

# WV-INBRE NEWSLETTER

Volume 26  
Spring 2022



## 2021 WV-INBRE Summer Research Symposium is a Success

Undergraduate college students, the majority from West Virginia, showcased their research projects on July 30th in Huntington, WV as part of the 19th Annual West Virginia IDeA Network for Biomedical Research (WV-INBRE) Summer Research Symposium.



During the 2021 Summer Program, WV-INBRE supported twenty-eight undergraduate interns, one faculty fellow, and six high school science teachers from the West Virginia HSTA program. Seventeen interns and the faculty fellow carried out their research at West Virginia University. Eleven interns conducted their research at Marshall University. The high school science teachers performed their research at Bluefield State College, Shepherd University, West Virginia University, and Marshall University.

The research projects presented at the symposium were conducted under the direction of faculty mentors during an in-

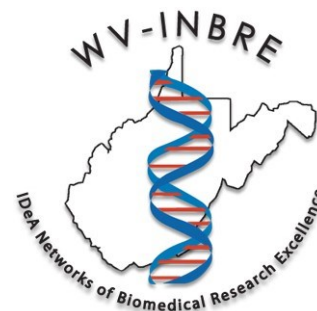
tensive 8-week period. The projects included studies on traumatic brain injuries, neonatal abstinence syndrome, aging, vaping, opioid use disorder, head and neck cancer, among others. WV-INBRE, which is designed to support biomedical research in the state, is funded by a grant from the National Institutes of Health (NIH) to Marshall University, in cooperation with West Virginia University and fourteen other colleges and universities in the state. The summer program allows students enrolled in the Primarily Undergraduate Institutions (PUIs) in the WV-INBRE network re-



search opportunities in labs at both Marshall University and West Virginia University. In addition to the formal research training they receive, students attend workshops and seminars aimed at helping them understand the research process and graduate education.

The morning session of the symposium began with oral presentations by: . Fallon Gallimore (University of Charleston), Olivia Carpenter (West Virginia Wesleyan College), Emily Taylor (University of Charleston), and Bailey Fedun (Alderson Broaddus University), all Summer Research Program Interns, Rebecca Spicher, a High School Science Teacher at North Marion High School; and WV-INBRE/HSTA Summer Research Fellow Dr. Karen Kormuth, Assistant Professor in the Department of Biology at Bethany College who was a Summer Faculty Fellow.

(Continued on page 3)



Network Partners  
of the WV-INBRE

Lead Universities

Marshall University  
West Virginia University

Predominantly Undergraduate  
Institutions (PUIs)

Alderson-Broaddus University  
Bluefield State College  
Concord University  
Davis & Elkins College  
Fairmont State University  
Glennville 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 Jesuit University

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## Message from the WV-INBRE Principal Investigator



A lot has happened since the last time that I wrote a Message from the Principal Investigator back in November 2019. We had just started the fourth phase of WV-INBRE funding in August 2019, and all of us were looking forward to five full years of WV-INBRE activities. Then, we began to see the spread of SARS-CoV-2 across the United States. By March 2020, all of the universities and colleges in West Virginia were shut down by Governor Justice, students were sent home, faculty members were told to work and teach from home, and most research was stopped or slowed dramatically. Virtual learning and meetings became common, with few, if any, in person classes for months. The Summer Research Program for 2020 had to be canceled, which was a big disappointment for us all. By fall 2020, many researchers were able to get back in their laboratories and work began again. While things improved in 2021, the COVID19 pandemic continued to disrupt WV-INBRE activities across the state. Howev-

er, the Summer Research Program occurred in 2021 and culminated with a very successful Summer Research Program Symposium at Marshall University on July 27. The keynote speaker was Dr. Sally Hodder, Principal Investigator for the West Virginia Clinical and Translational Science Institute (WVCTSI, an IDeA-CTR award) and Associate Vice President for Clinical and Translational Research at West Virginia University. She gave a wonderful presentation about infectious disease research, including HIV and COVID19. It was really wonderful to see everyone in person again!

We are currently in the middle of Y21 with lots of activities going on this year. Major Research projects are underway at Bluefield State College (Dr. James Walters), the University of Charleston (Dr. Tamer Fandy), West Liberty University (Dr. Deanna Schmitt), and the West Virginia School of Osteopathic Medicine (Dr. Crystal Boudreaux). Other developmental research projects in a wide range of biomedical areas are ongoing at colleges and universities across the state. We recently released the Requests for Applications (RFAs) for Major Research, Faculty Research Development, Cancer Biology, Chronic Disease Research, and Center for Natural Products Research Awards for projects to start on or about August 1, 2022. Please see the WV-INBRE website (<http://www.wv-inbre.net/funding.asp>) for details, including deadlines for submission of letters of intent and applications for each program. Details on what is required for each program application and submission information is also provided in the RFAs. Contact information for questions

about each program is provided in the RFAs should you have any questions.

