair 2022

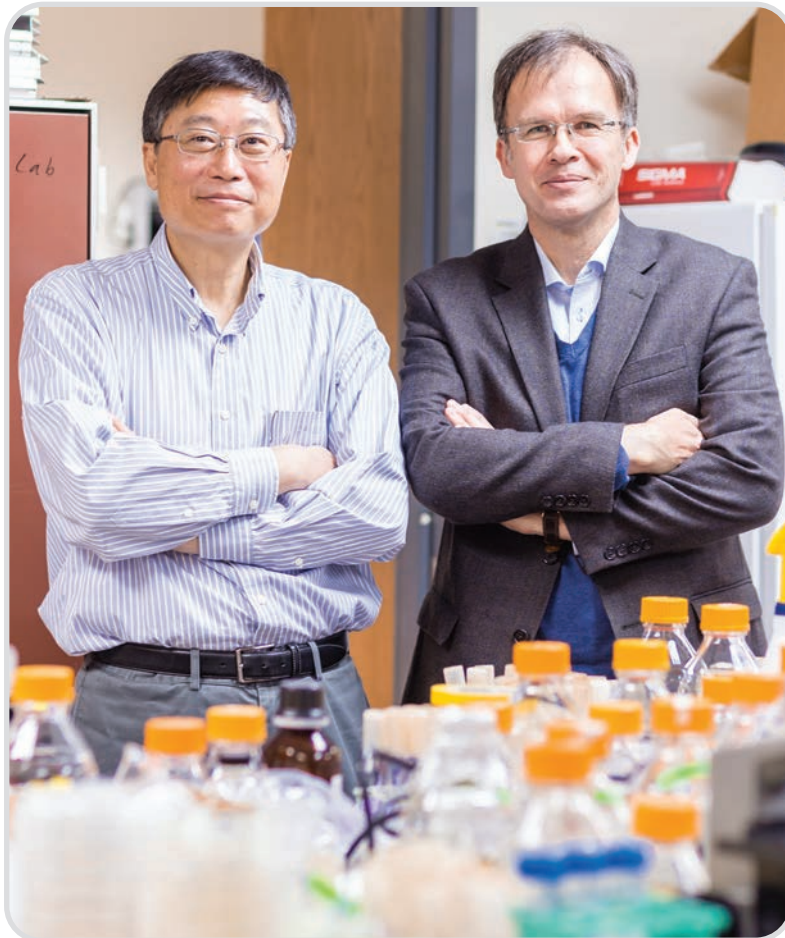
UWM's Tech Transfer Engine

UWMRF's mission is to cultivate and manage the university's intellectual property and the commercialization of research discoveries. This year, the foundation launched new initiatives to support and encourage startups and stimulate corporate partnerships.

22
UWM startups

51
License/option agreements

147
Issued patents



Bridge Grant 2022

The UWMRF Bridge Grant supports startups by UWM faculty, students or staff who have licensed intellectual property through the foundation. The Wisconsin Economic Development Commission kick-started this program with a \$200,000 matching grant last year. The UWMRF raised the additional funds with the help of individual donors, Bader Philanthropies and Clarios.

To date, \$300,000 has been awarded through grants to six startups. Since receiving Bridge Grants in 2021-22, these companies have gone on to obtain an additional \$6.8 million in grant and investment funding and have hired 11 new employees.

Ching Hong Yang (left, biological sciences) and his business partner, Daniel Burgin, are marketing a product through T3 Bioscience LLC that protects the health of fruit trees.

UWMRF Key Strategic Thrusts

Recommendations from UWM's 2030 Action Plan, a comprehensive set of goals that will shape UWM's future, touch nearly every aspect of campus life and operations, including becoming a more student-centric university, revising the curriculum, and increasing inclusion and diversity. As part of these priorities, the UWMRF has aligned its research goals with the plan and identified the following key strategic thrusts.



Foster Corporate Research Partnerships

In working with corporate partners, UWMRF strives for transparency and simplicity. New programs like Panther Partnering provide a multitude of benefits for research funding, talent development, economic development and the creation of better products.



