UW-MILWAUKEE RESEARCH FOUNDATION

2021 ANNUAL REPORT

UWM RESEARCH FOUNDATION

UNIVERSITY of WISCONSIN UWMILWAUKEE

Chancellor's Welcome

I am pleased to report that the hard work and dedication of our faculty, students and staff has earned UWM a third consecutive term of recognition as a Research 1 university by the Carnegie Classification of Institutions of Higher Education. Fewer than 5% of nearly 3,300 institutions nationwide achieve this distinction. Our faculty provide stellar opportunities for research at both the graduate and undergraduate level, and they help to fill the talent pipeline needed by companies locally and worldwide. The UWM Research Foundation and the Lubar Entrepreneurship Center play a crucial role in educating our innovators at every stage of development and provide the pathways to grow their ideas into real-world products. I look forward to the new programs being spearheaded by the UWMRF in 2022 and know that they will further promote partnerships and commercialization of UWM inventions.

Mark A. Mone
Chancellor, University of Wisconsin-Milwaukee

Welcome from the UWM Research Foundation Board of Directors

It has been my absolute pleasure to serve as the Board of Directors chair for the past three years, and I look forward to continuing to serve the UWM Research Foundation as a board member. Over the past 13 years, I have witnessed tremendous growth and triumphs as the foundation has evolved into an important asset for UW-Milwaukee. The UWMRF and Lubar Entrepreneurship Center have been able to expand their campus reach through new programming while playing a vital role in the support of faculty, staff and students. We were also pleased to promote Jessica Silvaggi to vice president of UWMRF this year. We also welcome the strategic leadership of Mike Anderes, who will serve as chair for the next term. We are delighted to present the latest achievements from UWMRF and UWM, and we hope you enjoy reading about them.

Jacquelyn Fredrick
UWMRF Board Chair

Introducing
Mike Anderes
UWMRF Board Chair 2022

UWMRF: Building on UWM's strengths

UWMRF's mission is to cultivate and manage the university's intellectual property and the commercialization of discoveries made through UWM's research enterprises. This year, the foundation rolled out new initiatives and partnerships to encourage future growth.

