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WV-INBRE Steering Committee Receives Award



The West Virginia University staff of the WV-INBRE, L-R: Vickie Sanders, Dr. Mark Reasor, Dr. Larry Harris, Dr. Mary Davis, Dr. Robert Griffith, Dean John Prescott, Dr. James Sheil.

The Steering Committee of the WV-INBRE was the recipient of the West Virginia University School of Medicine Dean's Award for Excellence in Community Service announced at the annual School of Medicine Awards assembly, April 25, 2005. Dean John Prescott stated that "The WV-INBRE Steering Committee is responsible for a program that magnifies and multiplies opportunity for students and faculty from the predominantly undergraduate colleges and universities in West Virginia. They are developing resources across the state to identify and support people with potential to be researchers, health professionals and scientists - and make sure they have a clear path ahead toward graduate education and career success. They provide students and faculty from the participating schools with a summer program on the WVU and Marshall University campuses that gets them directly involved with biomedical research."

Supported by:





Institutions of the WV-INBRE

Lead Universities

Marshall University West Virginia University

> Network Research Institutions (NRIs)

Fairmont State University West Liberty State College West Virginia State University Wheeling Jesuit University Bluefield State College

> Network Outreach Institutions (NOIs)

Alderson-Broaddus College Davis & Elkins College Shepherd University West Virginia Wesleyan College

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WV-INBRE Summer Research Program Interns Selected

Thirty undergraduate and graduate students from WV-INBRE institutions will participate in the 2005 Summer Research Program to be held June 6 – August 5 at the Robert C. Byrd Health Sciences Center of West Virginia University and the Joan C. Edwards School of Medicine at Marshall University. The interns, their home institutions and mentors for the summer program are listed. During the nine week program, interns will conduct biomedical research under the direction of faculty mentors at each institution. On June 6th, an orientation will be held, and throughout the program, interns will attend seminars and workshops to introduce them to a variety of topics including career opportunities in biomedical sciences, how to apply to graduate school and other relevant topics. The program will culminate with the 4th Annual Summer Research Symposium which will be held at Marshall University on August 4. Interns will present their research in poster and platform formats. Dr. Rick Kittles, an associate professor of molecular virology, immunology and medical genetics at the Ohio State University College of Medicine and Public Health, will be the keynote speaker.

Interns at West Virginia University

Tara Braithwaite – Davis & Elkins College

Mentor: Dr. Joan Olson – Department of Microbiology, Immunology and Cell Biology

Ryan Busch – West Virginia Wesleyan College

Mentor: Dr. Chris Cuff – Department of Microbiology, Immunology and Cell Biology

Holly Dudash – Wheeling Jesuit University

Mentor: Dr. Steve Alway – Department of Exercise Physiology

Daniel Gallagher – Wheeling Jesuit University

Mentor: Dr. Jia Luo - Department of Microbiology, Immunology and Cell Biology

Richard Herrington – Fairmont State University

Mentor: Dr. Jun Liu - Department of Physiology and Pharmacology

Emily Heston – Mountain State University

Mentor: Dr. Kathy Brundage - Department of Microbiology, Immunology and Cell Biology

Nicholaos Kalathas – Shepherd University

Mentor: Dr. Brad Hillgartner—Department of Biochemistry and Molecular Pharmacology

Peninnah Kumar – Alderson-Broaddus College

Mentor: Dr. Yon Rojanasakul, Department of Basic Pharmaceutical Sciences

Jacob Lea – West Liberty State College

Mentor: Dr. Lisa Salati - Department of Biochemistry and Molecular Pharmacology

Mellisa Leach - West Virginia Wesleyan College

Mentor: Dr. William Petros – Mary Babb Randolph Cancer Center

Justin Morgan – Fairmont State University

Mentor: Dr. Stan Hileman – Department of Physiology and Pharmacology

Mary Prescott – Fairmont State University

Mentor- Dr. Frank Reilly – Department of Neurobiology and Anatomy

Kevin Roush - Alderson-Broaddus College

Mentor: Dr. Slawomir Lukomski, Department of Microbiology, Immunology and Cell Biology

