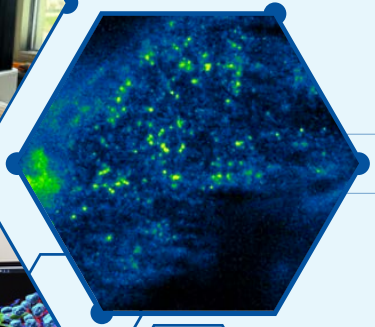
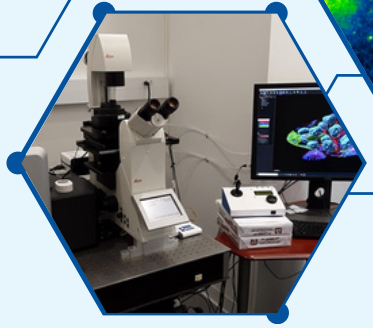
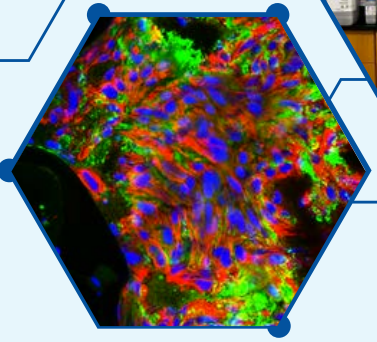
Delaware INBRE

Celebrating 20 Years of Biomedical Research Excellence

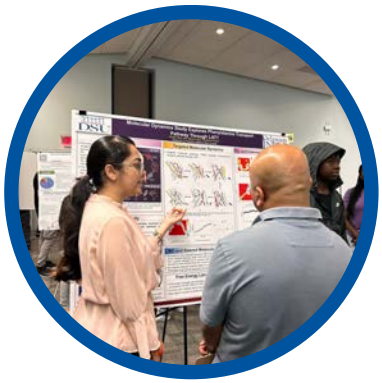



DE-INBRE is Supported by: NIH NIGMS IDeA Program Grant #P20 GM103446 & the State of Delaware

de-inbre.org

SCAN FOR DIGITAL EDITION

October 2025



Inside the Issue:

This issue was written by Lydia Schlitzkus, DE-INBRE Communications Coordinator.
Thank you to the DE-INBRE Admin team, network and alumni that helped showcase the stories of our network.
This wouldn't be possible without the incredible network that is Delaware INBRE!

A Letter from Our Principal Investigator:

As we mark the next era of Delaware INBRE, I am both humbled and proud to reflect on how far we have come. What began as a vision to strengthen biomedical research capacity in our state has grown into a thriving, collaborative network that has shaped careers, advanced discovery, and built a foundation for Delaware's research future.

Over the years, Delaware INBRE has supported faculty in launching competitive research programs, invested in cutting-edge core facilities, and opened doors for students who are now scientists, educators, and healthcare professionals—working here in the First State!

Together, we have leveraged millions of dollars in external funding, supported dozens of new faculty, and trained more than 1,000 students across our five partner institutions. These numbers are impressive, but what inspires me most are the stories behind them—the student whose first INBRE-supported lab experience sparked a lifelong passion for science, or the faculty member whose pilot funding grew into a career-defining grant.

At the heart of this success lies the Delaware Way—our culture of collaboration and open communication. By bringing together academic institutions, healthcare partners, and community stakeholders, we have created a research ecosystem that is truly greater than the sum of its parts. This spirit of trust and shared purpose has sustained us many years and will continue to guide us forward.

Looking ahead, Delaware INBRE is committed to preparing our state for the next era of biomedical discovery. From data science to emerging technologies, the future of biomedical research is evolving rapidly, and our program will ensure that Delaware's researchers and students are at the forefront of that transformation.

This milestone is not only a celebration of what we have accomplished together—it is a call to imagine what we can achieve in the years to come. With continued partnership and collaboration, I am confident that Delaware INBRE will remain a catalyst for discovery, training, and innovation for years ahead.

With gratitude and excitement for the future,

Melinda K. Duncan

Melinda K. Duncan, Ph.D.

