WV-INBRE NEWSLETTER

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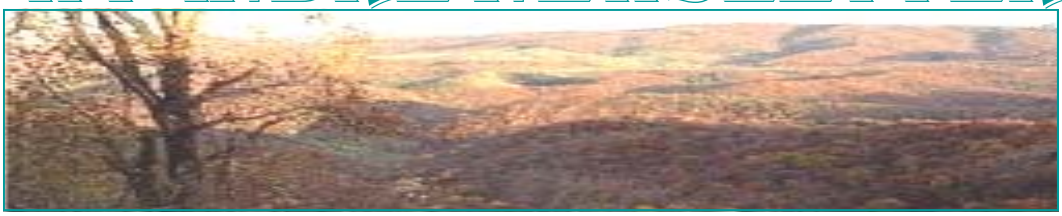


Marshall University is Site of 8th Annual Summer Research Symposium

***Dr. Darryle D. Schoepp**, Senior Vice President and Franchise Head at Merck Pharmaceuticals, speaks at the WV-INBRE symposium.*

The 8th Annual WV-INBRE Summer Research Symposium was held on the campus of Marshall University, July 30th, 2009. The program consisted of oral presentations in the morning session by two student interns and two faculty members, a project investigator and a faculty research development award recipient, a luncheon for participants, and a poster session in the afternoon. Poster presentations were made by summer interns who conducted research at WVU and Marshall University during the 9-week program. Faculty and students conducting research at their home institutions during the year also presented the results of their projects.

The keynote speaker for the symposium was **Dr. Darryle D. Schoepp**, Senior Vice President and Franchise Head at Merck Pharmaceuticals. Dr. Schoepp, received his Ph.D. in pharmacology and toxicology from West Virginia University, and served three years as a faculty member at Marshall University before going to Eli Lilly Pharmaceuticals, his employer prior to moving to Merck. Dr. Schoepp's presentation, **"New Drug Therapies for CNS Diseases: What is on the Horizon"** described the challenges facing investigators in this field. Following a discussion of what neuroscience encompasses, Dr. Schoepp provided three examples of emerging success stories in this field; calcitonin-related gene peptide in the treatment of migraine, orexins in the treatment of sleep and arousal and glutamate in the treatment of schizophrenia. He related that a new framework for neuroscience drug discovery is underway that emphasizes a disease and target proof-of-concept approach that should lead to greater success in drug discovery and development.

Inside this issue:

Institutions of the WV-INBRE

Lead Universities

Marshall University
West Virginia University

Partner Institutions

Alderson-Broaddus College
Bethany College
Bluefield State College
Concord University
Davis & Elkins College
Fairmont State University
Glenville 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

Former Summer Interns Complete Ph.D.s

Two former WV-BRIN/ INBRE summer interns completed their Ph.D. degree programs this - summer - the first two graduates of the program to do so.

Dr. Malathi Banda, a 2003 summer intern, received her Ph.D. degree from Wayne State University. Her dissertation research, which was conducted in the Department of Biological Sciences and Geology, was "Alternative Splicing as a Switch in Regulation of Apoptosis Following Exposure to Ionizing Radiation". Dr. Banda is currently a post-doctoral fellow at the Karmanos Cancer Institute at Wayne State. Her project involves the role of microRNAs in breast cancer research and in regulation of angiogenesis.

Dr. Miranda Hanson, a 2004 summer intern, received her Ph.D. degree in the Immunolgy and Microbial Pathogenesis Graduate Program at the Robert C. Byrd Health Sciences Center of West Virginia University. The title of her dissertation was "Prenatal Cadmium Exposure Dysregulates Sonic Hedgehog and Wnt/β-catenin Signaling in the Thymus Resulting in Immunomodulatory Effects". Following completion of her degree, Dr. Hanson accepted a post-doctoral fellowship in the Laboratory of Molecular Immunoregulation in the Cancer Inflammation Program at the National Institutes of Health-Frederick, Maryland. Her research focuses on blocking colon cancer using a food bacterium that has been engineered to express cytokines that inhibit inflammation.

Congratulations to Drs. Banda and Hanson! Your success is an inspiration for all summer interns who have or will participate in the program.

Dr. Gupta Visits the University of Charleston

Dr. Pardeep Gupta visited the University of Charleston as part of WV-INBRE Visiting Speaker Award for the Network Outreach Institutions.

