



## Record Numbers Apply for 2011 Summer Program

The 10th Annual 2011 WV-INBRE Summer Research Program ran from May 31 till July 29. Twenty-two stellar undergraduate student interns were selected, from among 68 applicants (a record number for the ten-year program), to participate in the nine-week program of intensive research at Marshall University and West Virginia University. In addition, two faculty fellows from the Predominantly Undergraduate Institutions (PUIs) also participated in the summer program.

Interns and fellows conducted biomedical research projects under the direction of faculty mentors. The program provides in-depth, mentored research opportunities for these very talented undergraduate interns and fellows, promotes awareness of graduate degree programs and careers in biomedical research and helps the students build academic competitiveness for graduate school. Laboratory bench research was complemented by lectures and seminars on a variety of

topics including ethics, bio-safety, presentation skills, and information on applying to graduate school.

The program culminated in a summer research symposium that brings faculty and students together from all the WV-INBRE participating institutions throughout the state to celebrate their accomplishments. It also allows participants to witness the breadth of research endeavors on the different campuses throughout the state, to open a dialogue for potential collaborations, and to discuss ongoing research opportunities during the upcoming academic year.

The 10th Annual WV-INBRE Summer Research Symposium, was held at the Memorial Student Center at Marshall University on Thursday, July 28, 2011. Highlights included oral presentations by three undergraduate student interns, by an ACoRN-supported project investigator, by a faculty fellow, and by a WV-INBRE-supported HSTA educator.



*Bluefield State College intern, Sasha Richmond, discusses her project with Symposium keynote speaker, Dr. Terry Monks.*

### Inside this issue:

2011 Summer Research Symposium....	p. 1
Principal Investigator message.....	p. 2
Dr. Monks - Keynote Speaker.....	p. 3
Summer Intern pics.....	pp. 4-7
Opportunities for HSTA Grads.....	p. 8
INBRE-HSTA Summer pics.....	pp. 9-10
Faculty Development Awards.....	p. 11
2012 Summer Program set.....	p. 11

#### Network Partners of the WV-INBRE

#### Lead Universities

Marshall University  
West Virginia University

#### Predominantly Undergraduate Institutions (PUIs)

Alderson-Broaddus College  
Bethany College  
Bluefield State College  
Concord University  
Davis & Elkins College  
Fairmont State University  
Glennville State College  
Mountain State University  
Salem International University  
Shepherd University  
University of Charleston  
West Liberty University  
West Virginia State University  
West Virginia Wesleyan College  
Wheeling Jesuit University

## Message from the WV-INBRE Principal Investigator - Gary O. Rankin, Ph.D. -

It is hard to believe that on November 1, 2011, we were halfway through Phase II of WV-INBRE. Time has really flown as we all have worked hard to build our research network and expand our student-based research initiatives. Although we have made excellent progress developing WV-INBRE, there is still much work to be done, and there are uncertainties that loom on the horizon for the IDeA programs as I'll describe later.

This funding year (Y11; May 1, 2011-April 30, 2012) started with a 10% cut to our budget. That meant we weren't able to fund (or had to reduce the budgets of) several initiatives that would normally start at the beginning of the each new award period. The problem was that Congress had not passed a budget for NIH, and therefore, to be safe, the National Center for Research Resources (NCRR) reduced all INBRE budgets by 10%. Even though some of our activities had reduced budgets to start Y11, we were able to provide full funding for the summer research program and the major Primarily Undergraduate Institution (PUI) research projects. When the federal budget was finally passed for 2010-2011, NIH only received a 1% reduction in their projected budget. NCRR restored most of the reduction to WV-INBRE on August 31, 2011, and we were able to restore funding to most of our programs.

Our summer research program had another successful year, thanks to the hard work and leadership of our Summer Program Director Dr. Elsa Mangiarua, WVU Summer Program Coordinator Dr. Robert Griffith, and many others. We received 68 applications (the most

ever!) and selected 22 PUI students to participate in biomedical research at Marshall University (11 students) and West Virginia University (11 students). We also had two PUI faculty research fellows and six HSTA high school teachers conducting biomedical research as part of the summer research program. The summer ended with the Summer Research Symposium held at Marshall University on July 28, 2011. During the Symposium, six oral presentations and 56 research posters were presented. Another great summer!