We will also have the Summer Research Program as an in person activity this year. Summer Program Director Dr. Elsa Mangiarua and her team will soon be selecting this year's participants as summer interns and faculty fellows to conduct their research projects at Marshall and West Virginia Universities. Valerie Watson and her team will also be selecting the HSTA High School Science Teachers very soon for participation in the summer research program at lead and partner schools. This year the Summer Research Symposium will be held at West Virginia University on Tuesday, July 26, 2022. The keynote speaker has not been selected yet, but we look forward to another fun and informative symposium as we get together in Morgantown.

Lastly, the fall 2021 issue of *Neuron*, which is published by the West Virginia Higher Education and Policy Commission, has a feature article on WV-INBRE by Angela Sundstrom. It is a nice three-page article entitled "Enhancing research experiences through partnerships" and is focused on celebrating 20 years of the INBRE program in West Virginia. The article includes an overview of our program and WV-INBRE goals, along with comments from Dr. Joseph Horzempa, West Liberty University, and Kelsey Matusik, a former summer research intern and second year medical student at the Joan C. Edwards School of Medicine. We also made the cover with a collection of photos from our summer research program!

## 2021 WV-INBRE Summer Research Symposium *Continued*

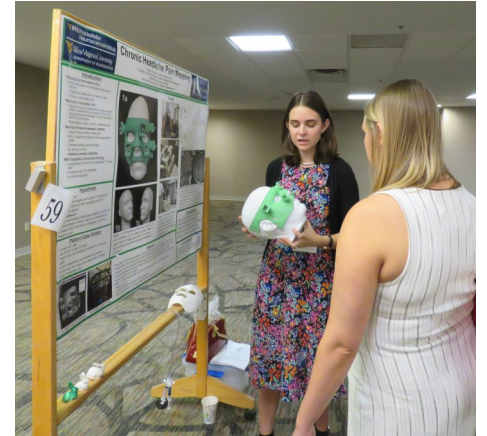
This year's summer research symposium featured keynote speaker was Dr. Sally Hodder, Director of



Pictured above:  
Dr. Sally Hodder

the West Virginia Clinical and Translational Science Institute, Associate Vice President for Clinical and Translational Research, and Professor of medicine at the West Virginia University School of Medicine. Dr. Hodder's talk was highly inspirational, informative, and very well received by everybody in attendance. Following a luncheon, the symposium continued with poster presentations by students and faculty. There was a total of 83 posters. Participants presenting posters included: summer undergraduate interns and the faculty fellow from the PUIs who conducted research at West Virginia University and Marshall University during the 8- week summer research pro-

gram, and students and faculty conducting research at their home institutions. The high school science teachers supported by the WV-INBRE/HSTA initiative also presented posters.



# ANNOUNCEMENTS

Deadlines for the WV-INBRE Pilot Grant Programs:

Faculty Research Development Application (FRDA) Due: March 18, 2022; Award Announcement: ~August 1, 2022

Chronic Disease Research Program: Application Due Date: March 18, 2022, Earliest Award Notification Date: ~August 1, 2022

Cancer Biology Research Program: Application Due Date: March 18, 2022, Earliest Award Notification Date: ~August 1, 2022

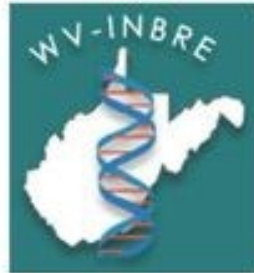
Center for Natural Products Research Program: Application Due Date: March 18, 2022, Earliest Award Notification Date: ~August 1, 2022

Deadline for Major Awards:

Major PUI Research Award Due April 15<sup>th</sup>, Earliest Award Notification Date: ~ August 1, 2022.

See the WV-INBRE website at <http://www.wv-inbre.net> for more details.

# ANNOUNCEMENT



## SUMMER RESEARCH PROGRAM 2022

Participation is open to all students who are enrolled full-time at the Primarily Undergraduate Institutions participating in the WV-INBRE Network who will have not graduated by August 2022.