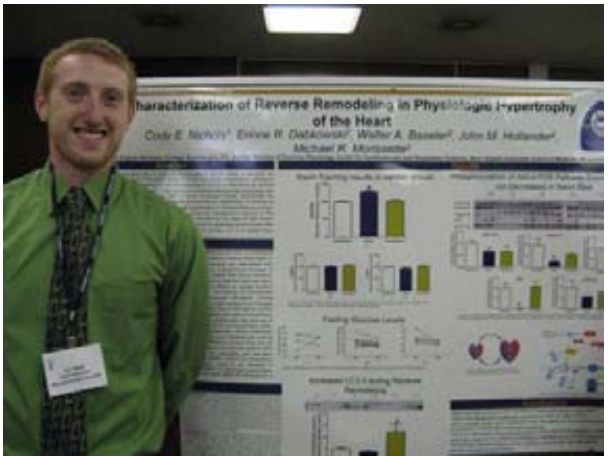
Dr. Pardeep Gupta has spent nearly 18 years at University of the Sciences in Philadelphia (USP), teaching undergraduate and graduate courses in controlled drug delivery systems, pharmaceutical solutions, drug stability, drug diffusion and pharmaceutical rate processes. Before coming to USP, he was a teaching assistant at University of Wisconsin, where he received his doctorate degree.

For the past 10 years, he has focused his academic research on the transport properties of biological membranes. His research involves studies on the membrane fluidity modulation in cell culture systems, development of vesicles as model systems for biomembranes and the interaction of peptides with phospholipid and biological membranes. He has also exhibited his expertise through several book chapters he authored, including "Oral Drug Delivery" in *Treatise on Controlled Release Technology*, "Bioadhesives/Mucoadhesives" in *Drug Delivery to the Gastrointestinal Tract in Bioadhesive Drug Delivery Systems*, and "Solubility Phenomenon" in *Remington's Pharmaceutical Sciences*.

The topic of Dr. Gupta's seminar was "Structural Changes in Recombinant Human Growth Hormone Following its Interaction with Hydrophobic Surfaces." He covered the challenges in the development of protein formulations, like instability and protein aggregation/denaturation at the interface. He discussed the studies undertaken in his lab where the adsorption characteristics of proteins at solid/liquid interfaces were studied.

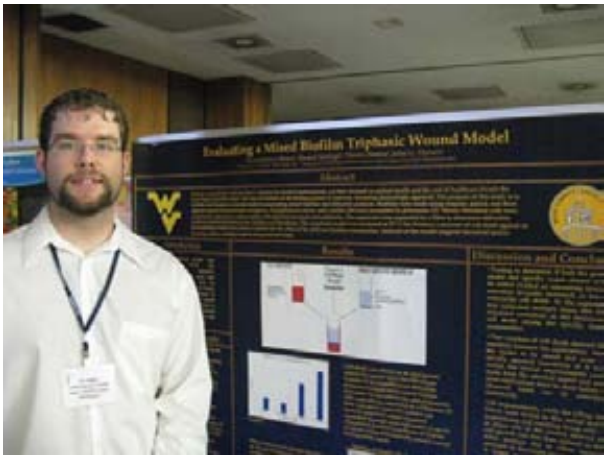
The behavior of r-hGH was evaluated at solid/liquid interface in a simplified model. Results from their studies can be applied in successful design of polymer based nano-particulate protein delivery systems using biodegradable polymers such as the PLGA, polyglutamate and polyethylene glycol. The information on structural changes upon adsorption generated from their investigation can be complemented with that from other techniques such as NMR and fluorescence spectroscopy.

Symposium Poster Presentations

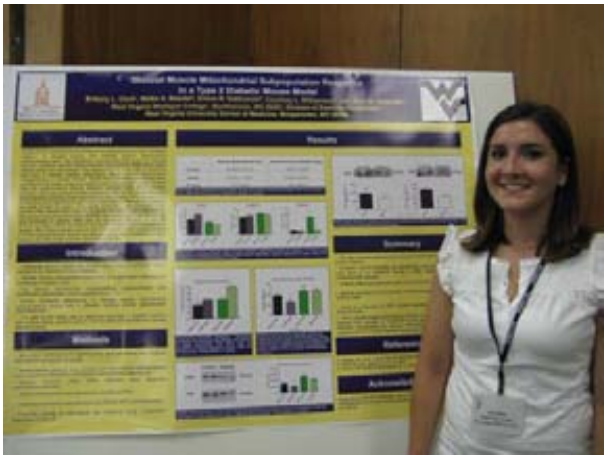


Cody Nichols, a returning WV-INBRE summer program student from West Virginia Wesleyan College, stands by his poster "Characterization of Reverse Remodeling in Physiologic Hypertrophy of the Heart"