I should also mention that Program Coordinator Dr. Jim Sheil has been working with the Health Sciences and Technology Academy (HSTA) PI, Dr. Ann Chester, and our INBRE-HSTA Coordinator, Valerie Watson, to establish a working INBRE/HSTA Task Force to further develop the interactions between these two NCRR-funded programs. Valerie was also able to place eight HSTA graduates in WV-INBRE funded PUI laboratories through our ARRA supplement. Although this supplement ended in September, 2011, additional funds have been dedicated from our primary award to continue funding eight HSTA graduates to work in WV-INBRE-supported laboratories during the academic year.

This year will also be an important time for major PUI research award competitions. WV-INBRE is currently accepting two-year applications and will fund up to six new awards. Budgets are not to exceed \$125,000 per year in direct costs, and all applications must be received by Kristen Webb in the WV-INBRE office at Marshall University by November 30, 2011. If you



have any questions, don't hesitate to contact Kristen at Marshall University ([perry12@marshall.edu](mailto:perry12@marshall.edu)) or me ([rankin@marshall.edu](mailto:rankin@marshall.edu)).

As I mentioned in the last newsletter, there is potentially a major reorganization for the location of the IDeA programs (INBRE and COBRE) and the future of NCRR. NIH Director, Dr. Francis Collins, plans to establish the new National Center for Advancing Translational Sciences (NCATS), pending Congressional approval of the 2011-2012 federal budget. As part of this initiative, he is proposing to move the Clinical and Translational Science Award (CTSA) program from NCRR to NCATS. All remaining NCRR programs would then be moved into other centers, institutes or the Director's Office, and NCRR would be dissolved.

The IDeA programs are slated to be moved to NIGMS at that point. At the SE Region IDeA Meeting in New Orleans, LA on September 22-24, 2011, the NCRR leadership reported that they didn't know when or if these moves would occur. At the Association of American Medi-

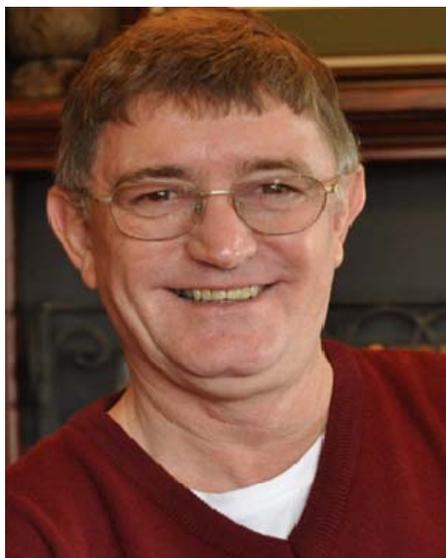
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## Monks Is Keynote Speaker at 10th Annual WV-INBRE Summer Symposium

The WV-INBRE 10th Annual Summer Symposium keynote speaker, Dr. Terrence J. Monks, is Professor and Chair of Pharmacology and Toxicology, at the College of Pharmacy of the University of Arizona Health Sciences Center. The title of Dr. Monk's lecture was "A Career in Drug Metabolism – From Tea to Ecstasy".

Dr. Monks described his successful career path from his beginnings as a graduate student in London where he studied the metabolism of caffeine and theophylline, to his current interests in understanding the neurotoxicity of ecstasy.

His very enthusiastic presentation generated much interest



*Dr. Terrence J. Monks, Professor and Chair of Pharmacology and Toxicology, College of Pharmacy, University of Arizona Health Sciences Center*

and many questions from the audience. Throughout his presentation Dr. Monks encouraged especially the students in the audience to pursue careers in biomedical sciences.



## Message from the Principal Investigator

*(Continued from page 2)*

cal Colleges meeting in Denver, CO, I learned that the pending 2011-2012 House budget contains funds for NCCR to remain, while the Senate budget does not. So, stay tuned.