### Research Opportunities:

- Addiction
- 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 why would like to participate in the program
- Recommendations of two faculty members at the applicant's institution and others, if relevant



### Application Process:

- Completed application form ([http://www.wv-inbre.net/summerprogram/2022\\_Research/](http://www.wv-inbre.net/summerprogram/2022_Research/))
- Transcripts from all institutions of higher learning attended
- Two letters of recommendation



- ♦ \$6,000 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 31st through July 26<sup>th</sup>

- ♦ **Applications and supporting documents must be received on or by February 7, 2022**

- ♦ Contact Dr. Mangiarua for more information or questions at [mangiaru@marshall.edu](mailto:mangiaru@marshall.edu)

## WV-INBRE Interns from Marshall University



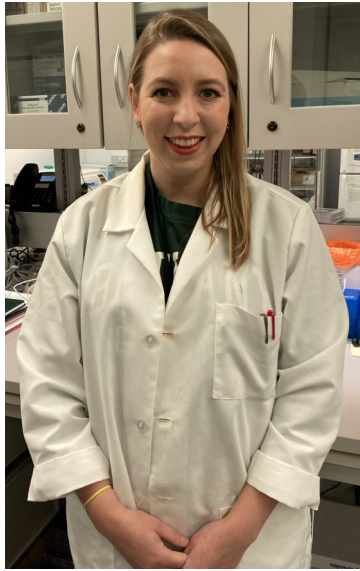
Pictured Left to Right: Front Row: Emily Taylor, WV-INBRE Intern, University of Charleston, Tahisha Valenzuela, SRIMS Intern, University of Rio Grande, Jocelyn Hernandez, SRIMS Intern, Montclair State University, RaeAnne Reed, WV-INBRE Intern, University of Charleston, Fallon Gallimore, WV-INBRE Intern, University of Charleston, Brendin Flinn, AHA Intern, Marshall University, Sakinah Burger, SRIMS Intern, Alderson Broaddus University, Madison Michels, WV-INBRE Intern, Davis & Elkins College, Anya Miller, WV-INBRE Intern, Davis & Elkins College, Claire Combs, AHA Intern, Marshall University, Courtney Lulek, NIDA Intern, Marshall University, Sydnie Jenkins, AHA Intern, Shawnee State University. Back Row: Sidra Tahir, WV-INBRE Intern, University of Charleston, Umesh Nepali, WV-INBRE Intern, West Liberty University, Isabella Kerby-Ballinger, WV-INBRE Intern, University of Charleston, Alex Dague, AHA Intern, Marshall University, Alex Simpkins, AHA Intern, Marshall University, Christopher Bender, WV-INBRE Intern, West Virginia Wesleyan College, Sean Hill, WV-INBRE Intern, University of Charleston, Alejandro Martinez, WV-INBRE Intern, University of Charleston.

## WV-INBRE Interns from West Virginia University



Pictured Left to Right: First row: Linh Nguyen, Concord University, Tiffany Nguyen, Shepherd University, Casey King, Davis & Elkins College, Jemima Ayilaran, University of Charleston, Bailey Fedun, Alderson Broaddus University. Second Row: Courtney Walker, Bethany College, Madison Chadwell, Fairmont State University, Olivia Carpenter, West Virginia Wesleyan College, Sarah Taylor, Concord University, Ally Kirk, Alderson Broaddus University. Third Row: Paula Saez Raez, Bluefield State College, Kaylee Nott, University of Charleston, Sarah Taylor, Concord University, Ally Kirk, Alderson Broaddus University. Last Row: Olamide Adegbamigbe, Shepherd University, Rachael Lee, Alderson Broaddus University, Austin Taylor, Concord University, and Yuveer Kelkar, West Virginia Wesleyan College.

## WV-INBRE 2021 Summer Fellow – Dr. Karen Kormuth



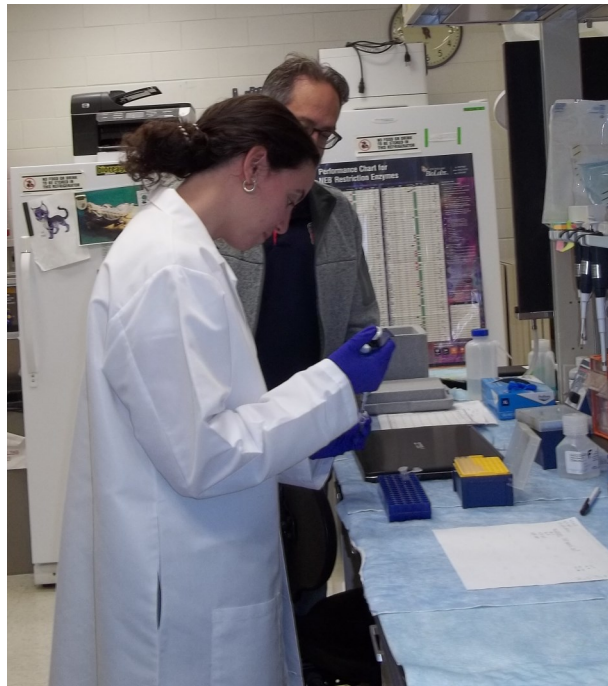
After earning her Ph.D. at Carnegie Mellon University, Dr. Kormuth completed her postdoctoral training at the University of Pittsburgh with Dr. Seema Lakdawala, where she investigated airborne and fomite transmission of influenza viruses.