Coben Thorn - Concord University

Mentor: Dr. Jeff Frisbee – Department of Physiology and Pharmacology

Matthew Thorn – Fairmont State University

Mentor: Dr. Mike Gunther – Department of Biochemistry and Molecular Pharmacology

Stacey Velkovich – Wheeling Jesuit University

Mentor: Dr. Rosana Schafer - Department of Microbiology, Immunology and Cell Biology

Interns at Marshall University

Kristen Barbour – Shepherd University

Mentor: Dr. William McCumbee – Department of Physiology

Sophia Brown - West Virginia State University

Mentor: Dr. Gary Rankin - Department of Pharmacology

Danielle Carroll - West Virginia Wesleyan College

Mentor: Dr. Hongwei Yu – Microbiology, Immunology and Molecular Genetics

Tabetha Davis - West Virginia State University

Mentor: Dr. Kelley Kiningham - Department of Pharmacology

Chris Garton - West Virginia Wesleyan College

Mentor: Dr. Pedram Ghafourifar – Department of Pharmacology

Cara Henry – Bethany College

Mentor: Dr. Bev Delidow – Department of Biochemistry and Molecular Biology

Brenda Hill - West Virginia State University

Mentor: Dr. Gary Wright - Department of Physiology

Sara Lilly – University of Charleston

Mentor: Dr. Richard Niles - Department of Biochemistry and Molecular Biology

Kelli Morrison - West Virginia Wesleyan College

Mentor: Dr. Vince Sollars - Microbiology, Immunology and Molecular Genetics

Ashleigh Prince - West Virginia Wesleyan College

Mentor: Dr. Monica Valentovic – Department of Pharmacology

Jeremy Smith - West Virginia State University

Mentor: Dr. Todd Green - Department of Physiology

Zechary Smith – Alderson-Broaddus College

Mentor: Dr. Carl Gruetter – Department of Pharmacology

Kimberly Snodgrass - West Virginia State University

Mentor: Dr. Elsa Mangiarua – Department of Physiology

Melanie Ward – Bethany College

Mentor: Dr. Lawrence Grover - Department of Physiology

Former WV-BRIN/INBRE Summer Interns To Attend Graduate School in the Fall

Corey Baxter – Wheeling Jesuit University will enter the Ph.D. program in anatomy at Wright State University.

Miranda Hanson – Wheeling Jesuit University, will enter the Ph.D. program in biomedical sciences at the Robert C. Byrd Health Sciences Center of West Virginia University.

Danielle Large – Alderson-Broaddus College, will enter the M.D./Ph.D. program at The Johns Hopkins University School of Medicine.

Rebecca Reindel – Wheeling Jesuit University, will enter the M.S. program in Forensic Sciences at The George Washington University.

Nissa Thomsen – Shepherd University, will enter the M.D./Ph.D. program at the West Virginia University School of Medicine.

Melinda Varney – West Liberty State College, will enter the Ph.D. program in biomedical sciences at the Joan C. Edwards School of Medicine at Marshall University.

Former WV-BRIN Summer Intern Selected as the West Virginia Undergraduate Researcher of the Year for 2005.



Danielle Large, a 2003 WV-BRIN summer intern from Alderson-Broaddus College, was selected as the West Virginia Undergraduate Researcher of the Year for 2005 for research she conducted during the summer at the National Institutes of Health in Bethesda, MD. The award was presented at the 2nd Annual Undergraduate Research Day at the Capitol, Charleston, WV, March 1, 2005. Miss Large will enter the M.D/Ph.D. program at The Johns Hopkins University School of Medicine in the fall.

