

Supported by:



**Institutions
of the
WV-BRIN**

Lead Universities

Marshall University
West Virginia University

*Predominantly
Undergraduate
Institutions (PUIs)*

Alderson-Broaddus College
Bluefield State College
Fairmont State College
Salem International University
Shepherd College
West Liberty State College
West Virginia State College
Wheeling Jesuit University

From the Program Director, Dr. James M. Sheil:

The WV-BRIN is a consortium of institutions of higher education in West Virginia, organized under the direction of Marshall University School of Medicine (MUSOM) and the West Virginia University Health Sciences Center (WVUHSC). We have been funded through the National Institutes of Health to develop the resources and biomedical research and training capacity of the predominantly undergraduate institutions (PUIs) in the state and to interest their students in graduate training in the biomedical sciences. Our program activities during the first year of the WV-BRIN have been many and diverse. The Training & Mentoring Core (TMC) organized and coordinated a highly successful 8-week Summer Research Program involving students and faculty from all of the participating PUIs, as well as mentors at both MUSOM and WVUHSC. The Research Development Core (RDC) conducted a competitive Research Equipment Grant Program through which approximately \$350,000 was awarded to PUI investigators to purchase needed equipment to enhance their capacity to conduct biomedical research at their institutions. Through the Pilot Research

Grant Program, the RDC recently awarded close to \$200,000 to faculty at the PUIs to fund in-house biomedical research projects. This program is designed to encourage the development of faculty-initiated research programs that will ultimately lead to extramural funding and also attract interested and motivated students to conduct research at the local PUI. The Training & Mentoring Core (TMC) has instituted a program to fund requests from PUI investigators and students for travel to participate in biomedical-related scientific meetings. The TMC and Bioinformatics Core sponsored and organized a Bioinformatics Workshop focused on introducing PUI investigators and students to the emerging and expanding discipline of bioinformatics in biomedical research. Plans for activities in 2003 of the WV-BRIN are listed in the "What's New in 2003" column of the Newsletter

The Appalachian Cardiovascular Research Network (ACoRN) is a vital component of the WV-BRIN and is focused on bringing a clinical research element to the biomedical research training emphasis of the Network. The mission of the ACoRN is directed towards identifying the genetic basis for cardiovascular disease susceptibility particularly among the underserved rural populations of West Virginia. Currently, the infrastructure of this component of the WV-BRIN is being established in several rural clinics and surrounding communities, and we hope to have in place specific channels to bring in PUI investigators and students as an important research focus in this area.

The WV-BRIN website (www.wv-brin.org) has been established to keep you posted on upcoming events, activities, meetings, etc. In addition, minutes of WV-BRIN Steering Committee meetings and other information are posted on the website including contact information for members of the WV-BRIN Administrative Core (AC).

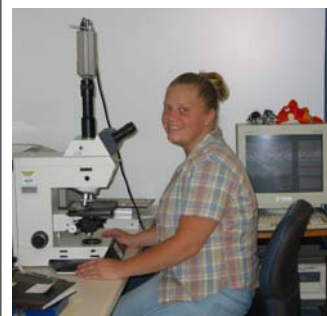
Your input into the WV-BRIN programmatic planning and development interests and activities is both welcomed and needed. Although the Administrative Core group from MUSOM and WVUHSC have served as the lead organizers and planners of WV-BRIN up until now, the vested interests and needs of the PUIs must grow stronger and remain the central focus of WV-BRIN. Indeed, it is my hope and plan that the WV-BRIN eventually will become a joint operation focused on biomedical research and training sustained primarily under the direction of the PUIs across the entire State of West Virginia. In so doing, WVUHSC and MUSOM will play a supportive role in helping to better enable this network to develop its own resources and secure financial support through federal, state, and private funding of diverse means. In future issues of the Newsletter, I will keep you updated on the activities and future plans of the WV-BRIN.

Here is some feedback from participants about their summer research experience:

"It was incredible! My mentor was a wonderful teacher and the others in the lab were so helpful. The material was interesting and working on break-through research was exciting."

"I thoroughly enjoyed the experience. I learned about research; how difficult and rewarding it is and learned new techniques and methods. It opened several doors to my future."

"It was rewarding in the aspect that it broadened my interest in the field of genetics."