The undergraduate student researchers in her lab at Bethany College focus on understanding mechanisms driving the stability of viruses in the environment to limit the spread of infectious disease. They also study the application of bacteriophages as alterna-

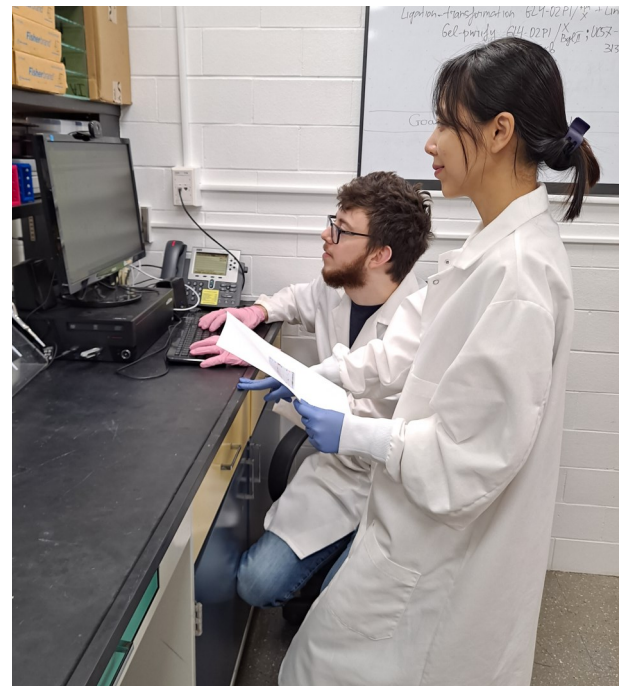
tives to antibiotics in chronic bacterial infections.

Dr. Kormuth worked in Dr. John Noti who is currently a Senior Service Fellow and Team Leader of the Infectious Disease Transmission Program in the Allergy and Clinical Immunology Branch at the National Institute for Occupational Safety (NIOSH) and Health in Morgantown, WV. Dr. Noti's current research focuses on understanding aerosol transmission of the influenza virus in healthcare settings.

## WV-INBRE Participants Working In The Labs

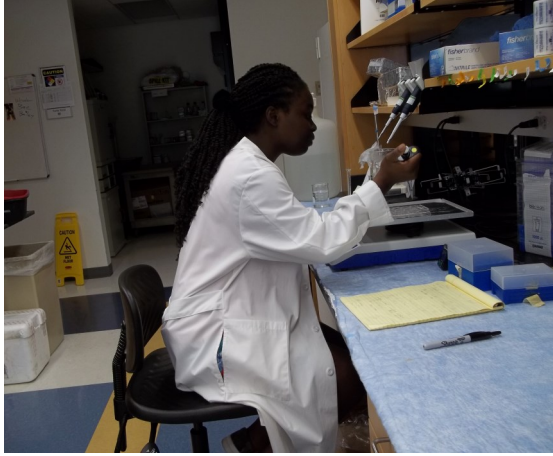


Paula Saez-Raez, Bluefield State College, is seen working with Dr. John Hollander in his lab at West Virginia University.

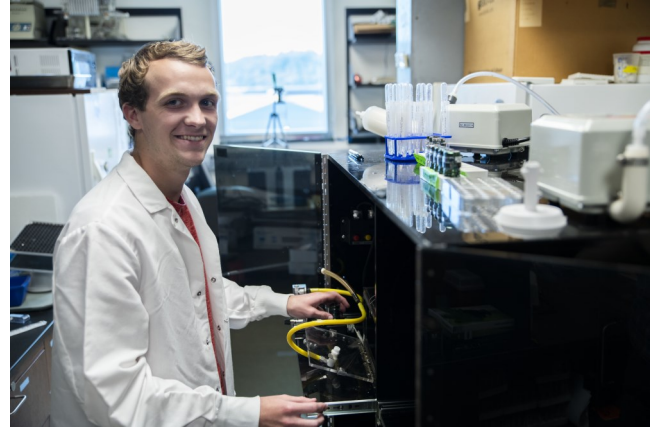


Austin Taylor and Linh Nguyen, both from Concord University, worked in Dr. Alexey Ivanov's lab at West Virginia University.