What to know about

DelawareINBRE

The **Delaware IDeA Network of Biomedical Research Excellence (INBRE)** supports state-of-the-art research core facilities, investigator-driven basic/translational biomedical research projects, and student biomedical research internships across the First State. These activities train the workforce needed for Delaware's non-profit, academic and industrial researchers to discover ways to improve the health of Delawareans while increasing the competitiveness of Delaware's investigators for federal biomedical research funding.

UNDERGRADUATE RESEARCH

We provide internships that give undergraduates hands-on training in biomedical research methods, preparing them for careers in the field

DE-INBRE has supported over **1,000** student participants since 2002

SUPPORT DATA SCIENCE RESEARCH

We help data science researchers by improving access to biomedical data, enhancing infrastructure, and training the workforce in data science methods

Over 200 participants in workshops

&

Over 400 researchers & students

have received educational & computational resources from the DE-INBRE Data Science Core

IMPROVING INFRASTRUCTURE

We support a collaborative network of research core facilities that provide critical equipment & skills for cutting-edge biomedical research

DE-INBRE supports over **20** core facilities at partner institutions in our network

SUPPORTING INVESTIGATORS

We support newly independent, early-career investigators on their quest to become established scientists. We provide critical seed funding and expert mentoring to ensure success

Over 1,000 researchers & clinicians

&

Over 100 junior investigators

have benefited from support, core facilities access, or participation in DE-INBRE programs

Our Network

The Power of Partnership

Delaware INBRE's impact and legacy would not be possible without our partner and affiliate institutions across the state! Delaware INBRE's strength lies in its network of partner and affiliate institutions working together to advance biomedical research and training. By connecting the unique resources and expertise of universities, colleges, and healthcare organizations, DE-INBRE has created a collaborative ecosystem that is greater than the sum of its parts, truly embodying the Delaware Way!

Partner Institutions

DSU It All Matters.

University of Delaware

Delaware Technical Community College

Nemours Children's Health

ChristianaCare

Affiliate Institutions

DelawareBio Advancing Bioscience Innovation

DHIN Delaware Health Information Network

DPH

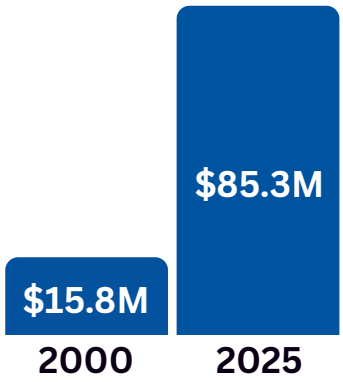
Wilmington University

VA U.S. Department of Veterans Affairs

The Delaware Way: Twenty Years of Growth in Biomedical Discovery

The History and Impact of Delaware INBRE

Biomedical research has long been an active part of Delaware's STEM industry. In 2000, Delaware had 60 active NIH awards totaling $15.8M. Now in 2025, Delaware has 156 projects totaling $85.3M.

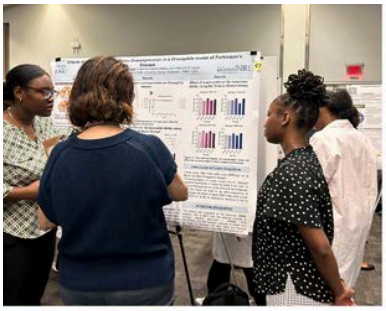


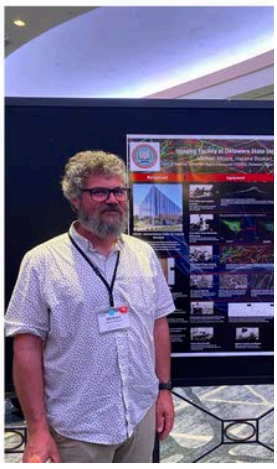
That is a more than 5-fold increase in biomedical research funding in just two decades. The Delaware IDeA Network of Biomedical Research Excellence (Delaware INBRE) has been awarded a $31.3 million renewal from the NIH and the State of Delaware — fueling the next five years of biomedical research and workforce development.

But how exactly did Delaware, one of the nation's smallest states, manage to become a major player in the biomedical research space?