Lastly, I want to reiterate how important it is for researchers in the WV-INBRE network to present their research at scientific meetings, publish the results of the work WV-INBRE has funded, and seek additional external funding for your work. Investigators at all the network institutions who use equipment provided by WV-INBRE should also acknowledge the support of WV-INBRE (NIH grant

P20RR016477) in their abstracts and publications. We will begin to write a renewal for WV-INBRE sometime next year, and we need for everyone to be productive, and please let us know about your successes. Another five years of funding will only come if we use the funds we have received to advance biomedical research, increase our research productivity and help our students enter the biomedical research professional pipeline.

\* \* \*

I hope you all have a wonderful holiday season!

*This year will also be an important time for major PUI research award competitions.*

*WV-INBRE is currently accepting two-year applications and will fund up to six new awards.*

**WV-INBRE Student Interns  
2011 Summer Research Program**



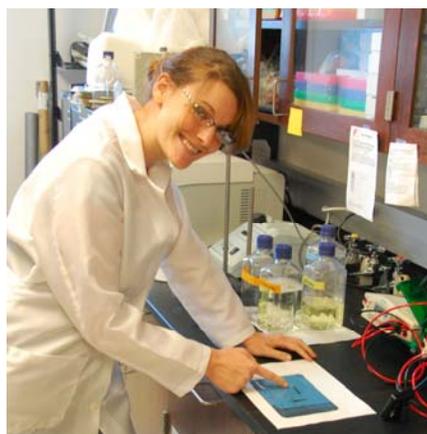
***Arielle Baker***  
West Virginia Wesleyan College  
mentor: Dr. James O'Donnell (WVU)



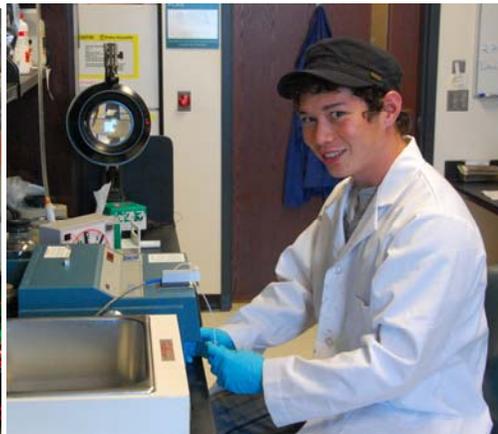
***Rachel Brown***  
Concord College  
mentor: Dr. Patrick Callery (WVU)



***Carissa Dunn***  
Davis & Elkins College  
mentor: Dr. Peter Stoilov (WVU)



***Hannah Cavender***  
West Virginia State University  
mentor - Dr. Larry Glover (MU)



***Joshua Kim***  
West Virginia State University  
mentor: Dr. Gary Rankin (MU)



***Ben Kordusky***  
West Virginia Wesleyan College  
mentor: Dr. Elaiane Hardman (MU)

**WV-INBRE Student Interns**  
**2011 Summer Research Program**  
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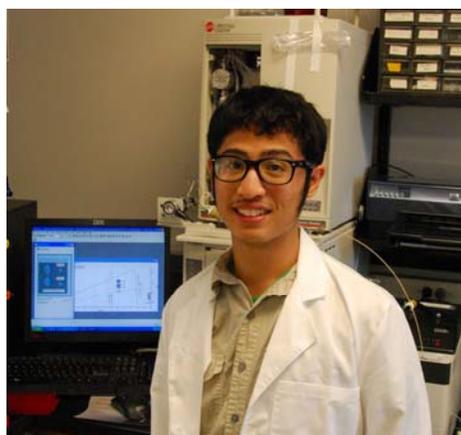
***Ryan Johnson***  
Bethany College  
mentor: Dr. Hunter Zhang (WVU)