Leverage Intellectual Property Expertise

The UWMRF is always available to support and advise the UWM Office of Corporate Relations, Office of Strategic Partnerships, Office of Research, and Office of Legal Affairs with aspects of intellectual property. This includes contract negotiation, company partnering, recruiting, or education of faculty, students and staff.



Ignite UWM Startups

The UWMRF continues to grow its offerings that support the launch and growth of UWM startups and early-stage innovators by working with the Lubar Entrepreneurship Center. The newest programs provide either expertise from seasoned veterans or funding to continue a team's progress.



Want to Do Business with Us? Be a Panther Partner

The UWMRF wants to make partnering transparent and minimize negotiation in order to focus on bringing new products to market. When a company is interested in conducting a research project with UWM faculty, it can lock in specific royalty rates for a flat fee on top of the costs of the research. Benefits include:

- Royalties start only once sales cumulatively reach \$20 million.
- Lower rates than those normally used for comparable deals for early-stage technologies.
- Companies with Wisconsin headquarters are offered an upfront fee that is half of that for external companies.

For more information, go to uwmrf.org/panther-partnering.

Need help finding a researcher?

Go to uwmrf.org/panther-partnering and click on the relevant categories to help you locate the right partner.

- **Energy & Sustainability Capabilities**
- **Infrastructure & Transportation**
- **Water & Environment**
- **Advanced Manufacturing**
- **Biomedical & Health**



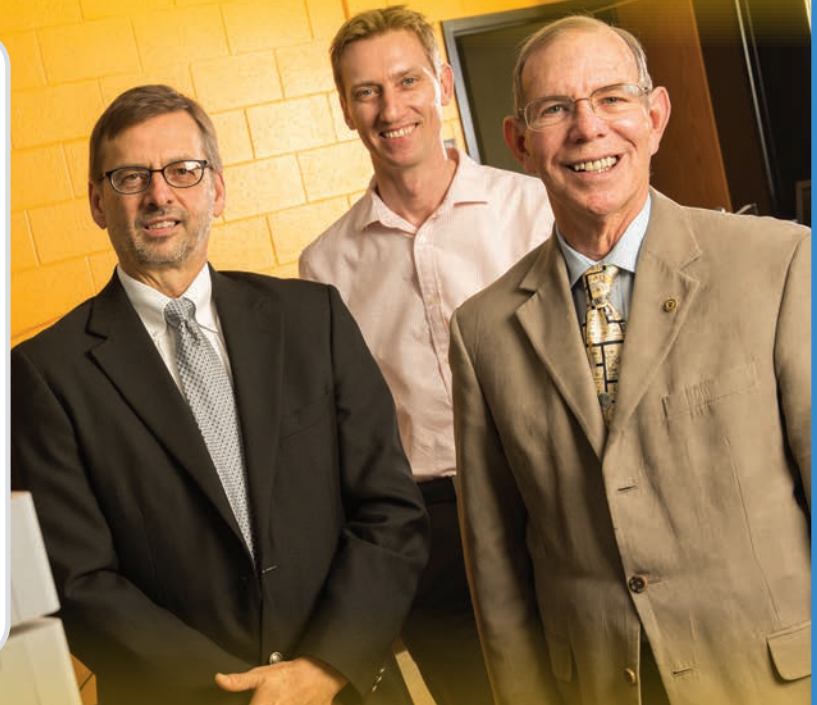
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Drug Development News

Damona Pharmaceuticals advancing drug to fight cognitive decline

The UWMRF and three other partner institutions have licensed patents of therapeutic compounds created by **James Cook's** laboratory (chemistry) for cognitive deficits and memory loss due to depression or aging. The startup, Damona Pharmaceuticals, raised \$5.5 million in 2022 to develop its lead compound in preparation for FDA trials. Animal studies have demonstrated that the compound specifically targets and activates impaired brain receptors, rapidly improving cognitive symptoms while repairing underlying brain disfunctions.



Pantherics Incorporated takes on skin disorders

The UWMRF has granted a second license to Pantherics Inc. to support the company's commercial drug development programs for inflammatory diseases related to dermatology and gastrointestinal disorders. Pantherics received a \$255,841 grant from the National Institutes of Health to turn its lead anti-inflammatory compound into an oral drug. **Alexander Arnold** (chemistry) and **Douglas Stafford** founded the company and are its lead inventors for the dermatology work.