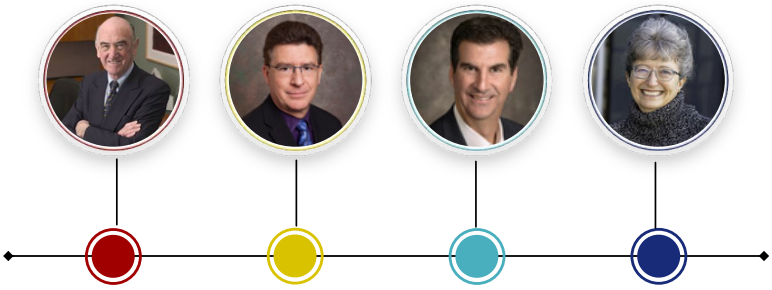
The story begins in 1993, when the National Institutes of Health (NIH) established the Institutional Development Award (IDeA) program. This congressionally mandated initiative was designed to build research capacity in states that historically had low levels of NIH funding. The act was simple but powerful: grow biomedical research where it was needed most, while supporting the broader NIH mission of advancing human health.

Delaware is one of 23 states, and Puerto Rico, eligible for IDeA funding. These funds are awarded through a variety of mechanisms — including Centers of Biomedical Research Excellence (COBRE), Clinical and Translational Research Programs (CTR), and the Regional Entrepreneurship Development Program (I-RED), IDeA States Pediatric Clinical Trials Network (ISPCTN) in addition to the IDeA Network of Biomedical Research Excellence program (INBRE), all of which are currently active in Delaware.





In 2001, Delaware received its first INBRE award, led by Principal Investigator Dr. David Weir. It was a pivotal moment and the beginning of a 20-year journey to strengthen biomedical research across the state.



Following Dr. David Weir's leadership, the grant was led by Dr. Karl Steiner and then the late Dr. Steven Stanhope before transitioning to the current PI, Dr. Melinda K. Duncan, Trustee's Distinguished Professor in UD's Department of Biological Sciences in 2022. "The Delaware INBRE program benefits from a long-standing culture of open communication and collaboration among the state's biomedical researchers," said Duncan.

From the start, Delaware's size became one of its greatest strengths. Many other IDeA states face bigger geographical constraints, but Delaware often uses this as an advantage.

If you're from Delaware or live and work in the area, you will often hear jokes about the size of our great state, but in the case of Delaware INBRE, it makes all the difference!

Through collaboration, leaders recognized that the only way to build lasting research capacity was to work together. This spirit of partnership — known as the Delaware Way, became the foundation for Delaware INBRE's success. Previous chair of the Delaware INBRE External Advisory Committee, Dr. Mark Lively, put it perfectly when he said that "the network would not work if we didn't have people that come together for the common good of strengthening biomedical research. All of the past and current leaders….. excel at this."

"At its core, science is about innovation and discovery. Without our innate drive to know more, we would not have uncovered the myriad scientific breakthroughs that make modern life possible. Often breakthroughs develop from projects that take a new approach. Helping these ideas grow into breakthroughs is what the Delaware INBRE does," said Delaware Representative Frank Burns.

The current Delaware INBRE network consists of five anchoring partners: the University of Delaware, Delaware State University, Delaware Technical Community College, ChristianaCare, and Nemours Children's Health. Each institution brings unique strengths — from training the next generation of scientists, to clinical research, to pediatric health innovation.

Together, Delaware INBRE's partners form the backbone of a statewide biomedical ecosystem bolstered by many other affiliate organizations across the state. Rep Burns added that "support of programs like these strengthens our communities and can push our state forward on a national and global scale. Delaware legislators support programs like these because we know today's research is everyone's tomorrow."

Over 20 years, Delaware INBRE has fueled advancement and discoveries that span the spectrum of biomedical science.

By the numbers, the impact is clear:

- Delaware INBRE has provided over **1,200 undergraduate students** with the opportunity to work on biomedical research projects, gaining experience as working scientists.
- These research experiences directly impact Delaware's (and the nation's) biomedical workforce as approximately **85% of former summer scholars still work in biomedically relevant fields, with over 350 entering graduate schools**.
- **111 faculty investigators** have been supported by Delaware INBRE since its inception. **Over 70% of these faculty members still work in Delaware** as leaders contributing to biomedical research capacity and workforce.

Even more than the numbers, Delaware INBRE remains committed to the people that make the work possible.

"We need to grow and cultivate the biomedical space with people that are dedicated to the work" says Delaware INBRE Assistant Director, Dawn Everhart. Delaware INBRE provides one of the roots that keeps the tree of biomedical research and workforce development strong and growing here in the state. Without programs like this, Delaware would not remain as a major player in the space and we certainly would not be excelling.

