

WV-INBRE NEWSLETTER

Volume 29

Winter 2025



2025 WV-INBRE Summer Research Symposium Held at Marshall University Was A Success

Twenty-two interns from Primarily Undergraduate Institutions (PUIs) across West Virginia participated in the 2025 WV-INBRE Summer Research Program. Schools represented included West Liberty University, West Virginia Wesleyan, Shepherd University, University of Charleston, Glenville State University, Bethany College, and Davis & Elkins College.

Also participating were six HSTA Fellows, science educators from West Virginia high schools, two exchange interns representing the Puerto Rico INBRE program, one WV-INBRE Faculty Fellow from West Liberty University, and our first group of three interns supported by funding from Marshall University.

Research projects for this large group were directed by 13 faculty mentors at WVU,



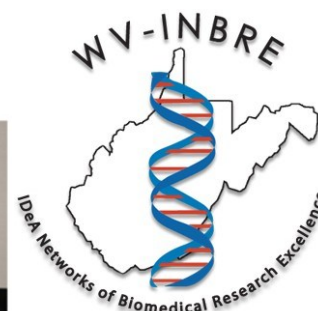
Research presentations from morning session. Clockwise from upper left: Ash Dean, Halley Smith, Kathleen Loughman, Matthew Grooms, Shelby Heath, Darryle Schoepp

12 faculty mentors at MU, and three WV-INBRE-supported faculty mentors at PUIs (at West Liberty, Bluefield State, and Shepherd Universities). The research projects covered a wide range of pressing health topics, including cancer, heart disease, stroke, nicotine addiction, and obesity.

The Summer Research Program began on May 27 and concluded 9 weeks later on July 29 with the 23rd Annual WV-INBRE Summer Research Symposium. The Symposium alternates between Huntington and Morgantown. This year, the Symposium was in Huntington.

The Symposium was attended by Summer Program interns as well as undergraduate students conducting WV-INBRE supported research at their home institutions. Also attending the Symposium were high school science educators, and faculty members from WV-INBRE colleges and universities.

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Network Partners
of the WV-INBRE

Lead Universities

Marshall University
West Virginia University

Predominantly Undergraduate
Institutions (PUIs)

Bluefield State University
Concord University
Davis & Elkins College
Fairmont State University
Glenville State College
Shepherd University
University of Charleston
West Liberty University
West Virginia School of
Osteopathic Medicine
West Virginia State University
West Virginia Wesleyan College
Wheeling University

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MESSAGE FROM THE PRINCIPAL INVESTIGATOR

Dr. Trupti Joshi, MBBS, ADB, MS, Ph.D.



Dear WV-INBRE Network,

First and foremost, I would like to extend my heartfelt thanks to Dr. Gary Rankin for his warm welcome and invaluable assistance during my transition into the role of Principal Investigator for the WV-INBRE program — a program he has so ably led for more than two decades. Dr. Rankin's leadership and vision have been instrumental in establishing WV-INBRE as a cornerstone for training, mentoring, and research in West Virginia. His contributions have created a lasting impact on the research community, and I am truly grateful for the guidance and support he has provided throughout this transition. Those are indeed some very big shoes to fill! As I step into this role, I look forward to carrying on Dr. Rankin's legacy while bringing a fresh perspective and new energy to further expand the WV-INBRE program. Together, we will continue to strengthen our network and prepare our students, faculty, and partners to meet both the emerging and future needs of biomedical research in our state and beyond.

As the new Principal Investigator, I'd like to start with a big hello to everyone across our network. I am truly excited to join such a talented and dedicated group of researcher faculty, students and collaborators. I also want to take this opportunity to express my sincere appreciation for all your hard work, commitment, and contributions. The achievements of this network are a direct result of your efforts, and I'm looking forward to continuing this success together.