Cancer treatment with fewer side effects

In 2020, **James Cook** co-founded Amlal Pharmaceuticals Inc. with the University of Cincinnati's Soma Sengupta and Daniel Krummel. The team is working to develop less toxic and more effective therapies for several cancer types, including melanoma, glioblastoma and lung cancer. The researchers have found that combining existing treatments that use radiation and immunotherapy with the team's lead drug improves results while reducing harmful side effects.



Licensing and Option Agreements

Licensing makes it possible for businesses, entrepreneurs and startups to develop UWM research ideas into products that create jobs and improve the quality of life for everyone.



Light solutions for cleaner aquaculture

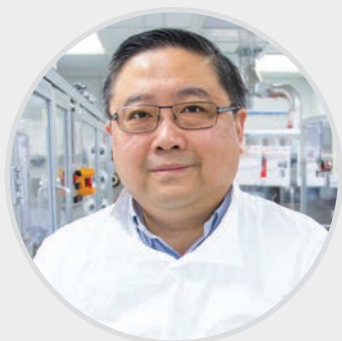
Oswaldo Sepulveda Villet (pictured, freshwater sciences) and **Marcia Silva** (freshwater sciences/engineering) teamed up with Amglo Kemlite Laboratories, a global manufacturer of specialty lamps, to test how effective high-intensity pulsed light is at cleaning water in recirculating aquaculture systems. The duo also has participated in the Milwaukee I-Corps program, and they were accepted into the NSF national I-Corps program for 2023.



*AkkeNeel Talsma (second from left)
and her lab members*

A new tool to improve maternal health

AkkeNeel Talsma's research (nursing) focuses on improving patient outcomes for surgery and childbirth. She is the founder and CEO of Freyja LLC, which creates software and web solutions to help hospitals improve mother/infant health outcomes during pregnancy and after delivery. She is now partnering with local clinicians and hospitals that can share data needed to develop a commercial version of her web app, MaternityMetrix.



Can recycling lithium ion batteries improve agriculture?

Deyang Qu (engineering) is leading an interdisciplinary team that is developing an economical and technologically sound method of recycling components of lithium-ion batteries. Besides reducing the waste stream, the work will help secure a domestic lithium supply chain and create a process for manufacturers to repurpose battery cathode materials to improve fertilizers used in agriculture.