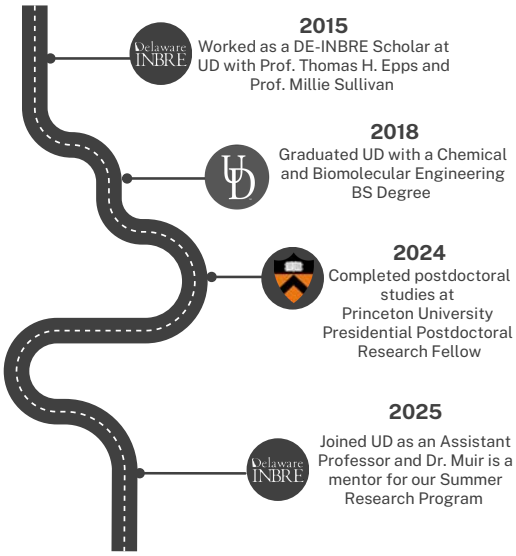
Rooted in Delaware, Growing Discovery

The highlights that follow are just a few of the many students, faculty, and more who have grown through the programs offered by Delaware INBRE and IDeA funding in the state. Like branches extending from strong roots, their journeys reflect the ways Delaware INBRE supports discovery, training, and collaboration across our state. Each profile is one part of a larger, thriving network—proof that when talent takes root in Delaware, it flourishes into opportunity, innovation, and impact.

Victoria Muir, Ph.D. Assistant Professor at University of Delaware Department of Chemical and Biomolecular Engineering

Delaware INBRE Summer Scholar 2015

Dr. Muir's first taste of research came through the DE-INBRE Student Research Program, working at the University of Delaware under the guidance of Dr. Thomas H. Epps and Dr. Millie Sullivan. She credits DE-INBRE with "*setting the stage for me as my first outside-of-courses learning experience.*" That early opportunity fueled her passion for biomedical research, which she pursued throughout her undergraduate years in the lab before continuing on to graduate school at the University of Pennsylvania, where she earned her Ph.D., and then to Princeton University as a Presidential Postdoctoral Research Fellow. In 2025, Dr. Muir returned to Delaware as a professor of Chemical and Biomolecular Engineering at UD. Now, she carries the DE-INBRE legacy forward by mentoring undergraduate students in her own lab, guiding the next generation as they explore and discover career paths in biomedical research.



Gabriel Dasilva, Doctoral Student at University of Delaware
Delaware INBRE Summer Scholar 2022, '23, '24

Gabriel DaSilva, from Milton, Delaware, began his academic journey in UD's Associate in Arts program at the Georgetown campus before transferring to the main campus to earn his B.S. in biology. A biology course in the AA program sparked his curiosity, and after a conversation with his professor, he discovered the DE-INBRE Summer Student Research Program. Gabe went on to participate in the program for three summers, each time working with a different mentor. Reflecting on the experience, he shares, "*DE-INBRE allowed me to try different things and see different sides of biology. It helped me transition from the Georgetown AA campus to the main UD campus, and now I plan to get my Ph.D. and continue in the biomedical research space*." After graduation, Gabe worked in Dr. Andre Tavares' lab and, this fall, began his doctoral studies in biology at UD. He hopes to pursue a career in academia, where he can inspire future students and share his passion for biology.

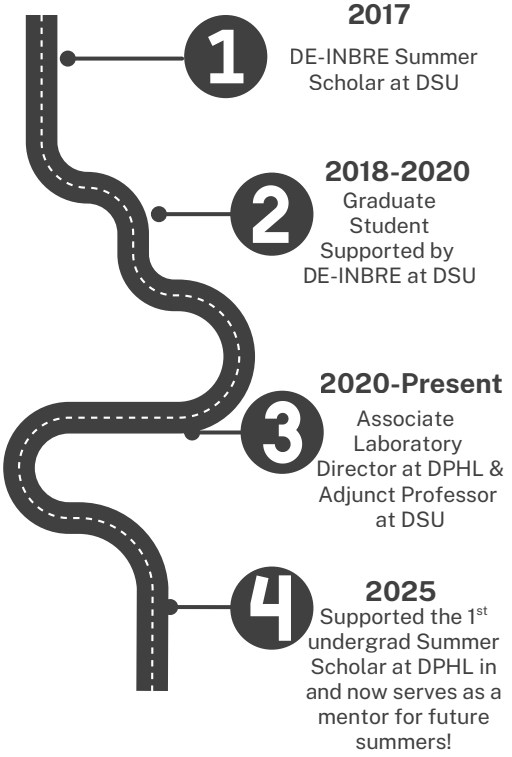
Zaina Punter, Undergraduate Student at University of Delaware
Delaware INBRE Summer Scholar 2023, '24, '25