I have already had the pleasure of meeting some of you, but for those I have not yet had the chance to connect with, I'd like to take this opportunity to briefly introduce myself and my research group. My background spans both clinical medicine and bioinformatics, and I have a strong passion for working in interdisciplinary domains where we can leverage advanced technologies to address exciting research questions and work on impactful solutions. I serve as the Senior Associate Dean for Informatics and Population Analytics and Professor in the Department of Biomedical Sciences of the Joan C. Edwards School of Medicine at Marshall University and hold an adjunct faculty appointment at University of Missouri, where I was a tenured faculty previously. My group has expertise in the areas of translational bioinformatics, data science and AI, and focuses on its application to biomedical sciences, plants sciences, animal sciences, and health informatics fields. I have published more than 175 scientific papers in peer reviewed and indexed journals as well as have de-

veloped several bioinformatics software systems, computational methods and AI based solutions for translational research. I have trained and/or mentored more than 44 undergraduate students (including summer research students, and interns), 75 graduate students, 2 Research Specialists, 10 Postdoctoral fellows, and 3 Research Scientists.

My vision for the WV-INBRE program is to:

1. Strengthen biomedical, informatics, data science, and AI-based training, mentoring, and research capabilities within the WV-INBRE network.
2. Expand our network and enhance participation and collaboration opportunities—both within WV-INBRE and with partners beyond our current network.
3. Increase funding opportunities to support more interdisciplinary training and research projects that integrate biomedical, clinical, informatics, data science, and AI approaches.
4. Improve communication strategies and streamline processes through the adoption of cutting-edge technologies to enhance program efficiency and engagement.

Over the past few months, my focus has been on gaining a comprehensive understanding of our program's needs, strengths, challenges, and existing gaps. This assessment is helping shape an action plan for reform and prioritization

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to better prepare our network for both emerging and future needs.

Our ongoing efforts are centered on enhancing faculty and student research and training experience throughout the year, as well as expanding funding opportunities available across the network.

I have been working closely with teams at both the lead institutions, partner undergraduate institutions (PUIs) and community and technical colleges (CTCs) to gather feedback and streamline processes for subaward agreements, ensuring faster turnaround times and improved efficiency. Additionally, I would like to share that we are initiating strategic reforms aimed at supporting the future growth and expansion of the WV-INBRE program, improving capabilities of our cores, focusing on communication across the network, and ultimately enhancing our overall program outcomes.

I am excited to share with you some of the progress and developments we have made since the beginning of this year's WV-INBRE award cycle.

• **Network Expansion:**

We are further expanding our network! In addition to our current 14 Primarily Undergraduate Institutions (PUIs), we are welcoming nine Community and Technical Colleges (CTCs) across West Virginia. These new institutions will be eligible to participate in our Summer Research Program and other WV-INBRE funding opportunities.

• Expanding Research and Training Opportunities:

We are adopting a multi-pronged approach to broaden and strengthen research and training opportunities for faculty and students from both PUIs and CTCs through the introduction of several new programs:

• **Voucher Program:**

A new Voucher Program will be launched to provide faculty and students at PUIs and CTCs with access to the services offered by the SMART Core, Data Science Core, and the new Translational Research Initiative.

- Research funds of \$5,000–\$10,000 will be made available through a Request for Applications (RFA) to be issued in December 2025 / January 2026, with funding beginning in Year 25 (Y25).
- Tenure-track and tenured faculty at PUIs and CTCs will be eligible to apply.
- Voucher funds may be utilized for biomedical research through:
- SMART Core: For generating sequencing data for genomics, transcriptomics, epigenomics, genomic variations, miRNA, and other single-cell or spatial omics datasets.
- Data Science Core: For requesting bioinformatics, statistical, or computational analytics support for bulk, spatial, or single-cell omics datasets in basic science, clinical, or translational research.

• **Course-based Undergraduate Research Experiences**

(CUREs): We are exploring the introduction of CUREs to provide structured, research-integrated learning experiences for undergraduate students across participating institutions. (More details to follow.)