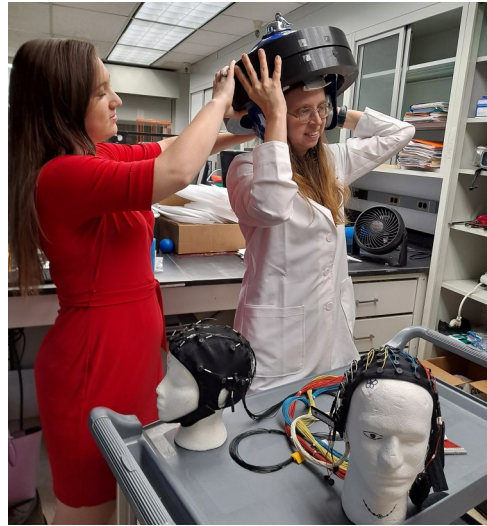




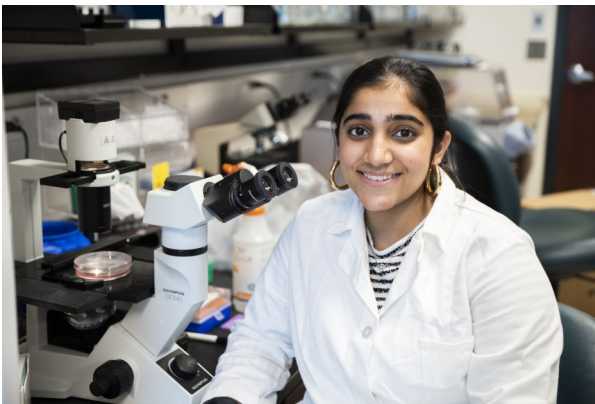
Jemima Ayilaran, University of Charleston, worked in Dr. Stan Hileman's lab at West Virginia University.



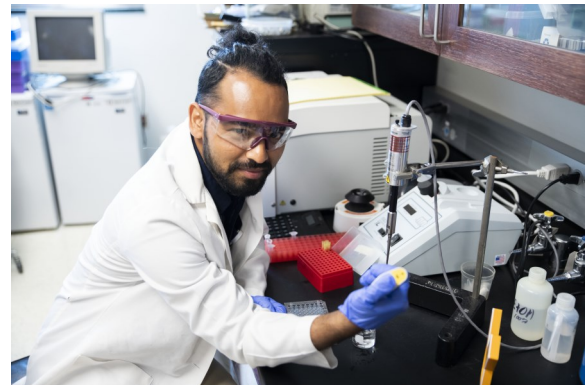
Sean Hill, University of Charleston, worked in Dr. Brandon Henderson's lab at Marshall University.



Kaylee Knott, University of Charleston, is seen working in the lab with Dr. Julie Breczynski-Lewis' at West Virginia University.



Sidra Tahir, University of Charleston, worked in Dr. Vincent Sollars' lab at Marshall University.



Umesh Nepali, West Liberty University, worked in Dr. Larry Grover's lab at Marshall University.



**WV-INBRE Participants Working In The Labs *continued***



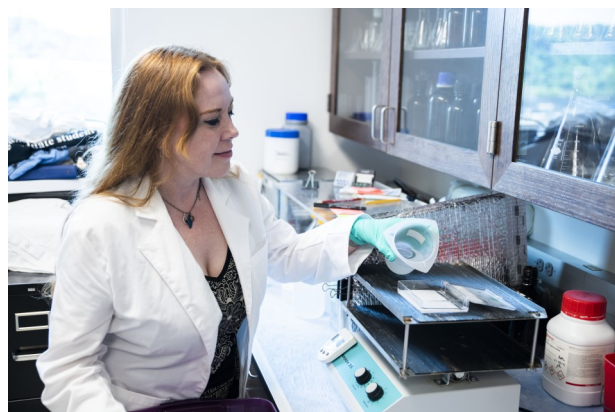
Emily Taylor, University of Charleston, worked in Dr. Lydia Bogomolnaya's lab at Marshall University.



Olamide Adegbamigbe, Shepherd University, worked in Dr. Michael Hu's lab at West Virginia University.



Rebecca Spicher, HSTA Intern who worked in Dr. Zach Weil's lab at the National Institute for Occupational Safety and Health (NIOSH) in Morgantown, WV located next to the WVU campus.



Marnie Kerby-Ballinger, University of Charleston, worked in Dr. Monica Valentic's lab at Marshall University.

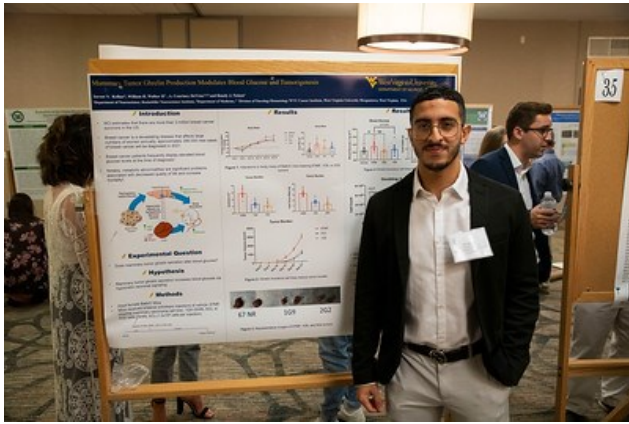


RaeAnne Reed, University of Charleston, worked in Dr. Mindy Varney's lab at Marshall University.