Brittany Greene, University of Charleston, and her mentor Dr. Rankin stand by her poster "Attenuation of the Nephrotoxicity Induced by 3,4-Dichloronitrobenzene and 1,2,3-Trichloro-5-Nitrobenzene in Isolated Renal Cortical Cells (IRCC) from Male Fischer 344 Rats"

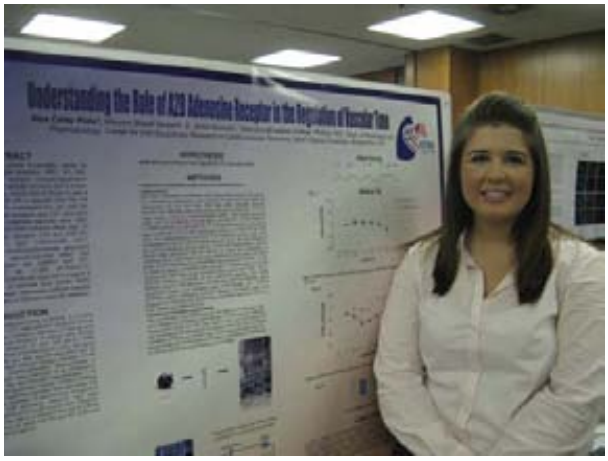


Chris Hearn, West Liberty University, displays his poster "Evaluating a Mixed Biofilm Triphasic Wound Model"

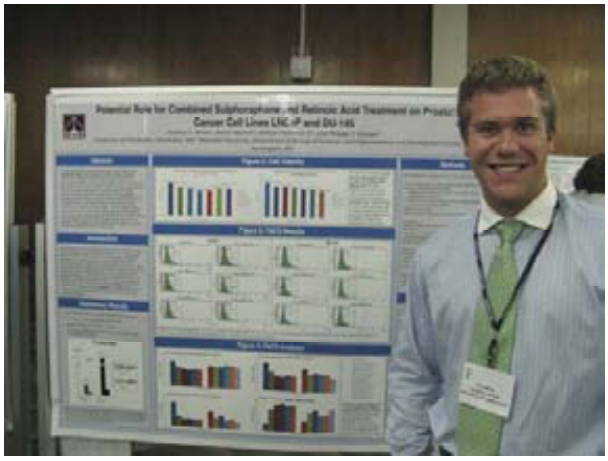


Brittany Clark, West Virginia Wesleyan College, stands by her poster "Skeletal Muscle Mitochondrial Subpopulation Response in a Type 2 Diabetic Mouse Model"

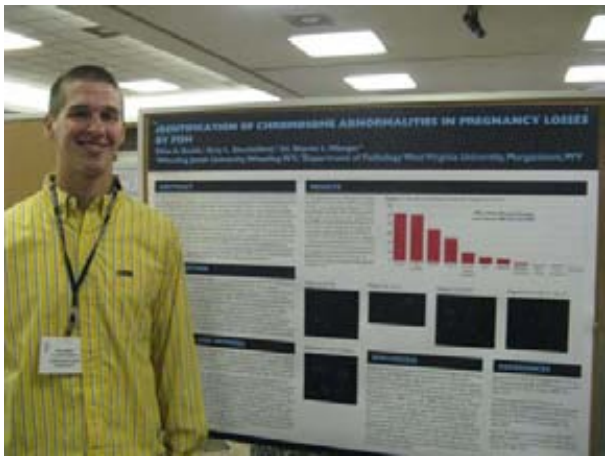
Symposium Poster Presentations (continued)