- Team Research Interdisciplinary Project (TRIPs) Awards: The WV-INBRE program will introduce TRIPs Awards as part of all Developmental Research Pilot Programs (DRPPs).
- RFAs for these awards will be issued in December 2025 / January 2026 for Year 26 (Y26) funding.
- Faculty from PUIs and CTCs will be eligible to apply for interdisciplinary and collaborative projects that involve engagement with faculty at lead institutions or other PUIs/CTCs.
- **WV-INBRE Webinar Series:**
- Beginning in 2026, we will launch a quarterly online webinar series featuring invited speakers, research faculty from lead institutions, and award recipients from PUIs. These sessions will highlight exemplary research projects, emerging scientific areas, and diverse STEM career paths.
- Recordings will be made available through the newly redesigned WV-INBRE website to promote broader engagement and accessibility.

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**HIGHLIGHT: Matthew L. Williams, Ph.D.
and Microbial Discovery at the
West Virginia School of Osteopathic Medicine (WVSOM)
at West Virginia University**



WV-INBRE is proud to highlight the work of Dr. Matthew L. Williams, an Associate Professor of Biomedical Sciences at the West Virginia School of Osteopathic Medicine (WVSOM). Dr. Williams has built a vibrant, student-centered research program that deeply enriches scientific training opportunities for future physicians in West Virginia.

At WVSOM, Dr. Williams teaches extensively in the microbiology curriculum and leads research focused on novel biotherapeutic discovery, environmental microbiology, and public health-driven investigations. His projects routinely engage students in hands-on scientific exploration, encouraging them to become independent thinkers and emerging contributors to biomedical science.

Dr. Williams has been a long-standing collaborator with WV-INBRE, and the program has played a transformative role in expanding research opportunities at

WVSOM. As Principal Investigator of the 2024 WV-INBRE grant, “Microbial Biotherapeutic Innovations from Healing Springs and Medicinal Plants,” Dr. Williams is leading students in the discovery of new therapeutic bacterial isolates from natural environments—work that has strong potential public health implications for Appalachia and beyond.

His commitment to student-centered research has produced exceptional outcomes. Fifteen students have earned publications or presented abstracts resulting directly from WV-INBRE-supported projects under his mentorship. These student scholars have presented at national and regional conferences, including ASM Microbe, the AMA Research Challenge, WVOMA, and the WV-INBRE Annual Meeting. Many have received recognition for their work and report that these experiences have significantly strengthened their applications to competitive professional and postgraduate pro-

grams following their medical education.

Students consistently express excitement about participating in these WV-INBRE-supported projects, noting that the opportunity to conduct real research—often for the first time—has been instrumental in shaping their career goals and confidence. WV-INBRE’s support has provided the resources and structure necessary for these projects to flourish, helping WVSOM students contribute meaningful findings to biomedical science while enhancing their professional development.

Dr. Williams’ work exemplifies the mission of WV-INBRE: expanding research capacity across the state, fostering scientific curiosity, and preparing the next generation of healthcare and research professionals. We are proud to partner with Dr. Williams and celebrate the continued success of his students and his growing research program at WVSOM.



WV-INBRE Interns, Fellows and Mentors At West Virginia University



Front row: (L to R): Trang Bui, Lakin Plott, Mason Nichols, Esam Sohrab. **Left pylon:** Autum Russell. **Right pylon:** Stephanie Johnson, Elena Pugacheva (Stephanie's mentor) is in white lab coat in front of Stephanie.

Middle row: (L to R): Visvanathan Ramamurthy (Annalise's mentor), Annalise Gentilozzi, Shelby Heath (WV-INBRE Faculty Fellow from West Liberty University), Halley Smith, Aaron Robart (Shelby's mentor).