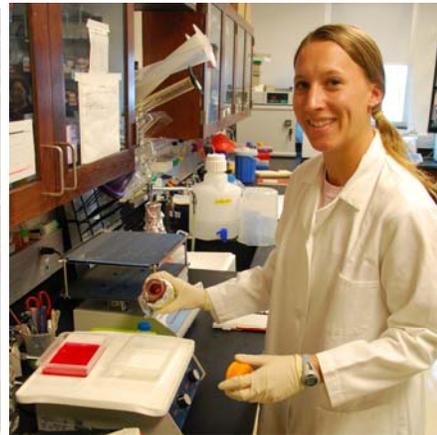
***Sara Kurian***  
Shepherd University  
mentor: Dr. Dr. Bingyun Li (WVU)



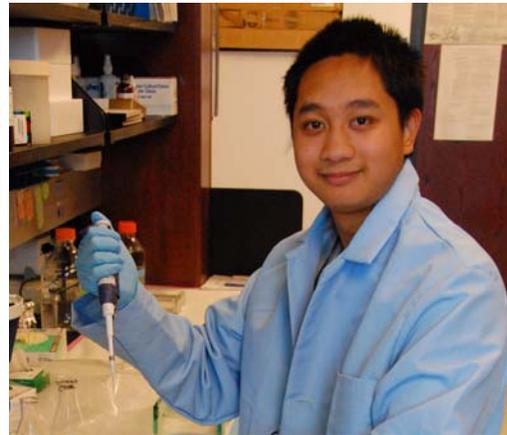
***Gabrielle LaFata***  
West Virginia Wesleyan College  
mentor: Dr. John Hollander (WVU)



***Andre Lamyathong***  
Wheeling Jesuit University  
mentor: Dr. Monica Valentovic (MU)



***Emma Levin-Nielsen***  
West Virginia Wesleyan College  
mentor: Dr. Richard Egleton (MU)



***Daniel Mai***  
University of Charleston  
mentor: Dr. Jung Han Kim (MU)



**WV-INBRE Student Interns  
2011 Summer Research Program**  
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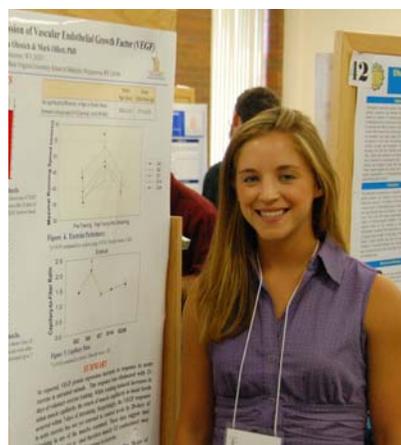
**Sarah Monsheimer**  
University of Charleston  
mentor: Dr. Simon Collier (MU)



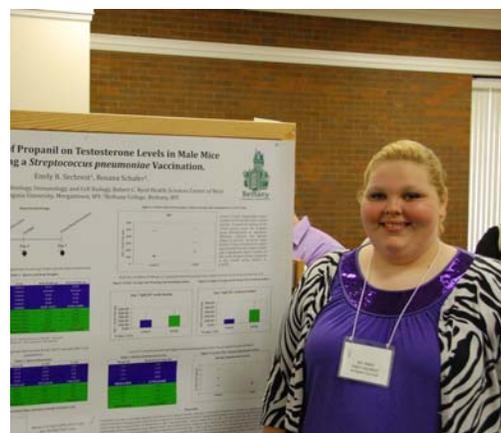
**Niraj Nepal**  
West Virginia State University  
mentor: Dr. Eric Blough (MU)



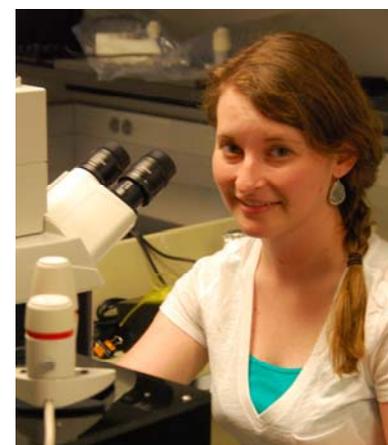
**Kyle Oney**  
Alderson-Broaddus College  
mentor: Dr. Mike Schaller (WVU)