Zaina's research journey began three years ago at Delaware Technical Community College, where she assisted with a CRISPR project supported by Delaware INBRE. While working in the lab, she realized that building a strong background in bioinformatics would strengthen her research goals. With her mentor's encouragement, Zaina embraced an opportunity to expand her skills in computer-based data analysis and coding as a 2023 Summer Scholar. Armed with her newly developed bioinformatics expertise, Zaina contributed to research on replication genes in marine viruses. *"The most interesting part of my research is that we're doing all of our analysis fully outside the lab and doing it all on the computer,"* she explained. *"It's really fascinating that we can look at an actual organism without actually having it in front of us."* Her time in the program also shaped her academic aspirations. *"My experience at DelTech, and now my second summer here, made me consider pursuing a graduate degree in bioinformatics,"* Zaina reflected. *"I went from having no background to now thinking I might want to be an expert in this field—which is a little daunting, but exciting."*

Holly Miller M.S., Associate Laboratory Director at Delaware Public Health Lab & Adjunct Professor at Delaware State University

Delaware INBRE Summer Scholar 2017

Holly Miller has grown through many stages of the DE-INBRE pipeline to become a leader in Delaware's scientific community. Her journey began in 2017 as a Summer Scholar at Delaware State University, where she gained valuable research techniques in the lab. She then received a DE-INBRE Graduate Research Fellowship, which supported her and lead to her earning her Masters Degree. Holly then joined the Delaware Public Health Laboratory (DPHL), starting as a molecular biologist before advancing to lab lead and now serving as Associate Laboratory Director, where she oversees all clinical lab testing. She also shares her expertise as an Adjunct Professor at DSU. During the COVID-19 pandemic, Holly and her team—including several other former DE-INBRE alumni—undertook a vital project sequencing COVID-positive samples to track how variants spread through Delaware communities. Reflecting on her experience, Holly notes: *"DE-INBRE served as a catalyst, inspiring and validating my passion for research. As a non-traditional student, wife, and mother, DE-INBRE provided access to valuable resources which were crucial in enabling me to conduct projects that furthered my understanding of science."* This summer Holly served as a mentor at DPHL for DE-INBRE undergrad Summer Scholars. She hosted a UD student and hopes to host more students in the future to give them a glimpse at career pathways helping the DE community!



Olivia Tharp, M.S., Research Scientist at Cellergy Pharma Inc.

Delaware INBRE Summer Scholar 2019

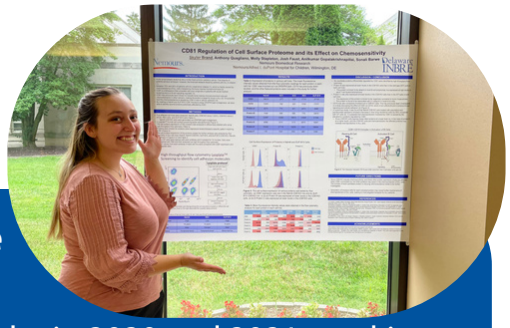
Olivia began her journey as a DE-INBRE Summer Scholar in 2019, working with Dr. Eric Kmiec at the Gene Editing Institute at ChristianaCare. She continued her education at Delaware Technical Community College, earning an A.S. in Biological Sciences in 2020, followed by a B.S. from West Chester University of Pennsylvania in 2021. Olivia then pursued graduate studies at the University of Delaware, earning her M.S. in Medical Sciences in 2024. She now applies her expertise as a research scientist at Cellergy Pharma Inc., contributing to cutting-edge biomedical research right here in Delaware.