Nine additional former WV-BRIN/INBRE summer interns made poster presentations of their research at the 2nd Annual Undergraduate Research Day at the Capitol: **Monica Chroussis** – Alderson-Broaddus College; **Holly Dudash** – Wheeling Jesuit University; **Daniel Gallagher** – Wheeling Jesuit University;

Miranda Hanson – Wheeling Jesuit University; **Justin Morgan** – Fairmont State University: **William Phlegar** – Bluefield State College (Mr. Phlegar was a finalist for the West Virginia Undergraduate Researcher of the Year), **Rebecca Reindel** – Wheeling Jesuit University; and **Jessica Stone** – Alderson-Broaddus College; **Melinda Varney** – West Liberty State College

Travel Award Recipients

The Outreach Core awarded the following travel awards to three **students** from Alderson-Broaddus College to present their WV-INBRE-supported research at the 19th National Conference on Undergraduate Research, Lexington, VA, April 20-23, 2005.

Jennifer M. Crum and Bernard G. Schreurs. "Changes in the PQ interval of an electrocardiogram resulting from heart rate conditioning-specific reflex modification in rabbits."

Jessica K. Stone, Thomas Batchelor, Dawn Hunter and Richard D. Dey. "Localization of excitatory amino acid carrier 1 (EAAC1) in the nodose and jugular ganglion of rat"

Monica Chroussis, Yi Chen and Bing-Hua. Jiang. "The effect of hydrogen peroxide on HIF-1 alpha in ovarian cancer cells."



Dr. Yi "Charlie" Chen, Associate Professor, Alderson-Broaddus College, accompanied Jennifer Crum, Jessica Stone and Monica Chroussis to the 19th National Conference on Undergraduate Research held in Lexington, VA.

WV-INBRE Publications and Presentations

Publications

- **Gordon, E.J.,** Wicker, L.S., Peterson, L.B., Serreze, D.V., Markees, T.G., Shultz, L.D., Rossini, A.A., Greiner, D.L., Mordes, J.P. "Autoimmune diabetes and resistance to xenograft transplantation tolerance in NOD mice. Diabetes 54:107-15, 2005. (Dr. Ethel Gordon is an Associate Professor at Bluefield State College and is supported as a Principal Investigator by the WV-INBRE.)
- Fulton, J.R., **Smith, J.**, Cunningham, C. and Cuff, C.F. "Influence of the route of infection on development of T-cell receptor beta-chain repertoires of reovirus-specific cytotoxic T lymphocytes". Journal of Virology 78:1582-90, 2004. (Jeremy Smith was a summer intern from Salem International University in 2002 and 2003).
- Pritzl, C.J., Joshi, S. and **Lai**, **P**. "Effect of Carrier Protein on CTL-Epitope Presentation". Proceedings of the 12th Congress on Immunology, 217-221, 2004. (Dr. Patrick Lai was a WV-BRIN pilot grant recipient while a faculty member at Salem International University.)

Presentations

- **C.M. Baxter**, S. Kern, M. McFarland, Chris Barry and B.C. Delidow. "Localization of beta-catenin is altered in B16 mouse melanoma cells exposed to retinoic acid". Presented at the Melanoma Research Congress, Phoenix, AZ, Nov. 13-16, 2004 (Corey Baxter was a 2004 summer intern from Wheeling Jesuit University).
- K. M. Brundage and **R. Ellis**. "Alterations in cytokine production in the presence of the pesticides, Bentazon, Isoxaflutole and Terfufus". Presented at the 2005 Society of Toxicology Annual Meeting, in New Orleans, LA, March 8, 2005 (Renee Ellis was a 2004 summer intern from Bluefield State College).
- **Albert M. Magro**, Alice Magro and Michael R. Miller. "Changes in mitochondrial membrane potential upon the induction of apoptosis in CRL-2610 glioma cells". Presented at the Phosphorylation and Cell Signaling Meeting, Cold Spring Harbor, ME, May 19, 2005. (Dr. Magro is a Professor of Biology at Fairmont State University and is supported as a Principal Investigator by the WV-INBRE.)
- **Albert M. Magro** and Michael R. Miller. "Decreased gene expression of Myb, Cadherin 1, and integrins in CRL-2610 cells upon the induction of apoptosis by MK886". Presented at the 12th International Conference on Second Messengers and Phosphoproteins. Montreal, Canada, August 4, 2004.
- M.R. Moore, J.L. Dillon, C.M. Hoshibata, B.M. McCloud, and **C.J. Guetzloff**. "Progestin and Glucocorticoid Inhibition of Cell Death in MDA-MB-231 Human Breast Cancer Cells". Presented at the Annual Meeting of The Endocrine Society, New Orleans, LA, June 17, 2004. (The late **Christine Guetzloff** was a faculty member at West Virginia State University and a 2003 summer fellow.)
- G. Wang, X. Li, **M. Banda**, J. Coad, E. Reed, and Q.Q. Li. "Induction of apoptosis and augment of cisplatin sensitivity to chemotherapy by a novel anticancer drug elemene in human prostate cancer cells". Presented at Apoptosis in Development conference. Keystone Resort, Keystone, Colorado, February 4, 2004. (Malathi Banda was a 2003 summer intern from Salem International University)