Back row: (L to R): Curtis Litton, Benoit Driesschaert (Lakin's mentor), Haydon Dodd, Samuel Lake, Jasper Brown, and Srikan Nandigama

WV-INBRE Interns and HSTA Fellows At Marshall University



Front row: (L to R): Lillianna Frame, Linh Tran, Ramille Acevedo, Gladielyz Torres, Katherine Lawrence, Ash Dean, Mariam Al-Zoubi, Manuella Cogliatti, Dasheya Booker, and Jennifer Stover.

Back row: (L to R): Ana Chaguri, Tristan Burgess, Matthew Grooms, Chloe Lee, Ridwan Oloyede, and Seth Perry

WV-INBRE Provides Biomedical Research Opportunities to HSTA Scholars and WV High School Science Educators

The partnership between WV-INBRE and the Health Sciences & Technology Academy (HSTA) program is focused on encouraging undergraduate students, who have demonstrated an interest in biomedical research through their participation in the HSTA program while in high school, to continue to develop this interest in biomedical research once they enroll at West Virginia University, Marshall University or one of the Partner Institutions (PIs).

During the 2025-2026 academic year, 9 HSTA scholars are participating in this program with 1 intern at Bluefield State University, 1 intern at West Liberty University, 1 intern at Shepherd University, 2 interns at Marshall University, and 4 interns at West Virginia University. These students are: at West Liberty University, Shania Davis with Dr. Joseph Horzempa; at Bluefield State College, Jaida Rotenberry with Dr. Tesfaye Belay; at Shepherd University, Isadora Matthews with Dr. Qing Wang; at Marshall University, Nevaeh Ellington with Dr. Emine Koc and Te'Lyn Napier with Dr. Nalini Santanam; and at West Virginia University, Makel Galloway with Dr. Kathleen Morrison, Madalyn Harless with Dr. Randy Nelson, Avery Smith with Dr. Wen-Tao Deng, and Sabrina Thorn with Dr. Lizzie Bowdridge. All interns will present their research at the 24th Annual WV-INBRE Summer Research Symposium in Morgantown WV near the end of July 2026.

Another component of this joint program is to provide opportunities for high school science educators to participate in biomedical research for up to nine

weeks during the summer with a mentor at West Virginia University, Marshall University, or one of the WV-INBRE funded PUI laboratories. Participation is open to high school science educators who teach in the state of West Virginia during the previous academic school year. The goal of this part of the program is to provide research opportunities to interested science teachers with the expectation they will take their research experience back into their classrooms and inspire their students to pursue biomedical research opportunities once they enter college. Additionally, it is anticipated that the techniques they learn from the research will enhance the scientific teaching experience in the classroom.

For summer 2025, 6 high school science educators were awarded 7 to 9-week research internships. These fellows were: Kathleen Loughman from John Marshall High School with Dr. Joseph Horzempa at West Liberty University; Michelle Martinez from Bluefield Middle School and Robert McClain from Woodrow Wilson High School, both with Dr. Tesfaye Belay at Bluefield State University; Seth Perry from Hurricane High School with Dr. Monica Valentovic and Jennifer Stover from Nitro High School with Dr. Nalini Santanam, both at Marshall University; and John Sheranko from Spring Mills High School with Dr. Qing Wang at Shepherd University. All fellows presented their research at the 23rd Annual WV-INBRE Summer Research Symposium in Morgantown WV on July 29, 2025. The application for Summer 2026 high school science educator fellows will open in January 2026.