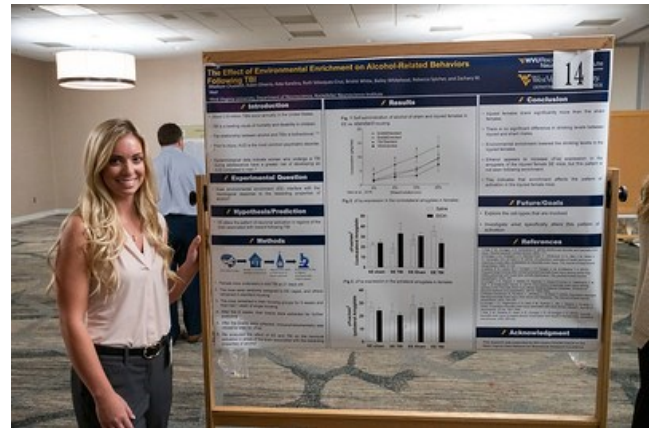




## Summer Participants Presenting Posters At WV-INBRE Symposium



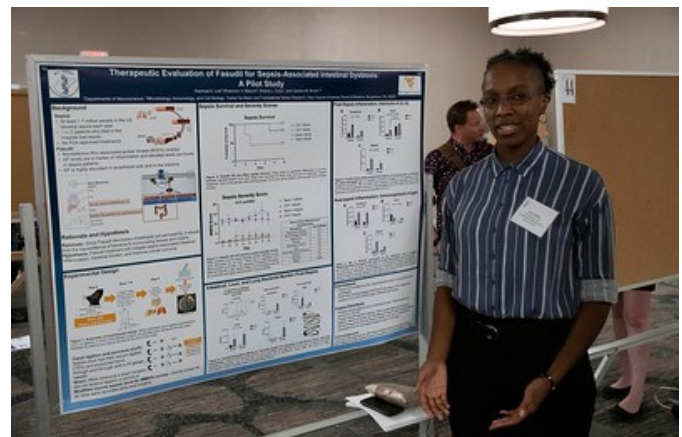
Yuveer Kelkar stands by his poster entitled “Mammary Tumor Ghrelin Production Modulates Blood Glucose and Tumorigenesis.” Yuveer worked in Dr. Randy Nelson’s lab at West Virginia University.



Madison Chadwell stands beside her poster entitled “The Effect of Environmental Enrichment on Alcohol-Related Behaviors Following TBI.” Madison worked in Dr. Zachary Weil’s lab at West Virginia University.



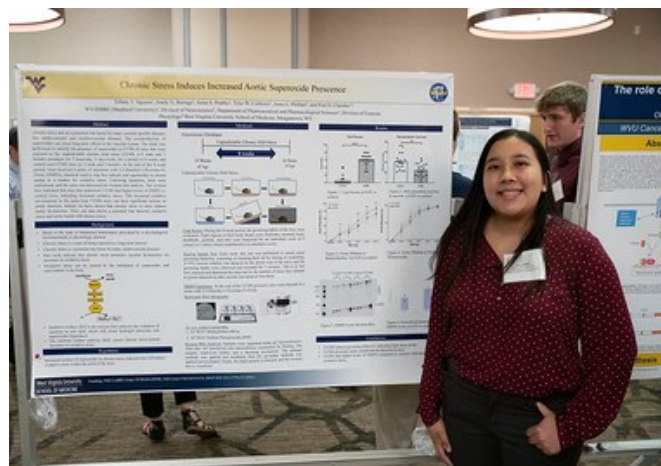
Christopher Bender, West Virginia Wesleyan College, stands beside his poster entitled “Blueberry Constituent Pterostilbene Reduces Cytotoxicity and Oxidative Stress in HK2 Cells.” Christopher worked in Dr. Monica Valentovic’s lab at Marshall University.