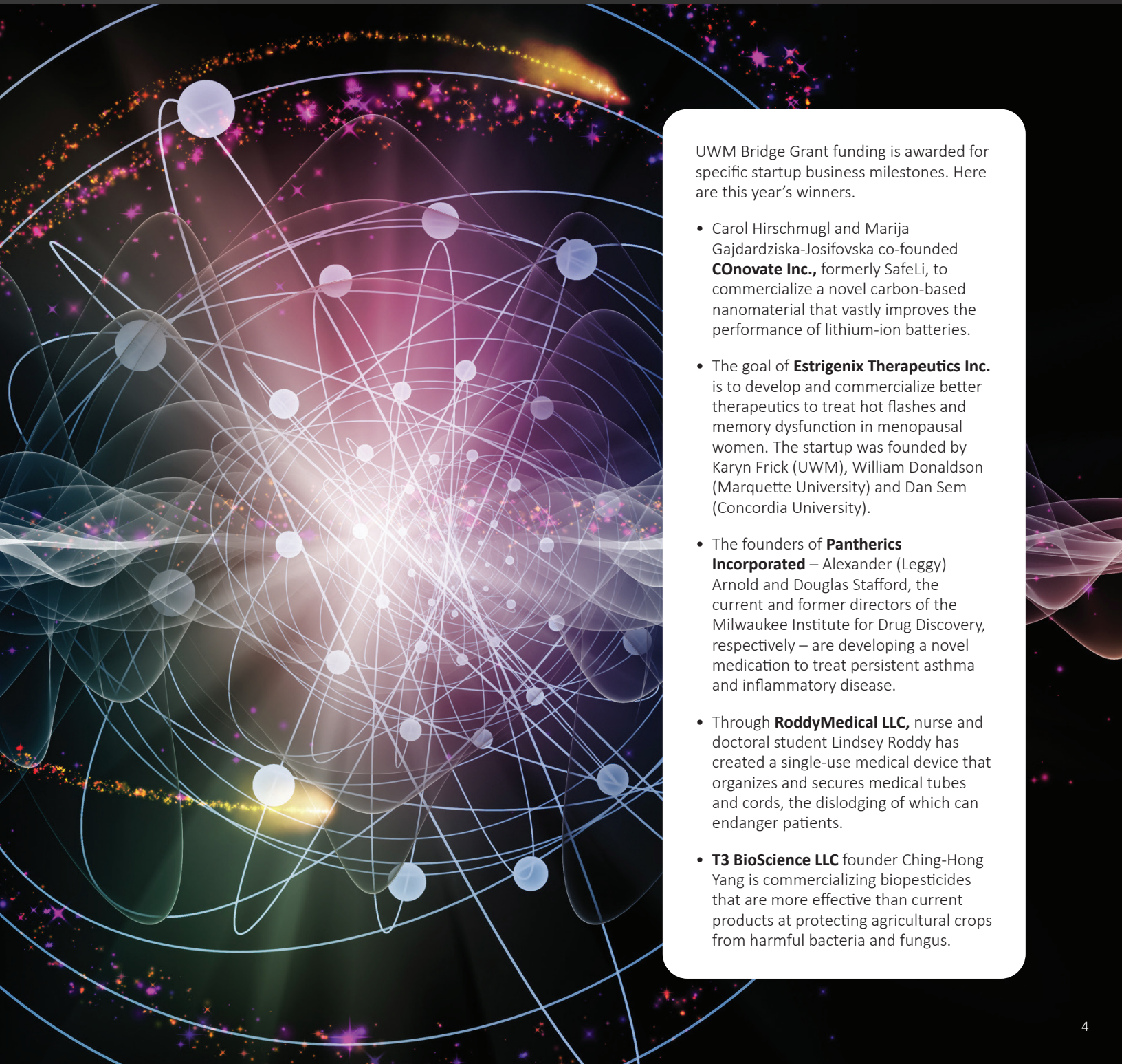
121 issued patents

49 license/option agreements

21 UWM startups

Bridge Grant

The UWMRF Bridge Grant supports startups involving UWM faculty, students or staff who have licensed intellectual property through the foundation. The Wisconsin Economic Development Corporation funded the Bridge Grants through a $200,000 matching grant. The UWMRF raised additional funds with the help of individual donors, Bader Philanthropies and Clarios. The goal is to fund an additional five startups in 2022 and potentially provide a second round of support to some of the successful Phase 1 winners.



UWM Bridge Grant funding is awarded for specific startup business milestones. Here are this year's winners.

- Carol Hirschmugl and Marija Gajdardziska-Josifovska co-founded **COnovate Inc.,** formerly SafeLi, to commercialize a novel carbon-based nanomaterial that vastly improves the performance of lithium-ion batteries.
- The goal of **Estrigenix Therapeutics Inc.** is to develop and commercialize better therapeutics to treat hot flashes and memory dysfunction in menopausal women. The startup was founded by Karyn Frick (UWM), William Donaldson (Marquette University) and Dan Sem (Concordia University).
- The founders of **Pantherics Incorporated** – Alexander (Leggy) Arnold and Douglas Stafford, the current and former directors of the Milwaukee Institute for Drug Discovery, respectively – are developing a novel medication to treat persistent asthma and inflammatory disease.
- Through **RoddyMedical LLC,** nurse and doctoral student Lindsey Roddy has created a single-use medical device that organizes and secures medical tubes and cords, the dislodging of which can endanger patients.
- **T3 BioScience LLC** founder Ching-Hong Yang is commercializing biopesticides that are more effective than current products at protecting agricultural crops from harmful bacteria and fungus.

Catalyst Grant Program

To grow new ideas, the Catalyst Grant Program seed-funds UWM research with commercial potential. In 2021, the foundation awarded its 14th round of the grants, which were supported by the Lynde and Harry Bradley Foundation. Established in 2007, the program has helped projects attract further investment.