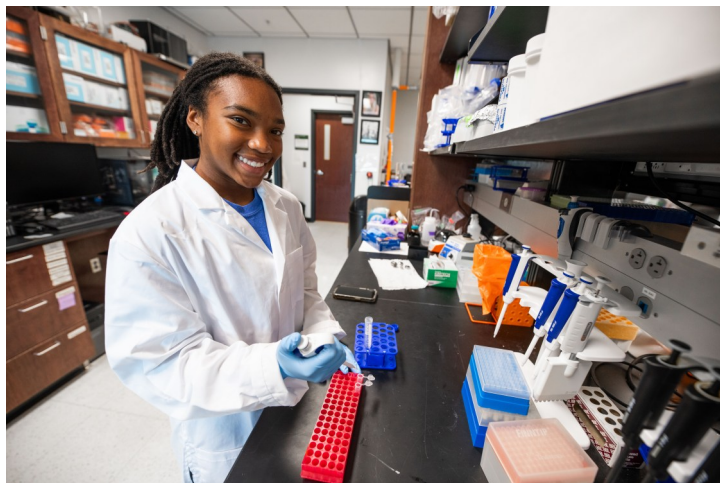
HSTA High School Educators Working In The Labs

Seth Perry, pictured to the right, is a teacher Hurricane High School, and he worked in Dr. Monica Valentovic's lab at Marshall University.



Jennifer Stover, pictured to the left, is from Nitro High School, and she worked in Dr. Nalini Santanam's lab at Marshall University.

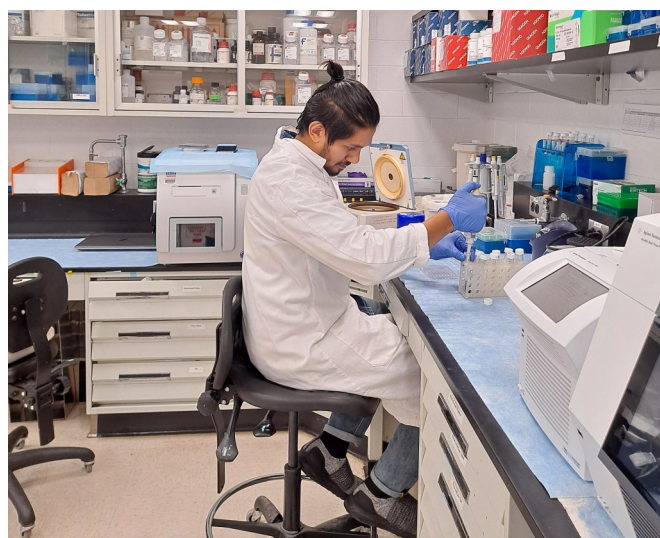
WV-INBRE Participants Working In The Labs



Dasheya Booker, from the University of Charleston, is seen working on her project in Dr. Brandon Henderson's lab at Marshall University.

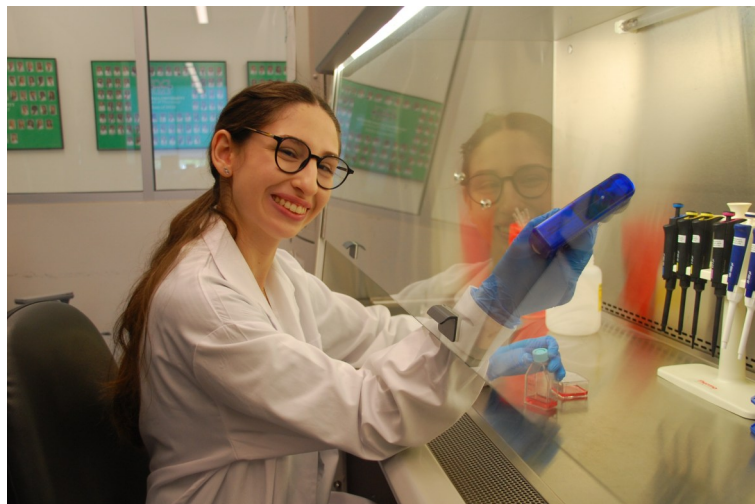


Lakin Plott, from West Liberty University, is seen here working on his project in Dr. Benoit Driesschaert's lab at West Virginia University.