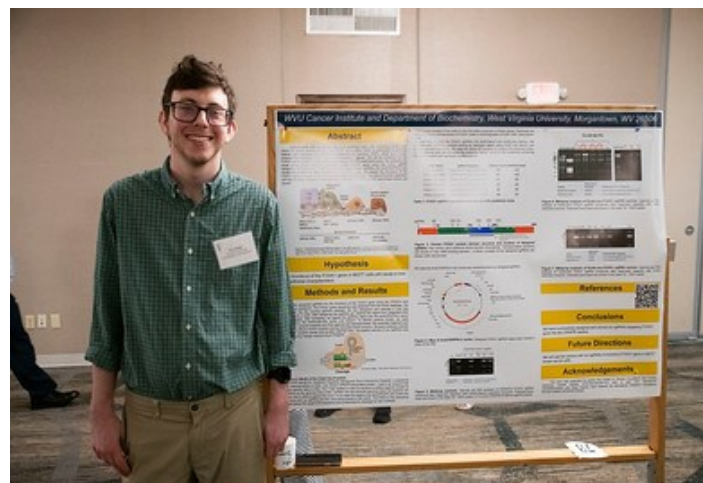
Rachael Lee, Alderson Broaddus University, stands by her poster entitled “Therapeutic Evaluation of Fasudil for Sepsis-Associated Intestinal Dysbiosis: A Pilot Study.” Rachael worked in Dr. Candice Brown’s lab at West Virginia University.



## Summer Participants Presenting Posters At The 2021 WV-INBRE Symposium *Continued*



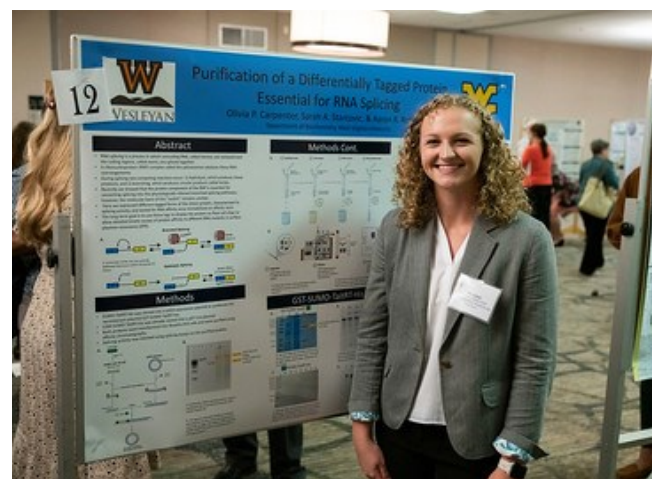
Tiffany Nguyen, Shepherd University, stands by her poster entitled “Chronic Stress Induces Increased Aortic Superoxide Presence.” Tiffany worked in Dr. Paul Chantler’s lab at West Virginia University.



Austin Taylor, Concord University, stands beside his poster entitled “The analysis of FOXA1 gene knock-out on EMT status and cell growth of MCF7 breast cancer cells .” Austin worked in Dr. Alexey Ivanov’s lab at West Virginia University.



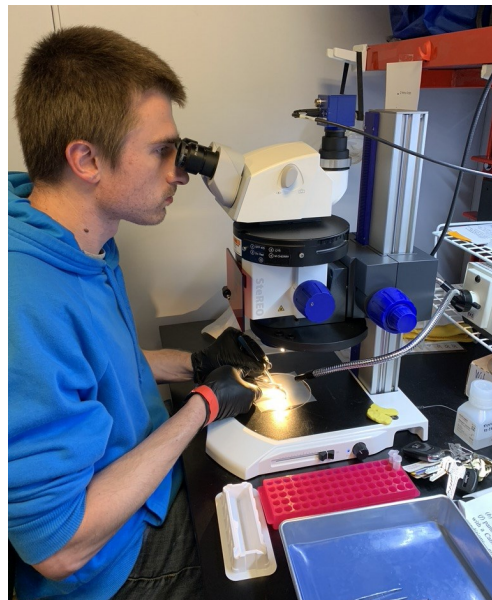
Heidi Reichart, Olamide Adegbamigbe, Jean-Emmanuel Kouadio—Shepherd University, stand beside Olamide’s poster entitled “A Compendium Of Signature Genes For Transcription Responses To Chemical And Genetic Perturbations In Multiple Myeloma.” Olamide worked in Dr. Michael Hu’s lab at West Virginia University.



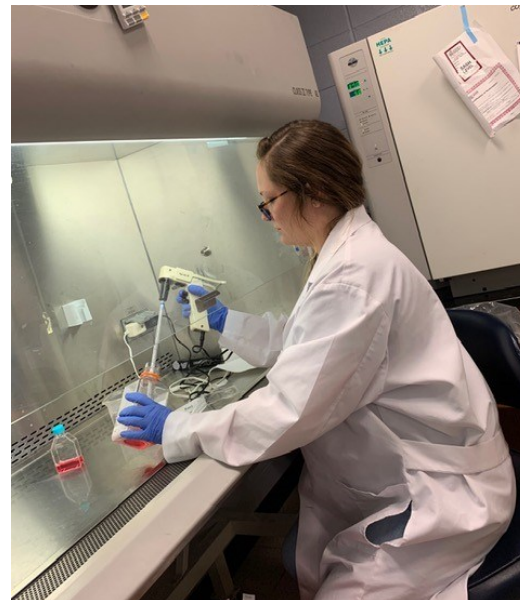
Olivia Carpenter, West Virginia Wesleyan College, stands by her poster entitled “Elucidating RNP Kinetics Through the Use of Affinity Tags and Surface Plasmon Resonance (SPR).” Olivia worked with Dr. Aaron Roberts at West Virginia University.