Monica Cartwright—a summer student intern from Bluefield State College

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Summer Research Program

The 2002 Summer Research Program began on June 10 and ended July 31 with the Summer Research Symposium held in Morgantown at the Robert C. Byrd Health Sciences Center of West Virginia University. Sixteen student interns and eight faculty fellows from the PUI participated in the program and made poster presentations at the symposium. (continued on pages 3 and 4)

<u>2002 Interns and Fellows</u>	<u>Mentor</u>	<u>Project Title</u>
Dr. Jarrett Aguilar West Liberty State College	Dr. Peter Gannett	Development of a CoMFA Model for Dapsone Activation of CYP2C9-Mediated Activation of Flurbiprofen
Elisa Bell Wheeling Jesuit University	Dr. Todd Green	Gene Expression in an Obese Hypertensive Rat Model
Bernie Boswell Shepherd College	Dr. Rob Haining	Creation of CYP2D6* <i>N</i> a Novel CYP2D6-Related Protein"
Ruthanne Cain Alderson Broaddus College	Dr. Kathleen Brundage	The Effects of Atrazine on C57B1/6 Mice
Monica Cartwright Bluefield State College	Dr. Sharon Wenger	Can Nucleolar Organizing Regions Help to Determine the Degree of Malignancy Present in Skin Cancer?
Amanda Dice Shepherd College	Dr. Don Primerano	Effects of Hydrogen Peroxide Treatment on Human Hepatocarcinoma Gene Expression
Laura Dice Shepherd College	Dr. Carl Gruetter	Presence of Histidine Decarboxylase in Fischer 344 Rat Aorta
Dr. Mark Flood Fairmont State College	Dr. Elizabeth Murray	SNP Analysis in Cardiovascular Disease in a West Virginia Sample
Jessica Francisco West Virginia State College	Dr. Don Primerano	Appalachian Cardiovascular Research Network GENECARD Study
Brenda Hill West Virginia State College	Dr. Elizabeth Murray	Homocysteine and the MTHFR Genotype in an Obese West Virginia Population
Dr. Albert Magro Fairmont State College	Dr. Michael Miller	Induction of Apoptosis in MCF-7 Breast Cancer Cells by Lipoxigenase Inhibitors
Lynnette May	Dr. Gary Wright	Immunofluorescent Visualization of Alpha-Actin in A7r5 Cells Cultured on Flexible Membranes
Dr. Robert Harris West Virginia State College		
Dr. Edward Omolo Bluefield State College	Dr. Donald Sens	Differential Expression of hsp70A, 70b, 70c and hsc70 Genes in Breast Epithelial Cell Line MCF-10 Exposed to Lethal and Sub-Lethal Concentrations of Cd ²⁺ Under Both Acute and Extended Conditions
Natasha Pillay Salem International Univ.	Dr. Rob Haining	Creation of Catalytically Functional CYPD6 Allelic Variants
Marian Powell Salem International Univ.	Dr. Chris Cuff	Creating lacZ-Inducible Hybridoma T-Cells Specific for Reovirus Using a Protocol Developed by Nilabh Shastri
Dr. Jiben Roy Salem International Univ.	Dr. Cynthia Cunningham Dr. Patrick Callery	Modern Medicines from Traditional Sources: Investigation of a Mixture of Allium sativum (Garlic) and Nigella Sativum (BlackCumin)
Anita Sayre Salem International Univ.	Dr. Tim Norman	Efficacy of Combined Treatments in Bone Loss Prevention in a Microgravity Model
Dr. Roger Seeber, Jr. West Liberty State College	Dr. Tim Tracy	The Development of a Rapid Assay for Hypericin and Hyperforin in St. John's Wort Using HPLC and Mass Spectroscopy
Dr. Robert Shurina Wheeling Jesuit University	Dr. Dan Flynn	Production of a Glutathione-S-Transferase Protein Kinase C- α Fusion Protein in <i>E. coli</i> .
Jeremy Smith Salem International Univ.	Dr. Chris Cuff Dr. Cynthia Cunningham	Comparison of the B Chain Repertoires of Orally and Systemically Induced Cytotoxic T-Lymphocytes
Cortney Taylor Alderson Broaddus College	Dr. Bin-Hua Jiang	P13K and Beta-Catenin Signaling Pathways Mediate Cell Proliferation
Lela Taylor Fairmont State College	Dr. Laura Gibson	Stromal Cell Regulation of BCL-2 Cleavage in Lymphoid Leukemic Cells
Yoshimitsu Toyoda Salem International University	Dr. Donald Sens	Expression of hsp27, hsp90- α , and hsp90- β in the Normal Breast Cell Line, MCF10, Exposed to Cadmium

To all Summer Program Participants: Please keep the WV-BRIN informed of your educational and career progress such as decisions about post-graduate education, awards received, grants received, and other honors. We want to spread the good news throughout the Network! Please contact Dr. Mark Reasor by email, mreasor@hsc.wvu.edu or by mail to the WV-BRIN Office at PO Box 9177, Morgantown, WV 26506-9177.