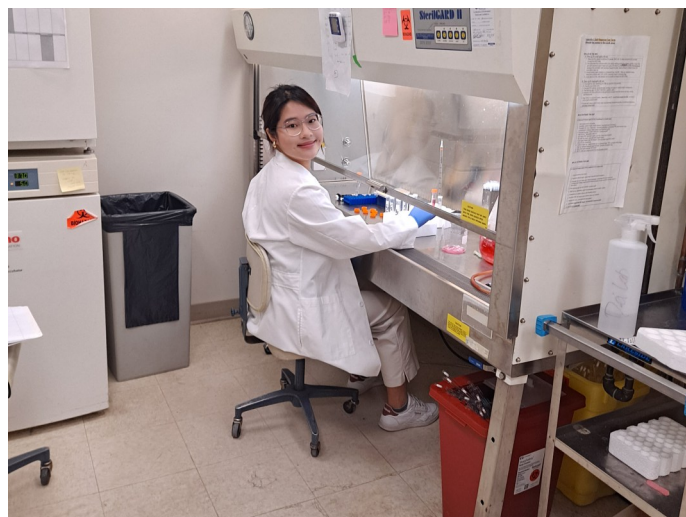


Esam Sohrab, Shepherd University, is seen here working on his project in Dr. Salik Hussain's lab at West Virginia University.

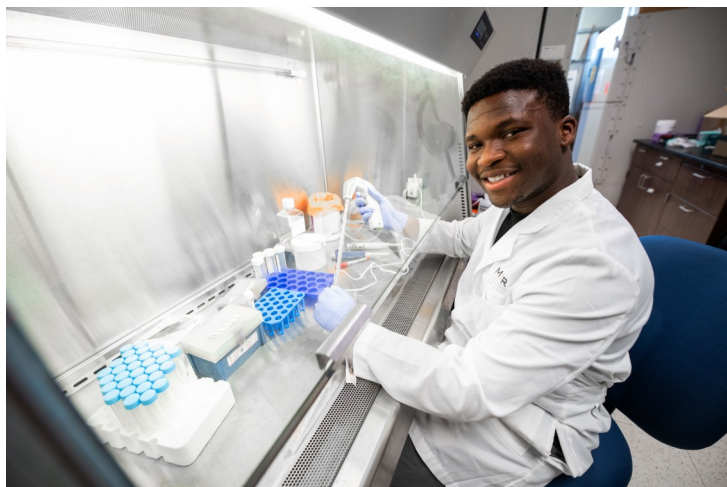
WV-INBRE Participants Working In The Labs *continued*



Ana Chaguri, from the University of Charleston, is seen working on her project in Dr. Melinda Varney's lab at Marshall University.



Trang Bui, University of Charleston, is seen here working on her project in Dr. Ming Pei's lab at West Virginia University.



Ridwan Oloyede, Glenville State College, is seen working on his project in Dr. Sandrine Pierre's lab at Marshall University

2025 WV-INBRE Summer Symposium Was A Success

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The Symposium included morning and afternoon sessions. The morning session began with welcoming remarks from Brad Smith, Marshall University President, and David Gozal, Joan C Edwards School of Medicine Dean. Next up were research presentations from Ash Dean, Halley Smith, and Matthew Grooms (WV-INBRE Summer Interns), Kathleen Loughman (Science Educator from John Marshall High School), and Shelby Heath (Summer Research Fellow and Assistant Professor of Chemistry at West Liberty University).

The morning session concluded with a Keynote Speech given by Darryle Schoepp, a Research Con-

sultant and former Executive and Scientist with Merck and Eli Lilly, whose accomplishments include discovery and development of treatments for migraine, pain, cognition, Alzheimer's and Parkinson's diseases, anxiety disorders, and schizophrenia.

Following lunch, the Symposium continued with an afternoon poster session with 68 poster presentations. The poster presentations were given by WV-INBRE Summer Interns, by other undergraduate students who performed research at their home institutions, by Puerto Rico/West Virginia INBRE exchange program students, and by students from affiliated undergraduate research programs across the State.