**Kathleen Roberts**  
West Virginia Wesleyan College  
mentor: Dr. Mark Olfert (WVU)

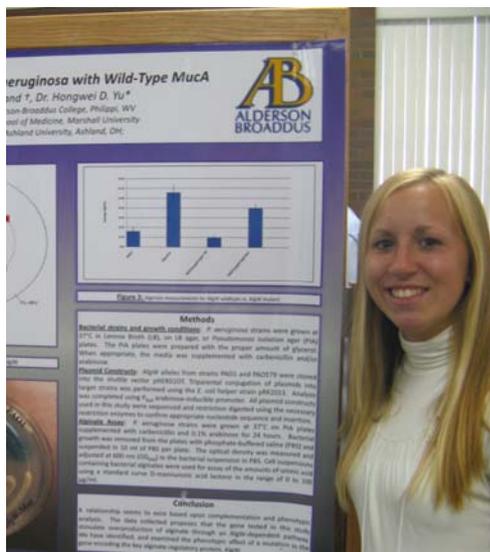


**Emily Sechrest**  
Bethany College  
mentor: Dr. Rosana Schafer (WVU)

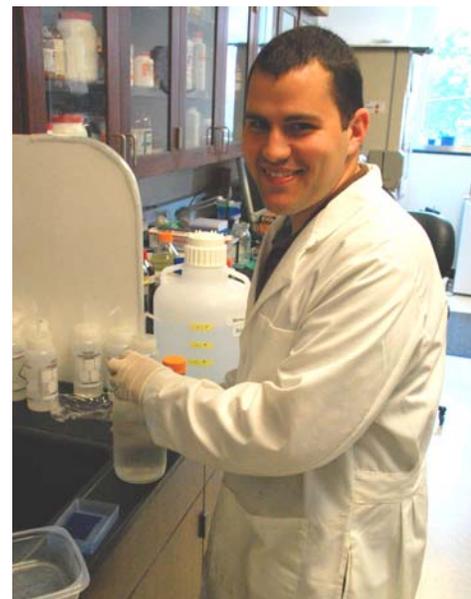


**Rebekah Sine**  
Alderson-Broaddus College  
mentor: Dr. Maria Serrat (MU)

**WV-INBRE Student Interns  
2011 Summer Research Program**  
*(continued)*



**Megan Smith**  
Alderson-Broaddus College  
mentor: Dr. Hongwei Yu (MU)



**Phil Thomas**  
West Virginia Wesleyan College  
mentor: Dr. Philippe Georget (MU)



**Anthony Thorpe**  
Alderson-Broaddus College  
mentor: Dr. Robert Brock (WVU)



**Kiril Tuntevski**  
University of Charleston  
mentor: Dr. Slawek Lukomski (WVU)

## WV-INBRE Enhances Opportunities for HSTA Graduates

The WV-INBRE/HSTA Task Force is behind the WV-INBRE initiative to provide outreach to high school graduates of the Health Sciences Technology Academy (HSTA), also funded by the NCCR. WV-INBRE creates opportunities for WV undergraduates, who have demonstrated an interest in health-related career opportunities through their involvement in the HSTA program while in high school, to participate in biomedical research at one of the WV-INBRE partner institutions (PIUs).

During the second year of this partnership, 8 HSTA students participated in this program: at Bluefield State College, Christina Sargent and Sasha Richmond worked with Dr. Tesfaye Belay; at Concord University, Jeremy Lloyd worked with Dr. Darrell Crick; at West Virginia State University, Anthony Johnson worked with Dr. Robert Harris; at West Liberty University, Amber Wilson worked with Dr. Jarrett Aguilar and Kyle McGill worked with Dr. Robert Kreisberg; at West Virginia Wesleyan College, Jacob Wagoner worked with Dr. Timothy Troyer and Morgan Miller worked with Dr. Luke Huggins.