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Summer Research Symposium 2002



Dr. Jiben Roy from Salem International University



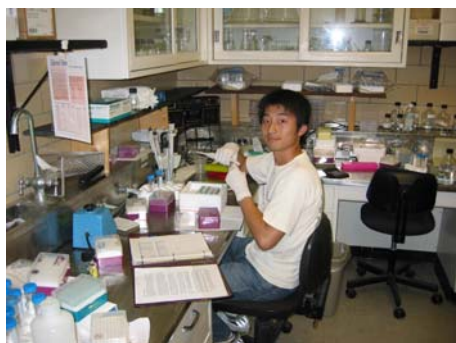
Dr. Howard Cash, President, Gene Codes Corporation and Gene Codes Forensics, Inc. speaks about his involvement in identifying victims of the Twin Towers tragedy in New York



Dr. Robert Harris and Lynnette May from West Virginia State College

More Symposium pictures on next page

Working in the Labs



Yoshimitsu Toyoda from Salem International University



Dr. Edward Omolo, from Bluefield State College



Marian Powell from Salem International University

Here are some more things that the students had to say about the summer program:

"The summer program has altered my attitude about graduate school. I am no longer intimidated by research and enjoy the actual hands-on work. It really helped to let me know what it is all about, from all perspectives."

"I liked the experience of being in a lab and becoming immersed in the work that my mentor is doing. I am completely hooked on research."

"I really am considering graduate school now, even though I had no intention of doing so before hand. When I see how many doors open for you by having more schooling, I see that in the world of science, knowledge really does mean power."

Equipment Grants

In June, the WV-BRIN Research Development Core awarded \$ 357,940 in equipment grants to the eight PUIs in the network. Schools and the equipment awarded were:

Alderson-Broaddus College—PCR machine; BioDoc-it image acquisition system

Blufield State College—PCR machine, BioDoc-it image acquisition system; Pipettors; Electrophoresis equipment

Fairmont State College—FluorChem Digital Image System; PCR machine

Salem International University—Cell harvester; Vacuum pump; DNA gun

Shepherd College—Ultracentrifuge

West Liberty College—PCR machine, Microplate luminometer; Stereographic glasses, AMBER software, Linux; Modular greenhouse; Computer; HPLC shared with **Wheeling Jesuit University**

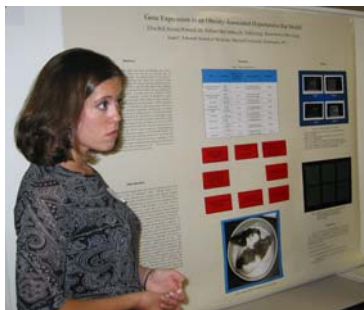
West Virginia State College—ABI Prism Detection System

Wheeling Jesuit University—Ultracentrifuge



Dr. Roger Seeber, Jr., from West Liberty State College (WLSC) is using an HPLC in his mentor's lab. WLSC received an HPLC similar to the one pictured above when they received an equipment grant from the WV-BRIN program. WLSC will also share the equipment with Wheeling Jesuit University.

More Symposium pictures



Elisa Bell, from Wheeling Jesuit University, listens carefully to a question regarding her poster.



Anita Sayre, from Salem International University, explains to Dr. Patrick Lai, also from Salem International University, the outcome of the project she worked on during the summer program.



Dr. Elizabeth Murray (right) enjoys the poster presentation by Lela Taylor of Alderson-Broaddus College. Dr. Murray, from Marshall University is Co-Director of the Training and Mentoring program for WV-BRIN.

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Bioinformatics Workshop

Bioinformatics Workshop: Marshall University (MU) hosted the WV-BRIN 2002 Bioinformatics workshop entitled "Introduction to Bioinformatics, Gene Mapping and Functional Genomics" June 4-6, 2002. The workshop's goal was to introduce students and faculty members from many disciplines (computer science, mathematics, biology, chemistry) to bioinformatics. The workshop combined an introduction to bioinformatics with research applications talks. Attendance was excellent, with over 70 participants: 22 Marshall University faculty and staff; 12 faculty from PUI institutions; 10 PUI undergraduates and 41 Marshall University undergraduate and graduate students. Attendees were provided a binder with additional readings on bioinformatics and copies of the web site materials.