Continuted from page 5

The following three presentations were made at the American College of Sports Medicine Meeting in Nashville, October 6-9, 2004. (**Dr. Robert Harris** is an Associate Professor at West Virginia State University and is supported as a Principal Investigator by the WV-INBRE)

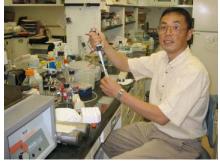
K.M. Rice, S. Uddemaari, D. Desai, R.S. Kinnard, **R. T. Harris**, G.L. Wright and E.R. Blough. "ERK-1/2 and p38 MAPK signaling in the A7R5 cell in following Fluprostenal stimulation".

D.H. Desai, **R. T. Harris**, G.L. Wright, K.M. Rice, D.B. Mylabathula and E.R. Blough. "Comparison between stretch-induced p42/44 MAPK signaling in rat aortic smooth muscle and A7R5 vascular cells".

S. Uddemaar, K.M. Rice, R.S. Kinnard, **R. T. Harris**, G.L. Wright and E.R. Blough. "The PGF2a analog Fluprostenol activates mTOR and GSK-3a in the A7R5 smooth muscle cell line".



WV-INBRE Researcher Studies Mechanisms of Cancer Treatment



Dr. Yi "Charlie" Chen, Associate Professor of Biology at Alderson-Broaddus College, is receiving grant support from the WV-INBRE as he studies how drugs function as anticancer agents. Dr. Chen has received pilot grants to work under the mentorship of Dr. Bing-Hua Jiang at the Mary Babb Randolph Cancer Center at West Virginia University. His research focuses on potential therapies for ovarian cancer. Ovarian cancer is the leading cause of death for women in Western countries. Cisplatin and its analogs are currently the common treatments for ovarian cancer. Studies have found that certain ovarian cancer cells have developed resistance to

cisplatin treatment. Therefore, new anticancer drugs and new therapeutic approaches in combating ovarian cancer cells are needed. Hypoxia-inducible factor 1 (HIF-1) and vascular endothelial growth factor (VEGF) are two important proteins involved in angiogenesis and tumor formation. HIF-1 is a heterodimeric basic helix-loop-helix transcription factor composed of HIF-1α and HIF-1β. HIF-1 expression is induced by hypoxia, growth factors, and activation of oncogenes. HIF-1 activates the expression of VEGF. In this study, he studied the mechanism of HIF-1 and VEGF expression in the ovarian carcinoma cells. The results indicated that anti-tumor drugs including abinofuranosyl-2-fluoroadenine (Fara-A), inhibited the expression of VEGF in the OVCAR-3 cells. Fara-A down-regulated VEGF expression at the transcriptional level through the inhibition of HIF-1 expression in ovarian cancer cells. Fara-A specifically inhibited expression of HIF-1α but not HIF-1β. Co-transfection of HIF-1α plasmids restored Fara-A-inhibited VEGF expression, indicating that decreased VEGF expression is regulated by the inhibition of HIF-1α. Fara-A blocked activation of AKT, indicating that Fara-A may inhibit VEGF expression via phosphatidyllinositol 3-kinase/AKT signaling. The group has also found that hydrogen peroxide increased the expression of HIF-1a. Thus, the free radical production may be important for HIF-1 and VEGF expression. With the support from WV-BRIN/WV-INBRE programs, Dr. Chen has published a portion of his research in the prestigious journal, Molecular Pharmacology (Jing Fang, Zongxian Cao, Yi Charlie Chen, Eddie Reed, and Bing-Hua Jiang, "9-β-D-Arabinofuranosyl-2-fluoroadenine inhibits expression of vascular endothelial growth factor through hypoxiainducible factor-1 in human ovarian cancer cells", Mol. Pharmacol 66: 178-186, 2004). He has also presented his research at the Association of Southern Biologists Annual meeting in Memphis, TN in 2004. **Monica Chroussis**, a student from Alderson-Broaddus College who was supported by one of the pilot grants, presented her research at the Undergraduate Student Research Conference in Lexington, VA this year.