Summer Participants Present At The 2025 WV-INBRE Symposium



Student poster presentations from afternoon session, clockwise from top left: Samuel Lake (INBRE intern from Shepherd University), Emily Stotts (West Liberty University undergraduate), Chloe Lee (INBRE intern from Bethany College), Dasheya Booker (INBRE intern from University of Charleston)

MESSAGE FROM THE PRINCIPAL INVESTIGATOR

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In addition to introducing new initiatives, we are also enhancing and expanding our existing WV-INBRE programs and resources to better support faculty and student research across our network:

- **SMART Core Expansion:**

The SMART Core is broadening its service portfolio to include single-cell and spatial transcriptomics capabilities. These additions will provide researchers with advanced tools for comprehensive molecular and cellular analyses.

- **Data Science Core Expansion:**

The Data Science Core will further expand its data analytics and computational services, supporting:

- Multi-omics data integration and analysis
- Development of computational and predictive tools
- Creation of web-based portals, databases, and graphical visualization platforms
- Implementation of AI-driven applications to enhance translational and biomedical research
- **Training Modules and Workshops:**

We are developing a series of new training modules and workshops covering both experimental and computational domains, including:

- Laboratory assays and omics technologies (e.g., bulk, single-

cell, and spatial transcriptomics)

- Data analytics, multi-omics integration, and computational programming (in R and Python)
- Website design and AI tool utilization for research applications These modules will provide online access to training materials, including up-to-date methodologies, best practices, and demo datasets for hands-on experience. All materials will be hosted on the newly redesigned WV-INBRE website.

- **Bioinformatics Bootcamp and Data Science Workshop:**

Dedicated training events will be organized to strengthen faculty and student skills in bioinformatics and data science through immersive, hands-on learning experiences.

- **Summer Research Program Enhancements:**

We have increased stipends and supply funds for participants in the WV-INBRE Summer Research Program to provide stronger support for student researchers and their mentors.

- **Equipment Grant RFA Revisions:**

The Requests for Applications (RFAs) for Equipment Grants are being revised to include investments in computational infrastructure, ensuring our network has access to the necessary resources for data-driven research.

- **WV-INBRE Website Redesign:**

The WV-INBRE website is currently being redesigned using modern technologies such as React and JavaScript, with deployment planned for early 2026. The updated site will feature:

- A more interactive and user-friendly interface
- Enhanced graphical content and access to webinar recordings
- Online training modules and educational materials
- Resources to promote collaboration among faculty and students within WV-INBRE and with other INBRE, COBRE, and IDeA-CTR programs nationwide

I look forward to connecting and working with all of you as we continue to expand our network, enhance communication strategies, and create new opportunities for training, mentoring, and research across the WV-INBRE community.

Lastly, I would like to wish everyone a Happy Holiday Season! I hope you are as excited as we are to embark on this exciting journey together. Here's to a successful and impactful 2026 for all of us!



ANNOUNCEMENTS

RFAs Available

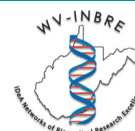
For current available RFAs, please see the WV-INBRE website at:

<https://www.wv-inbre.net/research/funding>

SUMMER 2026 PAID BIOMEDICAL SCIENCE RESEARCH OPPORTUNITY FOR WV HIGH SCHOOL SCIENCE EDUCATORS

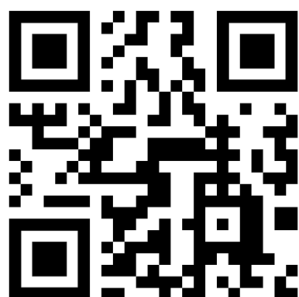
WV-INBRE program will provide funding for nine-week biomedical science research internship positions for WV high school science educators. A maximum of 5 internships will be available. HSTA teachers or teachers from HSTA-affiliated schools may be given preference in the selection process. Internships run from May 26 through July 28, 2026. Based on the high school's academic calendar, start dates are flexible; however, employment dates end July 28, 2026. Compensation of \$9,000 (\$1000/week) will be provided for the full nine weeks, or \$1000 for each 40 hour week worked. For more information, go to the WV-INBRE website at <https://wv-inbre.net/summer-program-hseducators> More information will be provided about the program and you will be able to view the Mentors Abstract Directories for researchers at WVU and Marshall University and at the WV-INBRE's partner institutions. These directories can be viewed online at their appropriate link and the application can be filled out online under the "Apply Now" tab. Application link is now open. Deadline for application is March 6, 2026. For more information, contact: Valerie Watson, vwatson@hsc.wvu.edu or (304) 293-4120.