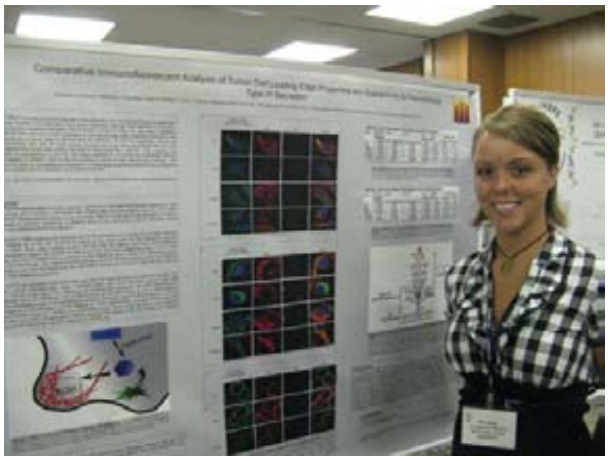
Alys Piske, Alderson-Broaddus College, stands by her poster “Understanding the Role of A2B Adenosine Receptor in the Regulation of Vascular Tone”



Andrew White, University of Charleston, stands by his poster “Potential Role for Combined Sulphoraphane and Retinoic Acid Treatment on Prostate Cancer Line LNCaP and DU-145”



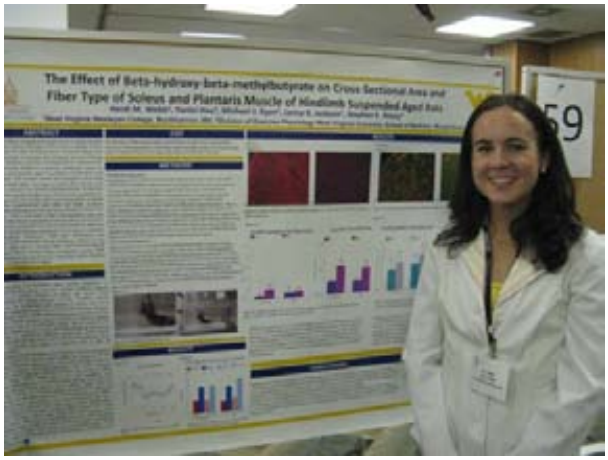
Elliot Smith, Wheeling Jesuit University, stands by his poster “Identification of Chromosome Abnormalities in Pregnancy Losses by FISH”



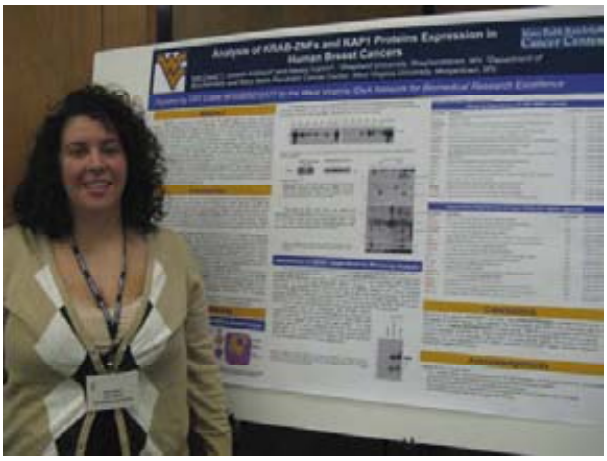
Elizabeth Pierson, Wheeling Jesuit University, displays her poster “Comparative Immunofluorescent Analysis of Tumor Cell Leading Edge Properties and Susceptibility to Pseudomonas Type III Secretion”

Symposium Poster Presentations (continued)

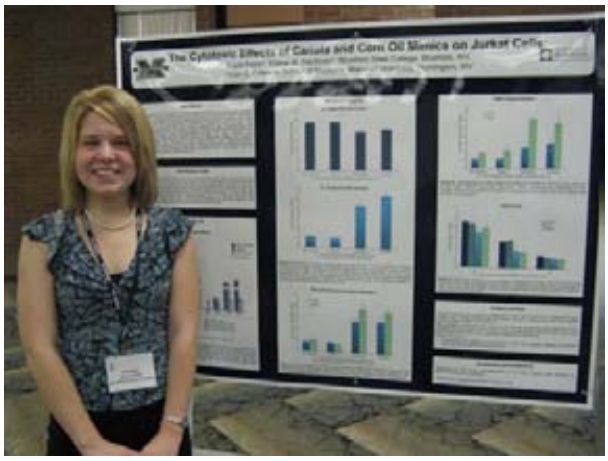
Gabriella Casinelli, Bethany College, stands by her poster “The Nutritional Regulation of Fibroblast Growth Factor-21”