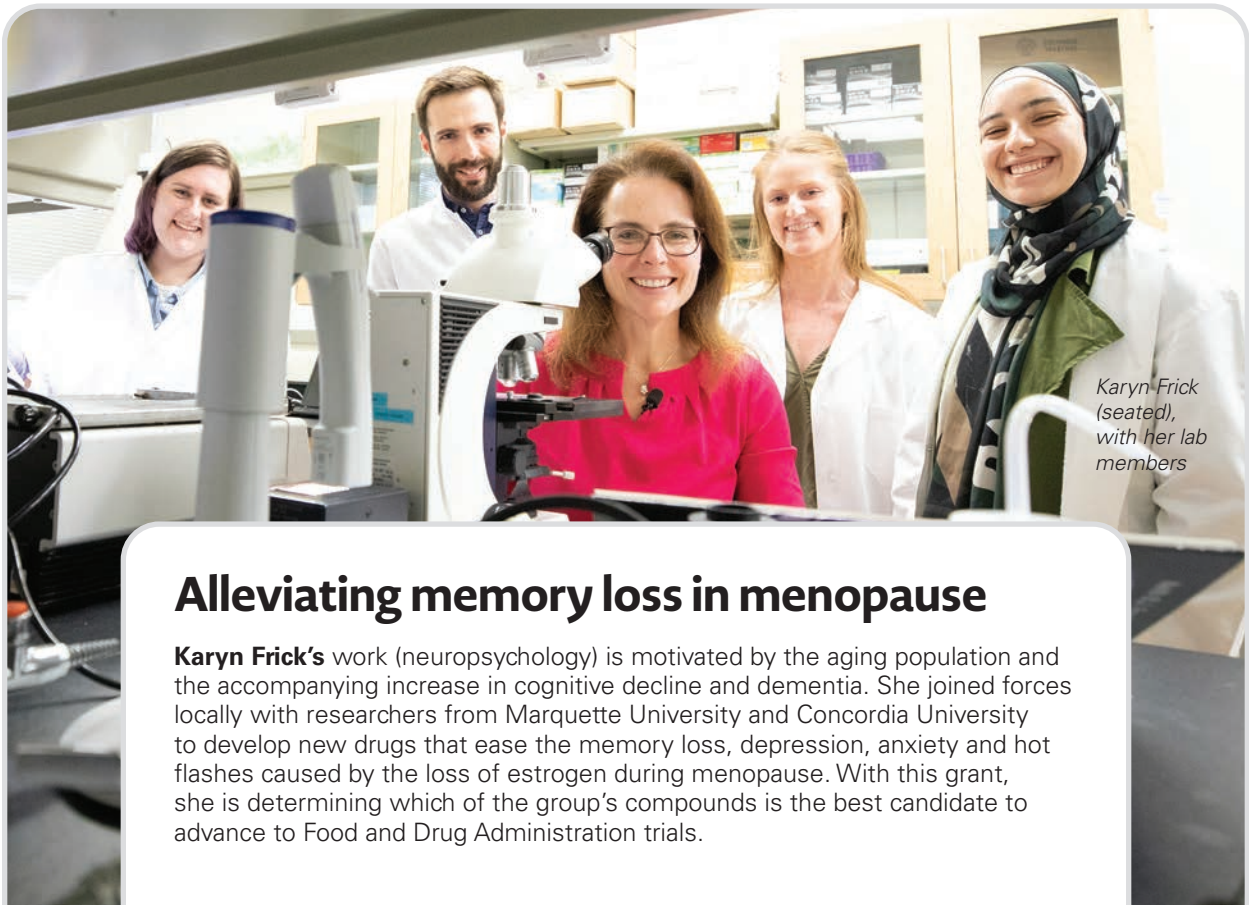
Catalyst Grant Program

This program supports early-stage ideas with commercial potential. In 2022, the UWMRF awarded its 15th round of grants, which were backed by the Lynde and Harry Bradley Foundation. Established in 2007, the program has been funded by several area companies and foundations, which helps UWM technologies attract further funding and licensing opportunities.

105
total grants awarded

\$5.58 mil.
total amount awarded

\$33.6 mil.
follow-on investment



*Karyn Frick
(seated),
with her lab
members*

Alleviating memory loss in menopause

Karyn Frick's work (neuropsychology) is motivated by the aging population and the accompanying increase in cognitive decline and dementia. She joined forces locally with researchers from Marquette University and Concordia University to develop new drugs that ease the memory loss, depression, anxiety and hot flashes caused by the loss of estrogen during menopause. With this grant, she is determining which of the group's compounds is the best candidate to advance to Food and Drug Administration trials.

A woman with dark hair, wearing a white lab coat over a blue and white striped shirt, stands in a laboratory. She has her arms crossed and is smiling. In the background, there is a black board with white anatomical diagrams of bones and joints. To the right, there is a blue wall with a white diagram of a bone structure. The overall scene is a professional laboratory environment.

An anti-cancer drug for bone healing

Priya Premnath's research (biomedical engineering) focuses on the biomechanics of bone growth, the creation of bone formation-mimicking biomaterials, and developing regenerative treatments for injury and disease. Using an aged mouse model, Premnath's research team is studying the use of a known compound for a new purpose: healing fractures and regenerating bones.



New Offerings for Startups

I-Corps mini grants

The UWMRF is offering additional support to teams participating in the Milwaukee I-Corps program, thanks to an Entrepreneurship Innovation Grant from the Wisconsin Economic Development Corporation. This new funding will provide access to our UWM ENGAGE mentors and the opportunity to apply for mini grants to cover expenses such as national I-Corps mentor stipends, consultant expertise or product experiments. This is crucial to maintaining the momentum created during the I-Corps program.

Understanding federal SBIR grants

Each year, the Federal Small Business Innovation Research (SBIR) program provides more than \$4 billion in funding for early-stage technological innovations with commercial potential in numerous industries. To help UWM researchers and entrepreneurs tap into these funds, the UWMRF offers monthly office hours, led by **Brian Walsh**, UWMRF's new senior technology commercialization manager. Walsh has previously counseled innovators and spent 15 years turning around and successfully operating a small business that he acquired.