Stay Connected with WV-INBRE



WV-INBRE Website

(<https://wv-inbre.net/>)



WV-INBRE LinkedIn Group

(<https://www.linkedin.com/groups/15891006/>)



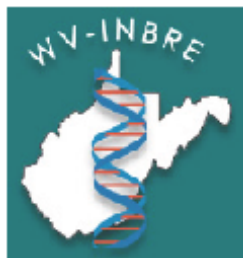
WV-INBRE Facebook

(<https://www.facebook.com/share/16q8Auq2DG/?mibextid=wwXlfr>)



ANNOUNCEMENTS

Continued



SUMMER RESEARCH PROGRAM 2026

Participation is open to all students who are enrolled full-time in a West Virginia Community and Technical College, or a Primarily Undergraduate Institution participating in the WV-INBRE Network and who will have not graduated by August 2026.



Research Opportunities:

- Addiction
- Bioinformatics and Artificial Intelligence
- Cancer Biology
- Cardiovascular Disease, Obesity and Diabetes
- Molecular Mechanisms of Pathogenesis
- Neuroscience and Developmental Biology
- Toxicology and Environmental Health Sciences

Evaluation Criteria:

- Academic record, particularly in science courses
- Laboratory experience
- Stated interest in biomedical research and career goals, and reasons for participating in the program
- Recommendations of two faculty members at the applicant's institution and others, if relevant



Application Process:

- Completed application form (<https://wv-inbre.net/summer-program-students>)
- Transcripts from all institutions of higher learning attended
- Two letters of recommendation



- ♦ \$7,000 stipend
- ♦ Conduct research in state-of-the-art facilities at Marshall University or WVU
- ♦ Present results of the research project at the WV-INBRE Summer Research Symposium

♦ Dates of Summer Internship are May 26 through July 28

♦ **Applications and supporting documents must be received on or by February 5, 2026**

♦ Contact Dr. Larry Grover for more information or questions at grover@marshall.edu

WV-INBRE 2025-2026 RFA Due Dates

Major Awards

Release Date: December 15, 2025
Letter of Intent Due: Mar 11, 2026
Application Due: May 29, 2026
Award Announcement: ~August 1, 2026

Equipment Grants

Release Date: December 15, 2025
Application Due: January 23, 2026
Award Announcement: ~February 13, 2026

Faculty Research Development Awards (FRDAs)

Release Date: December 15, 2025
Letter of Intent Due: March 11, 2026
Application Due: May 29, 2026
Award Announcement: ~August 1, 2026

Center for Natural Products Research (CNPRs)

Release Date: December 15, 2025
Letter of Intent Due: Mar 11, 2026
Application Due: May 29, 2026
Award Announcement: ~August 1, 2026

Team Research Interdisciplinary Projects (TRIPs)

Release Date: December 15, 2025
Letter of Intent Due: Mar 11, 2026
Application Due: May 29, 2026
Award Announcement: ~August 1, 2026

Genomics and Data Science Core Facility Vouchers

Release Date: December 15, 2025
Application Due: February 13, 2026
Award Announcement: March/April 2026

Course-based Undergraduate Research Experience (CUREs)

Release Date: December 15, 2025
Letter of Intent Due: March 11, 2026
Application Due: May 29, 2026
Award Announcement: ~August 1, 2026