Heidi Webb, West Virginia Wesleyan College, displays her poster “The Effect of Beta-hydroxyl-beta-methylbutyrate on Cross-Sectional Area and Fiber Type of Soleus and Plantaris Muscle of Hindlimb Suspended Aged Rats”



Icel Cavis, Shepherd University, stands by her poster “Analysis of KRAB-ZNFs and KAP1 Proteins Expression in Human Breast Cancers”



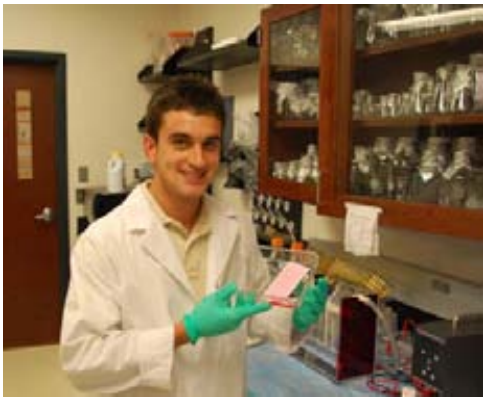
Kayla Fazio, Bluefield State College, displays her poster “The Cytotoxic Effects of Canola and Corn Oil Mimics on Jurkat Cells”

Summer Students Working In The Labs

Sumanth Manohar-West Virginia State University

Brittany Greene-University of Charleston

Kayla Fazio-Bluefield State College



Donald Weller-University of Charleston

Don Bertolloti-West Virginia State University

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

The last time I wrote about WV-INBRE, we had submitted our renewal application and were waiting on a decision about future funding. I'm happy to report that WV-INBRE was renewed for an additional five years of support by the National Institutes of Health with a total direct cost budget of over $17 million. We will be continuing many of the programs that were functioning under WV-INBRE Phase I - including Marshall University and West Virginia University as the research intensive lead institutions, the Summer Research program, major projects at the partner institutions, Bioinformatics and Genomic cores, the Appalachian Cardiovascular Research (ACoRN) Network, and pilot project funding (now called Faculty Research Development Awards) just to mention a few areas of the network.

However, some changes in the WV-INBRE programs have also been introduced under WV-INBRE Phase II. For example, we will no longer have Network Research Institutions (NRIs) and Network Outreach Institutions (NOIs) and will instead use the Partner Institution designation for predominately undergraduate institution network members. ACoRN will not only have clinics in West Virginia, but will also collaborate with Dr. Hatim Omar at the University of Kentucky, expanding our research network into our sister IDeA state. Another new change under WV-INBRE Phase II has been the inclusion of interactions with the NIH-funded Health Sciences Technology Academy (HTSA) program in West Virginia. The HSTA program targets minority and disadvantaged high school students to expose them to biomedical research. Spearheaded by WV-INBRE Program Coordinator, Dr. James Sheil, a plan was proposed as part of the renewal application to encourage HSTA graduates to attend WV-INBRE network colleges and universities and to participate in WV-INBRE funded research projects. WV-INBRE will also help track HSTA graduates as they pass through network institutions. Valerie Watson, West Virginia University, is the new WV-INBRE/HSTA Coordinator, and we are excited that she has joined our WV-INBRE team.

In addition to funding for the parent WV-INBRE award this year, we have applied for and received four supplements to the parent grant that total over $2.2 million. These supplements are each two year awards and were made possible by funding from the American Recovery and Reinvestment Act (ARRA) of 2009. The supplements provide an outstanding opportunity for WV-INBRE to develop new aspects of the research network and expand our training and education mission. One supplement will enhance the summer research program by providing funds for addition undergraduate interns, faculty fellows and high school science educators to participate in the summer research program at Marshall University, West Virginia University and the partner institutions with WV-INBRE-funded research projects. A second supplement will provide funds to hire HSTA graduates to work on WV-INBRE-funded projects during the academic year and add HSTA high school science educators to our summer research program. The third supplement will fund a research project to explore biomarkers in epicardial fat to help predict which individuals may be at greater risk to develop cardiovascular disease, while the fourth supplement will fund a research project to explore the protective effects of resveratrol against kidney toxicity induced by the cancer chemotherapeutic agent cisplatin. We were indeed fortunate to have been successful with all of our applications.

As you can see, these are exciting times for West Virginia and WV-INBRE. NIH is making a major investment in the biomedical research future of our State and the ball is in our court to make it happen. I hope you have a successful and productive Fall and a very happy holiday season.

Supported by:

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