The Lubar Entrepreneurship Center

During this full year back in person, the LEC has continued its workshops, pop-ups and innovation series that drive discussion around different aspects of entrepreneurship. It also has teamed up with various partners to stage new events. These are additions to core programs, such as the Startup Challenge and Innovation Corps, or I-Corp, which help budding businesspeople turn ideas into reality.

5,500
2022 student interactions

58
Community partners

52
2022 Startup Challenge teams



Program Highlights

Series such as Social Good Morning, Diverse Ideas, and Well Entrepreneur inspire innovation with guest speakers from the Milwaukee area who highlight their distinct journeys.

This fall, the LEC hosted one of its largest Well Entrepreneur events, “Well Being for the Innovative Mind: Leading with Curiosity and Compassion.” The conversation about creating mindful habits for personal and business enrichment featured **Susan Lubar** (pictured, left) and **Richard Davidson** (pictured, right). Davidson is founder and director of the Center for Healthy Minds at UW-Madison, where he researches emotions, meditation and the brain. Lubar heads Growing Minds, which brings mindful practices to educational and business settings.

Startup Challenge

It's been 11 years since UWM launched the Startup Challenge. This student-facing program attracted more than 50 teams for the Fall 2022 semester. Starting this year, the Startup Challenge is now open to community members as well as students. Startup Challenge and the LEC's weekly Brown Bag lunches invite participants to boost their interest in entrepreneurship by talking about their business ideas with LEC team members and other startup participants.



PANTHER PITCH



Partnerships

The LEC partners with many campus and community organizations, and the list is growing. An outcome of these partnerships is “Panther Pitch,” formerly known as “Pitch It At Light Speed,” a competition hosted by the LEC and Black Student Cultural Center. Students pitched a business idea for a chance to win entrepreneurial resources and a cash prize while UWM alumni served as judges.

A New Business Incubator

The Business Innovation Incubator is a brand-new collaborative growth accelerator formed through a partnership between UWM's Lubar College of Business and the LEC. Staff members at the incubator are helping 10 startups acquire skills to move their ventures forward this year. Incubator director Matthew Friedel says the 11-month program is intended for startups that are off the ground but not fully mature. He hopes it will become an annual offering.





The Lubar Entrepreneurship Center Team

It takes a village of creative minds to build an ecosystem. And the LEC has it – from innovation interns and graduate university fellows to teaching fellows and entrepreneurs-in-residence.

The LEC has a new program manager. Meet **Tiera Trammell**, who received her bachelor's degree in journalism, advertising & media studies from UWM in 2018. She has participated in LEC programs, including the Startup Challenge, since 2020. Now, Trammell assists students involved in LEC programming while using her background in community building to strengthen the center's relationship with campus partners.



Scholarships

The LEC awarded a total of \$48,000 to 15 students from diverse backgrounds for the 2022-2023 academic year. These students have shown skills in innovation, entrepreneurship and creative thinking. These scholarships are supported by the Patricia H Weisberg Innovation Scholarship and the American Family Dream Scholarship. Debuting in fall 2023, the Hoque Innovation Scholarship will be awarded to students who demonstrate an interest in science and entrepreneurship.



“I chose UWM because of its accessibility to research, innovation and interdisciplinary classes. All of these interests and activities have led me to discover what career path I want to pursue. I aim to make technology more accessible for people from a variety of backgrounds.”

- Shelley Fiel, junior, information science and technology major/ art and design minor

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The UWM Research Foundation Thanks You

The UWM Research Foundation would not exist without the amazing talent of faculty members, researchers, students and entrepreneurs who are building UWM's innovation ecosystem. We are proud of your hard work to maintain UWM as an R1 research institution. We also thank all of our state, foundation, investor and industry supporters and mentors, without whom most of our programs would not be possible. Cheers to another great year!

Brian Thompson
UWM Research Foundation President

Jessica Silvaggi
UWM Research Foundation Vice President

The UWM Research Foundation staff includes (from left) Brian Walsh, Jessica Silvaggi, Erin Puro and Brian Thompson.





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