The workshop began with a full day presentation by Dr. Cynthia Gibas of Virginia Tech. Dr. Gibas co-authored *Developing Bioinformatics Computer Skills*. Dr. Gibas introduced the topic of bioinformatics and described the NCBI databases and their tools. Dr. Gibas provided copies of her slides to all participants. Marshall's IT-TV recorded digital videotape of Dr. Gibas' presentation and will produce a CD-ROM for those unable to attend the presentation. The workshop's first day culminated with a banquet attended by 46 participants. Dr. Richard Roman, (Medical College of Wisconsin) gave the keynote address on "Development of Consomic Rat Strains for the Dissection of Cardiovascular Disease Genes."

On June 5, Dr. Don Primerano (MU) gave an introduction to functional genomics and gene arrays, followed by a research seminar by Dr. Richard Niles (MU) entitled "Use of Gene Arrays to Identify Vitamin A-Regulated Genes." That afternoon Dr. Elizabeth Murray (MU) presented a hands on-computer lab using tutorials provided by Dr. Gibas. On June 6, Dr. Primerano gave a presentation on Mapping and Cloning Complex Disease Genes, followed by a second additional hands-on workshop and tours of the Marshall DNA Core facility for interested students and faculty. Course materials are available at: <http://www.marshall.edu/cellcentral/wvbrin.htm>.

Training Awards

WV-BRIN provided training award funds for the following individuals:

Dr. Robin Hensel of Salem International University to attend the Summer Institute in Statistical Genetics held at North Carolina State University beginning on May 29, 2002.

Dr. Yulia Dementieva (Marshall University, Department of Mathematics) to attend a workshop entitled "Genetic Analysis of Complex Traits" at Duke University in April 2002 and the meeting of the American Society of Human Genetics in Baltimore, October 2002. She is currently on a training leave at the Duke University Center for Human Genetics under the direction of Dr. Margaret Pericak-Vance.

Ms. Karen Howard, Microarray Facility Manager at Marshall University School of Medicine, to attend a microarray workshop at the Medical College of Virginia in July 2002.

Travel Grants

In November, the WV-BRIN Training and Mentoring Core awarded travel grants to a faculty member and three students from Fairmont State College to attend the National Conference on Undergraduate Research to be held in Salt Lake City, Utah, March 13-15, 2003.

Dr. Mark Flood who is the senior author on presentations with the three following students.

Heather McAbee whose presentation will be "Comparison of *Physarum confertum* isolates using two different ribosomal gene markers"

Carly George whose presentation will be "Comparison of different DNA extraction methods from myxomycete spores"

C.J. Broadwater whose presentation will be "Classification of slime molds from each of the six myxomycete orders using large subunit ribosomal gene sequences"

Congratulations to the grant recipients and good luck with your presentations!

(Look on page 5 for information on how to apply for the next round of travel grants)

Pilot Research Grants

Pilot Research Grants: Twelve applications were received from faculty at the PUIs for funding support for research projects. The Research Development Core made the following awards:

• Dr. Patrick Lai	Salem International University	Mapping of p10x Sequences Important to Borna Disease	\$30,000
• Dr. Albert Magro	Fairmont State College	Lipoxygenase and Apoptosis in Breast Cancer Cells	\$30,000
• Dr. Raj Narayanan	Salem International University	Peptide Synthetase Genes in Periodontal Disease	\$30,000
• Dr. Robert Harris	West Virginia State College	Effects of Homocysteine on Rat Aortic Muscle	\$30,000
• Dr. Mark Flood	Fairmont State College	Analysis of Cardiovascular Disease Genes	\$30,000
• Dr. Robert Kreisberg	West Liberty State College		\$30,000
• Dr. Huey Miin Lee	Salem International University		\$ 8,000
• Dr. Roger Seeber, Jr.	West Liberty State College	Extraction of Hypericin and Hyperforin from various St. John's Wort sources	\$ 7,420



Students enjoying the food during a picnic at Coopers Rock State Forest

Social Activities



Anita Sayre, Salem International University, Natasha Pillay, Salem International University, and Dr. Albert Magro, Fairmont State College, enjoy a picnic at Cheat Lake.

What's New in 2003?