Atif Bacchus,
Undergraduate Student at University of Delaware
Delaware INBRE Summer Scholar 2023, '24

Atif participated in the DE-INBRE Student Research Program as a Summer Scholar for two consecutive years, conducting research at ChristianaCare's Helen F. Graham Cancer Center under the guidance of two different mentors. During his time at the Cancer Center, he gained firsthand insight into how biomedical research can directly impact his home state of Delaware, which faces elevated rates of advanced breast cancer in specific geographic areas. This experience fueled Atif's passion and he even said *"Once I learned what a big issue this is, I just did not want to stop working."* He is now continuing his research and academic studies, with the goal of earning a Master's degree in public health and ultimately becoming a physician specializing in oncology, where he hopes to translate research discoveries into meaningful care for patients.

Grace Kearns,
Waters' Corporation Communications Specialist
Delaware INBRE Summer Scholar 2024

Grace came to Delaware INBRE with a unique set of skills in communication and a peaked interest for science communication. She worked with our team as a Summer Scholar in 2024 where she tuned in her interviewing skills, made graphics and video highlights to showcase the great work going on in the DE-INBRE network. Grace graduated in 2024 with a B.S. in Communications from the University of Delaware. She then worked at Waters' Corporation as the social engagement communication intern coordinator where she connected the bioscience industry with academia through social engagement and storytelling. She is continuing this work now as a full-time member of their communications team.



Skye Brand, Doctoral Student at University of Delaware
Delaware INBRE Summer Scholar 2020, '21

Skye began her journey with Delaware INBRE as a Summer Scholar in 2020 and 2021, working at Nemours Children's Hospital with Dr. Sonali Barwe. While at Wesley College, she gained experience as a lab and research assistant in the Biological Chemistry Department through DE-INBRE support and earned her B.S. in biotechnology from Thomas Jefferson University in 2022. Reflecting on her early experiences, Skye says, *"INBRE gave me the opportunity to begin research at a very early point in my career. This was critical in helping me to decide my path forward as a scientist."* She is now pursuing her doctoral degree at the University of Delaware in Dr. Austin Keeler's lab, studying the development of chronic pain conditions. Skye also serves as a graduate student mentor for DE-INBRE summer scholars.

Hakeem Lawal, Ph.D. Professor &
Interim Chair Department of Biological Sciences,
Delaware State University

Delaware INBRE Pilot Project Investigator 2021-23

Dr. Hakeem Lawal received a Delaware INBRE Pilot Project award in 2021. As a junior investigator, he used this support to launch his exploration of Parkinson's disease and potential treatment therapies. The pilot project provided crucial preliminary data that helped him secure additional funding through the National Science Foundation, allowing his research to grow and advance. Beyond his own work, Dr. Lawal is deeply committed to mentoring the next generation of scientists at Delaware State University. He has guided numerous undergraduate students through summer research experiences, ensuring they take full advantage of opportunities in research, professional development, networking, and conferences. Currently, Dr. Lawal also serves on the DE-INBRE Research Development Committee, where he helps guide aspiring junior faculty toward successful grant applications—broadening the impact of biomedical research at DSU and across Delaware.