All students presented their research at the 10th Annual WV-INBRE Summer Research Symposium in Huntington WV on July 28, 2011. Of these 8 students, four have graduated: Jeremy Lloyd, Anthony Johnson, Kyle McGill, and Jake Wagoner.

Jeremy Lloyd plans to attend the Mountain State University Physician's Assistant Program. Anthony Johnson will be attending medical school at Marshall University and Kyle McGill will be pursuing his

master's degree in Biomedical Sciences at Marshall University. Jake Wagoner is pursuing employment opportunities; last we heard he was interviewing at Mylan Pharmaceuticals. Amber Wilson will continue to work in Dr. Aguilar's lab and Sasha Richmond will continue to work in Dr. Belay's lab during this academic year. Funding is available for 8 research internships during the 2011-2012 academic year through April 30, 2012.

Another component of this program provides 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 a funded mentor at one of the PIUs. Participation is open to high school science educators who taught in the state of West Virginia during the previous academic year. The goal of this part of the program is to provide research opportunities for interested science teachers so they can take their research experience back into their classrooms and inspire their students to pursue biomedical research endeavors 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.

During this past summer, 7 high school science educators were awarded 9-week research internships: Johnathan Baldwin from Scott High School in Madison worked with Dr. Gerald Hankins at West Virginia State University; Denise Gipson from Jefferson High School in Shenandoah Junction and Wendy Lee from Musselman High

School in Inwood worked with Dr. Seung-yum Kim at Shepherd University; Tiffani Smith from Huntington High School and Timothy Clifton from Herbert Hoover High School in Clendenin worked with Dr. Robert Harris at West Virginia State University; Brian McNeel from Cabell Midland High School in Ona worked with Dr. Richard Egleton at Marshall University; and Rene Normal from Sissonville High School in Charleston worked with Dr. Dean Reardon at the University of Charleston.

All research interns presented posters of their research at the 10th Annual WV-INBRE Summer Research Symposium in Huntington on July 28, 2011. Denise Gipson also delivered an oral presentation at this symposium, summarizing the research of Dr. Seung-yun Kim's lab during Summer, 2011.

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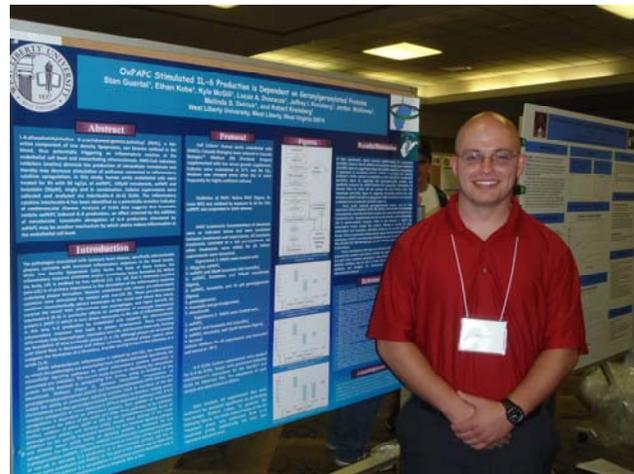
*The partnership is designed to encourage undergraduate students who have demonstrated an interest in biomedical research ... to participate in biomedical research once they enroll in one of the partner institutions (PIUs).*

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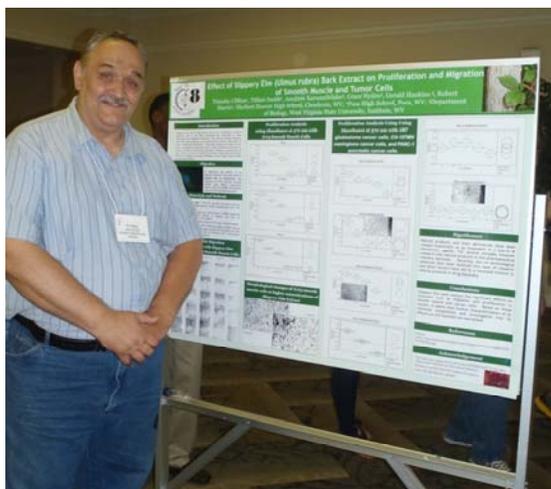
## INBRE/HSTA Summer Participants