Summer Research Program: The 2003 Summer Research Program will be nine weeks this year and will be held from June 9 to August 8. An extra week was added because of comments from interns and mentors that eight weeks was not long enough to receive the full benefit from the research experience. Students and faculty from the PUIs will have the opportunity to conduct research at either Marshall University or West Virginia University under the direction of a faculty mentor. Applications are available on the WV-BRIN web site (www.wv-brin.org) or can be obtained from the WV-BRIN office. Applications are due at the WV-BRIN office no later than February 28, 2003. Applicants will be notified of their status by March 17, 2003. The Mentors Directory in which mentors are listed and available projects are described will be available on the web site by January 1, 2003. Copies will also be available from the WV-BRIN Resource Teams at each institution. Members of the Training and Mentoring Core will be visiting the PUIs in January and February to promote the program.

Bioinformatics Workshop: The Training Workshop for Accelrys Molecular Biology Software: GCG® Wisconsin Package®, SeqLab and SeqWeb, which was originally scheduled for 2002 will be held in 2003 at WVU. Those interested in attending should periodically check the WV-BRIN web site for the date and schedule.

Travel Grants: There will be another opportunity for faculty and students to apply for a travel grant to attend a scientific meeting. The date of the receipt of applications in the WV-BRIN office at WVU has changed from March 1, 2003, to **February 3, 2003**. The guidelines and application form can be found on the WV-BRIN website, or contact Dr. Mark Reasor at (304) 293-2418 or at mreasor@hsc.wvu.edu.

Workshop and Short-Course Training Awards: PUI faculty who are interested in attending a workshop or a mini-course that would benefit their participation in the WV-BRIN are encouraged to contact the WV-BRIN office for information on how to apply for support.

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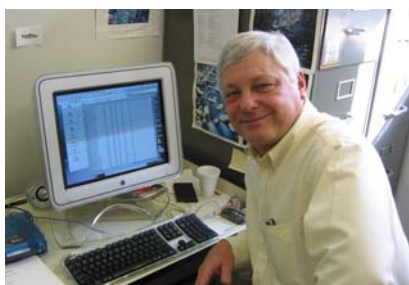
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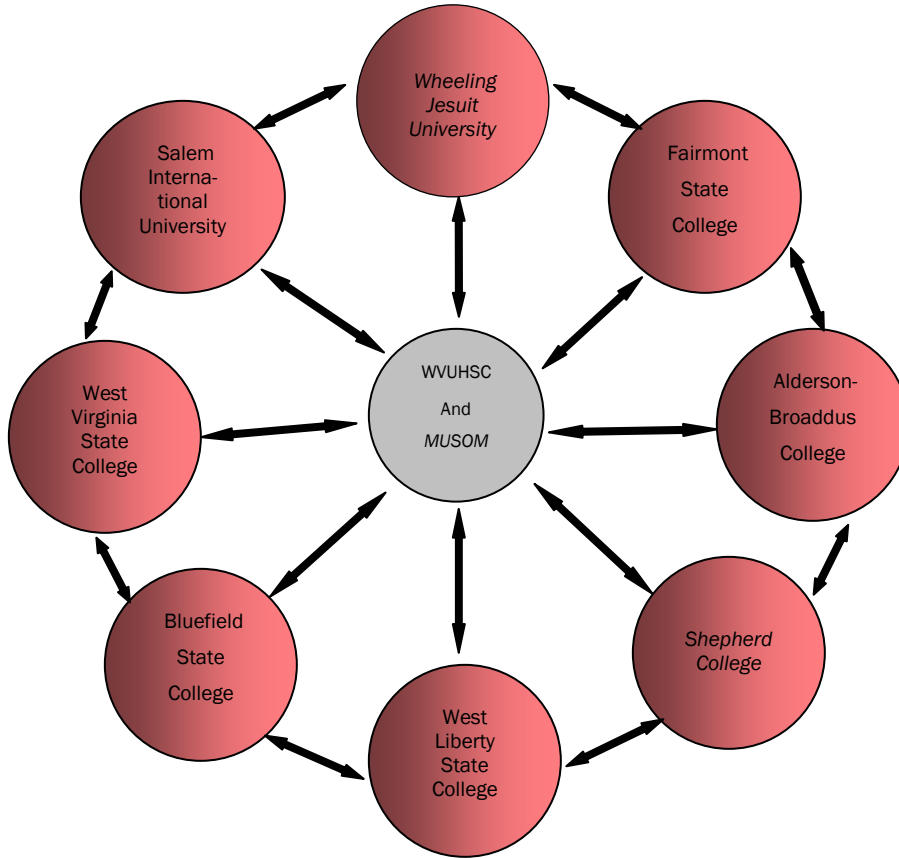


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