Jonathan Bernal,
Student at Philadelphia College of Osteopathic Medicine

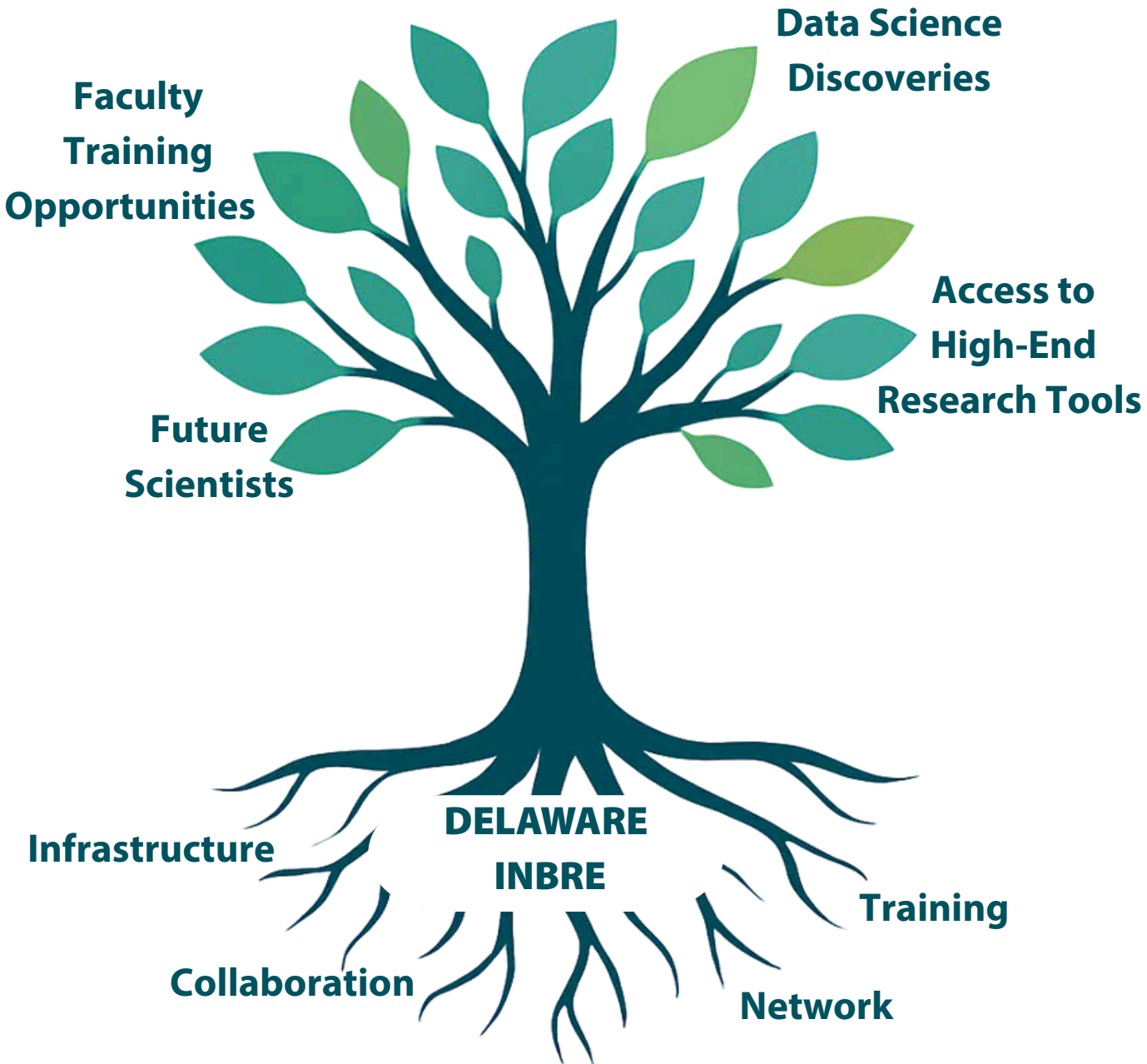
Delaware INBRE Summer Scholar 2021, '22

Jonathan Bernal began his DE-INBRE journey in the summer of 2021 as a Delaware Technical Community College Summer Scholar, working on a project at ChristianaCare under the mentorship of Dr. Alicia Salvatore. His research focused on examining patient experiences, an opportunity that sparked his interest in the connections between science and healthcare. The following summer, he continued with DE-INBRE as a Summer Scholar at Nemours Children's Hospital, an experience that ultimately opened the door for him to return as a research technician. After graduating from DTCC in 2021, Jonathan transferred to the University of Delaware, where he earned his B.S. in biological sciences in 2023 while also gaining hands-on laboratory experience. These opportunities, combined with the mentorship and skills gained through DE-INBRE, helped prepare Jonathan for the next step—medical school, where he is now pursuing his studies. Reflecting on his path, he advises other students: *"If you have the opportunity to work with INBRE, take the chance—you never know who you'll meet and how they can help guide your career."*

Looking ahead to the next era of

DelawareINBRE

With the renewal of Delaware INBRE, the next five years promise to be as transformative as the last twenty. The renewed Delaware INBRE grant will not only reinforce the roots of biomedical research in Delaware, but also grow new branches for students, faculty, and institutions to thrive in a rapidly evolving scientific landscape.