Steering Committee Members

Gary Rankin, PhD Principal Investigator Marshall University 1542 Spring Valley Drive School of Medicine Huntington, WV 25704 rankin@marshall.edu

James M. Sheil, PhD Program Coordinator West Virginia University Room 2113 HSN PO Box 9177 Morgantown, WV 26506 jsheil@hsc.wvu.edu

L. Howard Aulick, PhD VP for Research Marshall University 1542 Spring Valley Drive School of Medicine Huntington, WV 25704 aulick@marshall.edu

Donald A. Primerano, PhD Director, ACoRN Marshall University 1542 Spring Valley Drive Huntington, WV 25704 primeran@marshall.edu

Mark J. Reasor, PhD Director, Outreach Core West Virginia University PO Box 9229 Morgantown, WV 26506 mreasor@hsc.wvu.edu

Charles L. Harris, PhD Evaluations Coordinator West Virginia University PO Box 9142 Morgantown, WV 26506 clharris@hsc.wvu.edu

Mary E. Davis, PhD Director, Bioinformatics Core West Virginia University PO Box 9229 Morgantown, WV 26506 mdavis@wvu.edu Michael J. McCarthy, MA Information Technology Coordinator Marshall University 1542 Spring Valley Drive School of Medicine Huntington, WV 25704 mccarthy@marshall.edu

Vickie Sanders, MA Administrative Associate WV-INBRE Office West Virginia University HSC Room 2113 HSN PO Box 9177 Morgantown, WV 26506 vsanders@hsc.wvu.edu

Kristen Webb, BS Administrative Associate WV-INBRE Office Marshall University SOM 1542 Spring Valley Drive Huntington, WV 25704 perry12@marshall.edu

NRI Representatives

Patrick Muldoon, PhD Bluefield State College Arts and Sciences 219 Rock Street Bluefield, WV 24701

Karl Burgher, PhD Fairmont State University Hardway Building 1201 Locust Avenue Fairmont, WV 26554

Robert Kreisberg, PhD West Liberty State College Natural Sciences Arnett Hall, Room 103 West Liberty, WV 26074

Kathy Harper, PhD West Virginia State University Biology Department PO Box 1000 Institute, WV 25112-1000 Robert Shurina, PhD Wheeling Jesuit University Biology Department 316 Washington Avenue Wheeling, WV 26003

NOI Representative

Yi Chen, PhD Alderson-Broaddus College Biology Department College Hill Road Philippi, WV 26416

External Advisory Committee

Alice Lee, PhD Associate Professor and Director of Howard Hughes Program Washington & Jefferson College 60 S. Lincoln Street Washington, PA 15301

Jeff Vance, PhD, MD Duke University Medical Center Genomics Research Laboratories Center for Human Genetics Durham, NC 27710

Ken Ramos, PhD Professor and Chair, Department of Biochemistry & Molecular Biology and Director, Center for Genetics and Molecular Medicine, University of Louisville Louisville, KY 40292



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TEL: 304-293-0775

WE'RE ON THE WEB! WWW.WV-INBRE.NET

FAX: 304-293-4426

WV-INBRE West Virginia University Health Sciences Center North Room 2113 PO Box 9177 Morgantown, WV 26506-9177

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