Awards & Grants

Congratulations to Dr. Joel Griffitts, who received the National Science Foundation’s Career award, an honor given to the most promising junior faculty in the nation who are recognized as outstanding teachers, scholars, and researchers. It was accompanied by a five year grant of $652,000.

Dr. Griffitts is focusing on the useful nature of bacteria, specifically working with rhizobia, a soil bacterium, and their positive effects on some plants in the legume family. The results of his work will help scientists better understand what makes bacteria helpful or harmful. Dr. Griffitts will also reach out to involve local high school teachers and students in his research.

International Collaboration

Dr. Brent Nielsen is collaborating with Pakistani scientists at the Institute for Sustainable Halophyte Utilization in Karachi.

The title of their project is “Building capabilities for the molecular and biochemical characterization of photosynthesis and oxidative stress gene expression in halophytes with potential use as non-conventional crops.” Utah has many areas of highly saline (salty) soils, which is also a problem in southern Pakistan and many other places throughout the world. The goal is to identify halophyte plants that grow well in salty soils that can be used as agricultural crops. Potential uses include fodder for animals and seed oil.

Besides working on a project of mutual interest, collaboration offers opportunities to build positive relationships between countries as well as train individual scientists. Dr. Bilquees Gul from Karachi will be coming to BYU for a year to work on this project. Dr. Nielsen was able to attend the Pakistan-U.S. Science and Technology Conference in Dubai, UAE in April. The conference illuminated the international efforts of the U.S. in building stronger positive ties between our nation and other developing countries.

Publications

"Determinants of nucleosome organization in primary human cells" was accepted on March 18th by Nature. Dr. Steve Johnson, and five authors from Stanford University are co-authors.

This genome-wide analysis looks at billions of nucleosome positions in three types of primary cells isolated from a single human donor: CD4+ lymphocytes, CD8+ lymphocytes and neutrophil granulocytes along with nucleosomes reconstituted in vitro on the same donor’s DNA. This analysis reveals that the majority of the genome does not harbor nucleosomes with fixed genomic positions while simultaneously describing DNA and trans-acting protein factors that do universally act to position a subset of nucleosomes within these cell types. These positioning factors may ultimately lead to therapeutic uses to regulate epigenetic expression of genes through chromatin architecture via nucleosome positioning. Kudos for Dr. Johnson: this is only the tenth research paper (letters) associated with BYU that has been accepted by Nature.

Conferences
American Association for Cancer Research (AACR), 102nd annual meeting, held April 2-6, 2011 in Orlando Florida.

Sixteen students working with Dr. Kim O’Neill and Dr. Richard Robison attended. This is one of the biggest cancer meetings in the world. BYU student Daniel Sharp won the Bardos Award for undergraduates.

The following papers were presented: “Assessing the therapeutic and diagnostic potential of human thymidine kinase 1 in leukemia by Dagoberto Estevez, Robert A. Whitehurst and Daniel W. Sharp; “Visualization of Thymidine Kinase 1 on the surface of cancer cell lines: a potential diagnostic marker and therapeutic target” by Robert A. Whitehurst, Dagoberto Estevez, Daniel W. Sharp, and Melissa Alegre; “Thymidine kinase 1, a novel biomarker specific to the plasma membrane of cancerous cell lines” by Daniel W. Sharp, Dagoberto Estevez, Robert A. Whitehurst, Melissa M. Alegre, Brit L. Germann, and Joshua W. Foster.

The following posters were presented: “Microsphere engulfment by macrophages when exposed to breast and colon tumor microenvironments” by David Griffin, Ryan Quinton, Burke Hendricks, Brock Hansen, Paul Montoya, and Atif El Naggar; “Measuring TK1 autoantibodies in the serum of cancer and non-cancer patients” by Wesley D LaPorte, Taylor Abegg-Lawrence, and Melissa M. Alegre; “Localization of Several Potential Biomarkers in Various Types of Cancer” by Ballantines F Alegre, Melissa M Alegre, and Morgan S Hardy; “Macrophage Aggressiveness in the Tumor Microenvironment” by Ryan Quinton, David Griffin, and Melissa Alegre; “Raji antioxidant uptake of exotic fruit juices increases following pre-exposure to oxidative stress” by Andrés D. Martínez, Andrew R. Garrett, Timothy C. Michaelis, and José M. Peña; “The Organic Panic” by Jacob R. Jensen, Andrew R. Garrett, Ryan D. Kraus, Kylie Measom, and Matthew Gillam.

American Association for Microbiology (ASM), Intermountain Branch annual meeting at Weber State in Ogden, Utah held April 9, 2011.

The MMBIO Department was well represented. Students from labs of Drs. Brad Berges, Don Breakwell, Sandra Burnett, Joel Griffitts, Julianne Grose, Brent Nielsen, Kim O’Neill, Rich Robison, Eric Wilion, and the Phage Hunters participated. BYU students won all three presentation awards and three of the five poster awards.

Presentations included: “Humanized Mice as a Model to study Human Gammaherpesvirus Transmission” by German I. Cuadra; “Humanized Mice as a Model of HHV-6 Infection” by Stephanie A. Carlson; “A Novel ELISA Test to Detect Human Anti-Dengue Antibodies” by Tyler Slater and Sterling G. Adams; “Macrophage Phagocytic Activity in the Tumor Microenvironment of Multiple Cancer Cell Lines” by Ryan J. Quinton; “Cancer Patients Possess Lower Serum Antioxidant Levels than Age Matched Healthy Subjects” by Adam J. Grooms; “Antioxidant Levels in Blueberries: Are Organic Better Than Conventional?” by Ryan D. Kraus; and “Power juices: The role of exotic, anti-oxidant fruit juices in preventing cancer” by Timothy C. Michaelis.

American Society for Microbiology (ASM), Intermountain Branch annual meeting at Weber State in Ogden, Utah held on March 30, 2011.

Students working with Dr. Steven M. Johnson presented the following posters: “Positioning Nucleosomes to Regulate and Maintain Gene Function” by Benjamin V. Jorgensen and Elliot E. Winters; “Effect of DNA Methylation on Nucleosome Positioning” by Scott R. Wilkes and Kade S. McQuivey; and “Determining Nucleosome Positioning in Varying Developmental Stages and Cell-types in C. elegans” by Kellie Bollenbach and Zack Loud.


Dr. Steven Johnson presented the paper “Nucleosome Organization in primary human cells.” Graduate student Colton Kempton also attended.