Continuing to Inspire the Next Generation of Scientists



The future of biomedical innovation begins with students. Delaware INBRE's Student Research Program (SRP) under the direction of Dr. Lisa Jaremka, Associate Professor in UD's Department of Psychological and Brain Sciences, opens doors for undergraduates to gain practical skills in laboratory settings. The program also provides a series of professional development workshops and sessions to help students investigate all sides of the biomedical industry. This well-rounded research experience is critical to long-term success for students entering the STEM space. Through mentorship, hands-on experience, and professional development, Delaware INBRE will ensure that Delaware's undergraduates are not only inspired to pursue biomedical careers, but are also equipped with the skills and confidence to succeed in them both in the state and nationally.

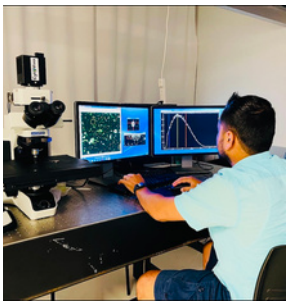
Building Faculty Leaders in Biomedical Research


Just as important as nurturing students is supporting the faculty who guide them. Through the Developmental Research Pilot Project program (DRPP) under the direction of Dr. Anjana Bhat, Professor in UD's Department of Physical Therapy, Delaware INBRE provides investigators with seed funding, structured mentoring, and training in best practices for grant writing, lab management, and student mentoring.

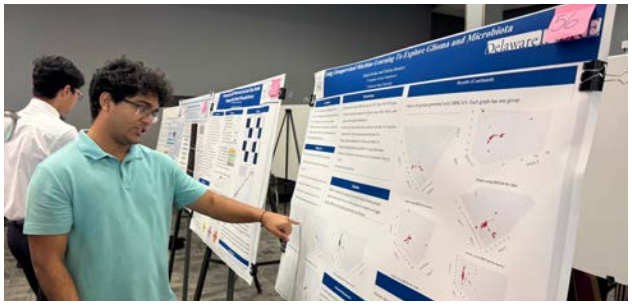
These investments allow for investigators to establish independent research programs to reach their goals and fuel discoveries in the biomedical space. In the next five years, the DRPP program will create a stronger, sustainable pipeline of faculty investigators that will mentor the next generation of scientists here in Delaware and beyond.

Expanding Access to High-End Research Tools

Scientific discoveries are reliant on access to the right tools and equipment. Throughout institutions in Delaware and the Delaware INBRE network, access to these rapidly evolving tools is made possible. Delaware INBRE's Centralized Shared Resources (CSR) core under the co-direction of Nemours' Histochemistry & Tissue Processing Core lead Heather Hardy and UD's Associate Professor of Plant and Soil Sciences and Director of Bioimaging Dr. Jeffrey Caplan, organizes a "network of cores" that creates streamlined core facility access, fosters collaboration and ensures that the most up to date and in-demand technology is available. Through vouchers and training opportunities, faculty and students alike will gain hands-on experience with cutting-edge methodologies, ensuring that Delaware researchers remain at the forefront of the biomedical space.




Strengthening Delaware's Data Science Community

As we move into a time where data science is quickly becoming a leading area of innovation, the next five years of Delaware INBRE aim to ensure that Delaware is a key player. The Data Science Core (DSC) under the direction of Dr. Shawn Polson, Professor in UD's Departments of Computer and Information Sciences, Biological Sciences, and Plant and Soil Sciences, supports the computational infrastructure, and the human expertise needed to harness the power of big data. Through workshops and training sessions, faculty and students will be exposed to the basics of data science and how it can propel scientific discoveries forward.

With more than two decades of impact, Delaware INBRE has truly transformed the state into a hub for biomedical research and workforce development. Since its first award, the program has created a network of partners across the state, under the spirit of collaboration known as the "Delaware Way." Duncan explains, "The Delaware INBRE network allows us to use resources efficiently to support student training and faculty research across the state, which benefits Delaware's entire research ecosystem."

Moving into the fifth successful renewal from the NIH and the State of Delaware totaling $31.3 million, Delaware INBRE will continue fueling student training, faculty development, and access to cutting-edge research tools and training in key areas. Built on the spirit of the Delaware Way—a culture of collaboration and shared progress—this renewal ensures Delaware remains a leader in the next era of biomedical discovery.

Thank you to all who have contributed to Delaware INBRE's success—and to those who continue to carry our mission forward!

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Scan the QR Code to stay up to date on all things Delaware INBRE:

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de-inbre.org

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