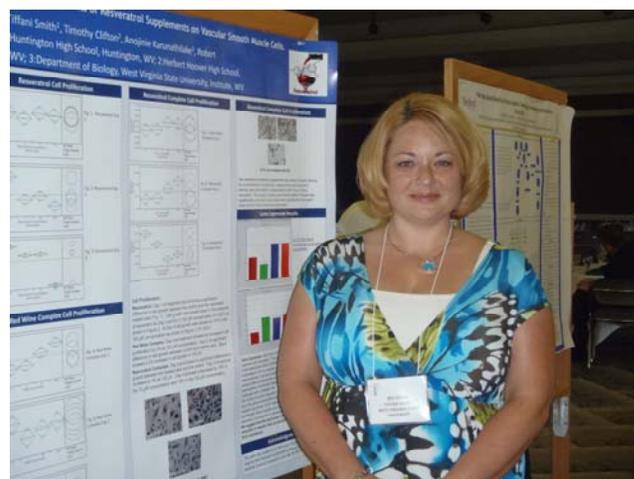
**Amber Wilson** stands beside her poster entitled “Expression and purification of Cytochrome P450 2C9”. She worked with Jarrett Aguilar, PhD at West Liberty State University.



**Kyle McGill** stands beside his poster entitled “OxPAPC Stimulated IL-6 Production is Dependent on Geranylgeranylated Proteins”. He worked with Robert Kreisberg at West Liberty State University.



**Timothy Clifton** with his poster entitled “Effect of Slippery Elm Bark (*Ulmus rubra*) Extract on Proliferation and Migration of Smooth Muscle and Tumor Cells.” He worked with Gerald Hankins, PhD at West Virginia State University.

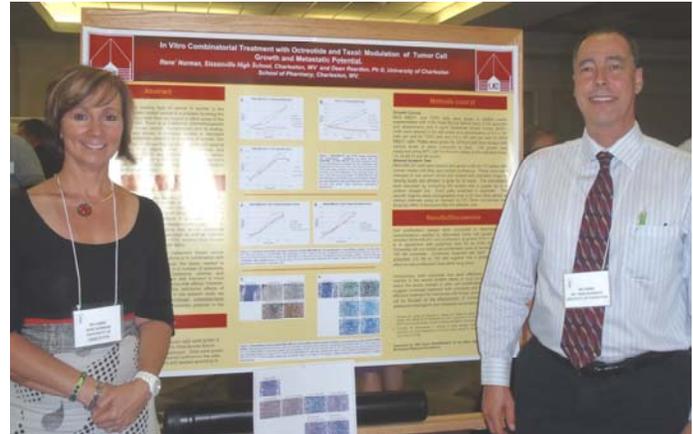


**Tiffani Smith** with her poster entitled “Effects of Trans-resveratrol and Extracts of Resveratrol Supplements on Vascular Smooth Muscle Cells”. She worked with Robert Harris, PhD at West Virginia State University.

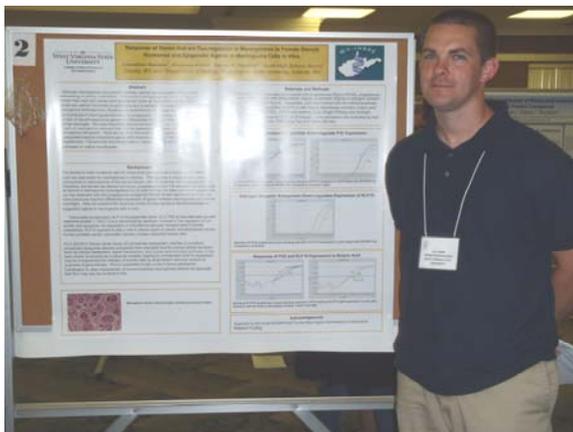
## INBRE/HSTA Summer Participants - continued