101
total grants awarded

$5.4 mil.
total amount awarded

$28 mil.
follow-on investment

Technology to produce high-performance materials

As a reinforcement material in aluminum composites, carbon-based graphene provides some of the highest possible strengths. But achieving the right ratios of graphene in this blend has not been possible with current techniques. **Pradeep Rohatgi** (materials science and engineering) is developing a technology that can produce aluminum nanocomposites that are ultralight, extremely strong and resistant to high temperatures.

New ways to remove “forever” chemicals

Per- and polyfluoroalkyl substances (PFAS) are chemicals that have contaminated water sources throughout the United States. They do not break down in the environment or in the body and are known human health threats. **Shangping Xu** (geosciences, left), **Erica Young** (biological sciences, center) and **Yin Wang** (engineering, right) are developing cost-effective bioreactors that can accumulate PFAS to aid in its removal, particularly under challenging environmental conditions with high PFAS concentrations.

Water recycling in the oil industry

Charles Paradis (geosciences, left) and doctoral candidate **Joshua Swigart** are working on a system to recycle "produced water," which is naturally occurring water that comes out of the ground along with oil and gas. The treated water can be reused for hydraulic fracturing, crop watering, potable water for livestock and for inorganic metals resource recovery. The pair are exploring the commercial market for this innovation.

Licensing Updates

The UWMRF developed two new programs in 2021, both with a goal of making licensing faster, easier and negotiation-free.

UWMRF Startup Express License

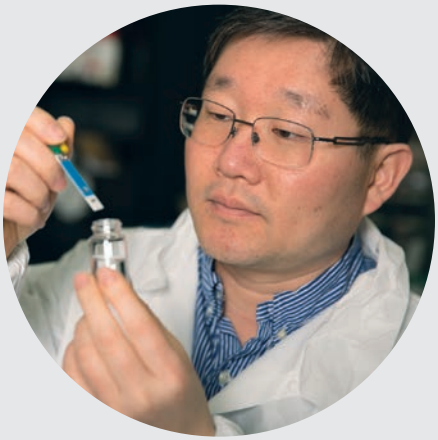
The new **UWMRF Startup Express License** template provides fair, standard terms for innovators. The structure of the license focuses on a win/win outcome with minimal up-front fees and payments spread out over time. The license will require a strong development plan, participation in a customer discovery program like Milwaukee NSF I-Corps, and recruitment of a qualified board of advisers.

Panther Partnering Program

To help solve the problems facing our industry partners, the **Panther Partnering Program** provides quick engagement models and simple licensing option terms. Features include an upfront license fee, payment of patent costs and a royalty that kicks in only after a substantial amount of annual net sales. Companies headquartered in Wisconsin will be offered additional discounts on the standard fee ranges.

Giving rehab a hand

TheraBracelet is a patented, wearable device co-invented by former UWM faculty member **Na Jin Seo**. The device applies unfelt vibrations to a stroke patient's hand, which can improve general motor skills during rehabilitation. It has been licensed by the Zucker Institute for Applied Neurosciences at the Medical University of South Carolina.



Detecting lead in water

Baker Manufacturing Company has licensed the heavy metal-sensing technology created by **Woo-Jin Chang.** The portable, handheld lead detector can be used to test water from wells, homes and municipalities. Chang plans to manufacture the affordable lead sensor strips used in the device through his startup, Septillionth Inc.

Improved waste removal

A frequent problem in both environmental analysis and the treatment of waste streams for the removal of toxic metals is the inadequate efficiency of many conventional metal cleanup products. By modifying a commonly used material, **Mark Dietz** has developed a patent-pending tool that improves efficiency without sacrificing speed or capacity.

Software speeds drug discovery

Vali Raicu and his research team have developed software capable of determining the identity, quantity and stability of important protein complexes that are necessary for new drug development. The software can provide a complete set of data for any type of fluorescently tagged protein in 24 hours or less – far quicker than previously possible, which makes analysis less tedious. This copyrighted software program is available for commercial and noncommercial use.

The Lubar Entrepreneurship Center

The LEC began the year with virtual programming, sponsoring Pop Ups in UWM classes and extracurricular workshops that aimed to stimulate UWM's entrepreneurial community. The center also hosted two talk series – Diverse Ideas and Social Good Morning. That's in addition to its core programs – Startup Challenge and Innovation Corps (I-Corps), backed by the National Science Foundation.