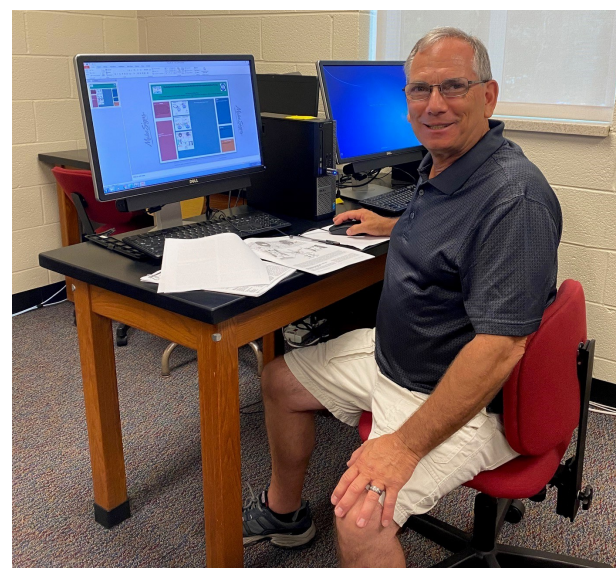
**HSTA High School Educators At The PUI's**



Jeffrey Johnson, HS Educator from Mount View High School in Welch, WV worked in the lab of Dr. James Walters at Bluefield State College.



Ashleigh Freeman, HS Educator from Princeton High School in Princeton, WV worked in the lab of Dr. Tesfaye Belay at Bluefield State College.



John Sheranko, HS Educator from Berkeley Springs High School in Berkeley Springs, WV worked in the lab of Dr. Qing Wang at Shepherd University.



## HIGHLIGHT: Dr. Deanna Schmitt from West Liberty University

Deanna Schmitt, Ph.D. is an Assistant Professor at West Liberty University in the Department of Biomedical Sciences.



She received her Doctorate degree in Immunology from the University of Pittsburgh in 2012 and her Bachelor's degree in Microbiology from Pennsylvania State University in 2005. Following completion of her doctoral research, Dr. Schmitt accepted a postdoctoral research fellowship at West Liberty University under the mentorship of Dr. Joseph Horzempa.

As a postdoctoral fellow, Dr. Schmitt investigated the mechanism by which the bacte-

rium *Francisella tularensis* invades erythrocytes. She identified key bacterial (components of the type VI secretion system) and host (the cytoskeletal protein spectrin) factors involved in this process. Dr. Schmitt also had the unique opportunity as a postdoctoral fellow to instruct multiple courses where she developed a passion for teaching.

In 2017, Dr. Schmitt joined the faculty at West Liberty University as an assistant professor and established her own research laboratory focused on studying a novel class of antibiotics known as resazomycins.

Resazomycins, a family of structural analogs based on the compound resazurin, exhibit potent antimicrobial activity against a number of human pathogens including *F. tularensis* and the causative agent of gonorrhea - *Neisseria gonorrhoeae*. Dr. Schmitt's laboratory aims to further characterize the efficacy and mechanism of action of these antibiotics to move these compounds toward pre-clinical trials.

To support her laboratory's efforts, Dr. Schmitt has acquired multiple grants from WV-INBRE as well as the West Virginia NASA Space Grant Consortium. She has mentored over 25 undergraduate and graduate students in the past five years and

her students have presented their research at many regional and international meetings including most recently the Southeast Regional IDEa Conference in San Juan, Puerto Rico. She has also authored multiple papers in peer-reviewed scientific journals— all of which have included undergraduate student authors.

What Dr. Schmitt is most proud of is the success of her students. Six of the students she has mentored are in masters or doctoral graduate programs, another six are enrolled in professional schools (medical school, dental school, or PA programs), two are working in biomedical/clinical research laboratories, and other graduates are in the process of applying to professional or graduate schools of their choosing.

Dr. Schmitt continually looks for new ways to incorporate undergraduate students in research and recently established a collaboration with Dr. Claudia Ospina at the University of Puerto Rico to screen chemical extracts generated from plants endemic to Puerto Rico for antimicrobial activity. She is also in charge of the Summer Undergraduate Research Program at West Liberty University and is the President-Elect of the West Virginia Academy of Sciences.