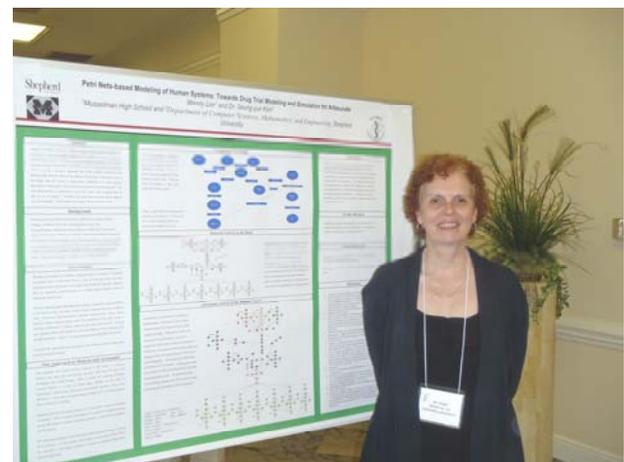
**Sasha Richmond** stands beside her poster entitled “Decreased Production of Immune Cell Stimulatory Cytokines and Chemokines in Chlamydia trachomatis Infected Stress Mouse Model.” She worked with Tesfaye Belay, PhD at Bluefield State College.



**Rene Norman** (left) worked with Dean Reardon, PhD (right), at the University of Charleston, on their project entitled “In vitro combinatorial therapy with somatostatin and taxol: modulation of tumor cell growth and metastatic potential.”



**Johnathan Baldwin** stands beside his poster entitled “Response of Genes that are Dys-regulated in Meningiomas to Female Steroid Hormones and Epigenetic Agents in Meningioma Cells in Vitro.” He worked with Gerald Hankins, PhD at West Virginia State University.



**Wendy Lee** stands beside her poster entitled “Modeling and Simulation of Malaria and Medication Interaction using Petri Net.” She worked with Seung-yun Kim, PhD at Shepherd University

## WV-INBRE Faculty Development Awards

A major component of the WV-INBRE program consists of Faculty Research Development Awards (FRDAs). This program provides smaller awards annually to faculty at the predominantly undergraduate institutions (PUIs) to conduct biomedical research at their home institution.

FRDA grants are awarded on a competitive basis through an application procedure using standard NIH forms followed by review of the applications by faculty at WVU and Marshall. Proposed research projects must engage undergraduate students in the research plan and be clearly biomedical in orientation and scope.

The following investigators

and their projects were selected in Spring, 2011, for funding through the FRDA program for the current 2011-2012 fiscal year:

**Dr. Gagan Kaushal**, University of Charleston, “D-cycloserine transdermal formulation development based on an enhanced treatment”, \$13,200;

**Dr. Sueng-yun Kim**, Shepherd University, “Petri nets-based modeling of human systems: towards drug trial modeling and simulation”, \$28,800;

**Dr. Rebecca Linger**, University of Charleston, “Investigating the allosteric signaling in

guanosine monophosphate synthase”, \$10,000;

**Dr. Haitao Luo**, Alderson-Broadus College, “Chaetoglobosin K and angioprevention in ovarian cancer cells”, \$40,000.

Over the years of funding through the FRDA program, many projects have been quite successful, resulting in papers presented at national meetings in their relevant fields and leading to increased funding through major awards.

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### Announcement

#### 2012 Summer Program to be held May 29 – July 27, 2011

The 11<sup>th</sup> annual WV-INBRE Summer Research Program will be held May 29 – July 27, 2012 at the Robert C. Byrd Health Sciences Center of West Virginia University and at the Joan C. Edwards School of Medicine of Marshall University. The program is open to all undergraduate and graduate students at the 14 partner institutions who have not graduated by August 1, 2012. Participants will conduct a biomedical research project under the mentorship of an experienced faculty member and present the results of the research at the Summer Research Symposium to be held at WVU, July 26, 2012. A stipend of \$4,500 will be paid for participation in the 9-week program. Application forms will be available by January 1, 2012, on the WV-INBRE website ([www.wv-inbre.net](http://www.wv-inbre.net)) under the 2012 Summer Program link



Supported by:



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