5,181
Participants in all events
(Fall 2021)

65
Teaching Fellows

184
Startup Challenge Teams since 2011

Innovators Expo

The semester finished with the annul Innovators Expo, which showcases a collection of UWM community prototypes, ideas and startups in an exhibit format. The 2021 expo featured 57 virtual booths, including submissions from campus academic departments and programs, community and nonprofit organizations, and student projects. The virtual walk-through experience was created by Ross Younger, a master's student in business administration and founder of Advantage Point. The virtual walk-through allowed viewers to participate in a 360-degree experience.

American Family Insurance Dream Scholarship

The LEC facilitated 19 scholarships for the 2021-22 academic year, thanks to a total of $68,000 from the American Family Insurance Dream Scholarship and Patricia H. Weisberg Innovation Scholarship funds. Awardees exemplify innovation, entrepreneurship and diversity.

The Way Out

Ruben Gaona, a senior majoring in social welfare, received one of the scholarships. Gaona co-founded The Way Out, a comprehensive anti-bias job platform that aligns employers with qualified, justice-involved job seekers in their industry, and provides additional services and technologies to help hires integrate into their new roles successfully. The scholarship is helping Gaona continue his education and build his business.

"In 2019, I left my state job to become a full-time student and entrepreneur," he said. "At the same time, I enrolled in various organizations to build my entrepreneurial skills, because I have never run my own company. I knew there was a lot to learn."

The LEC also has been partnering with the **Collegiate Entrepreneurs' Organization** (CEO), a national student organization that informs and inspires entrepreneurial-minded students. During the fall semester, the LEC and UWM's chapter of CEO teamed up to host the Pop Up Plaza with Tortilleria Zepeda, a Wisconsin-based tortilla company. More than 40 students learned about the business from owners Heidi and Julia Zepeda and then generated ideas for the company to improve their social media campaigns.

Lubar Entrepreneurship Center

The LEC announced the promotion of a familiar face and welcomed some new faces this year.

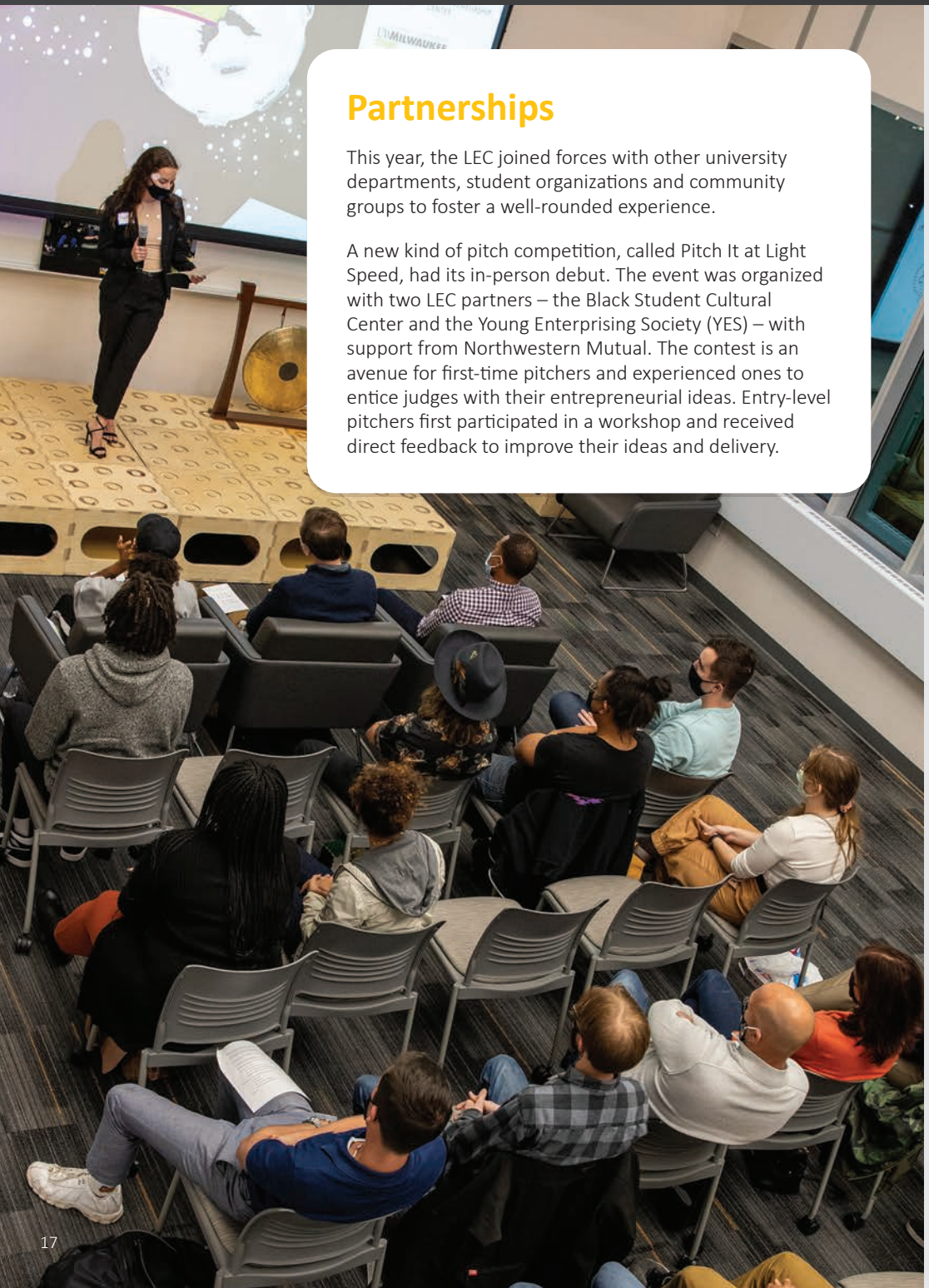
Nicole Powley was promoted to the LEC's assistant director of programs. She helps student entrepreneurs grow their endeavors and develop professional skills. Powley regularly collaborates with professors and other UWM offices to bring hands-on workshops to classrooms, with the goal of highlighting entrepreneurial and design thinking.

Jennifer Kibicho, an assistant professor who joined the UWM College of Nursing in 2013, became an LEC faculty fellow, a student startup challenge advisor, and an I-Corps mentor and participant

As the well entrepreneur-in-residence, **Amelia Coffaro** focuses on integrating well-being tools into LEC offerings to help entrepreneurs thrive with resilience in the fast-paced world of innovation.

The LEC added two new innovation interns this summer.

- Lilith Lenz is a sophomore majoring in vocal performance and Italian. As an international student from Germany with roots in Ethiopia, Lenz has found her passion as an advocate for nonbias training and more equitable opportunities.
- Mitch Janezic is a transfer student in the UWM School of Education whose goals include teaching the wonders of mathematics and chemistry.



Partnerships

This year, the LEC joined forces with other university departments, student organizations and community groups to foster a well-rounded experience.

A new kind of pitch competition, called Pitch It at Light Speed, had its in-person debut. The event was organized with two LEC partners – the Black Student Cultural Center and the Young Enterprising Society (YES) – with support from Northwestern Mutual. The contest is an avenue for first-time pitchers and experienced ones to entice judges with their entrepreneurial ideas. Entry-level pitchers first participated in a workshop and received direct feedback to improve their ideas and delivery.

Board of Directors

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Joseph Kerschner
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The UWM Research Foundation Thanks You

We are deeply grateful to our supporters who make our work at the UWM Research Foundation possible, and we are proud to collaborate with and support the innovative faculty, researchers, students and entrepreneurs who are building UWM's innovation ecosystem. Together, our hard work has maintained UWM's status as an R1 research institution, as recognized by the Carnegie Classification of Institutions of Higher Education.

Brian Thompson
UWM Research Foundation President

Jessica Silvaggi
UWM Research Foundation Vice President

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

Photo illustration

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