

JEFFRESS RESEARCH GRANT AWARDS

The Allocations Committee of the Thomas F. and Kate Miller Jeffress Memorial Trust has announced the award of Jeffress Research Grants to the institutions listed below to support the research of the investigator whose name is given. The Jeffress Trust, established in 1981 under the will of Robert M. Jeffress, a business executive and philanthropist of Richmond, supports research in chemical, medical and other natural sciences through grants to non-profit research and educational institutions in the Commonwealth of Virginia. The Jeffress Research Grants being announced here have been awarded in 2007.

The Jeffress Memorial Trust is administered by Bank of America. Additional information about the program of the Trust may be obtained by writing to: Richard B. Brandt, Ph.D., Advisor, Thomas F. and Kate Miller-Jeffress Memorial Trust, Bank of America, Mail Code VA2-300-12-99, P. O. Box 26688, Richmond, VA 2326 1-6688. An unofficial website is listed under Grants and Awards, www.vacadsci.org.

Antonio Abbate, Virginia Commonwealth University/Medical College of Virginia. Cardioprotective Effects of the Interleukin-1 Receptor Antagonist in Acute Myocardial Infarction. \$25,000. (one year).

Seth A. M. Aubin, The College of William and Mary. Fermion Interferometry. \$25,000. (one year).

Ancha Baranova, George Mason University. Melanin Biosynthesis in Adipocytes: Crosstalk Between Energy Balance and Pigmentation Control. \$10,000. (one year renewal).

Ian Bartol, Old Dominion University Research Foundation. Locomotive Role of Fins in the Brief Squid *Lolliginula brevis*. \$20,000. (one year).

Jill C. Bettinger, Virginia Commonwealth University/Medical College of Virginia. Role of Altering Synaptic Transmission in the Development of Acute Tolerance to Ethanol. \$10,000. (one year renewal).

Linda Boland, University of Richmond. Fatty Acid Modulation of Kv4 Potassium Channels. \$25,000. (one year).

George M. Brooke, IV, Virginia Military Institute. Real-Time In-Situ Characterization of Trace Compounds and Aerosols using Cavity Ring-Down Spectroscopy. \$10,000. (one year renewal).

Joshua Burk, College of William and Mary. Posterior Parietal Cortical Acetylcholine and Attention. \$10,000. (one year renewal).

Jason J. Chroma, University of Virginia. Employing Solvophobic Effects Toward the Synthesis of Bioactive Biaryl and Diarylether Macrocycles. \$10,000. (one year renewal).

Daniela Cimini, Virginia Polytechnic Institute and State University. Live Cell Analysis of Chromosome Instability in Colorectal Cancer Cells. \$10,000. (one year renewal).

Mark A. Cline, Radford University. Effects of Amylin on Ingestion and Ingestive-Related Process in Two-Lines of Chickens: One Containing Anorexic and the Other Obese Individuals. \$10,000. (one year renewal).

Linda Columbus, University of Virginia. Determining the Structure and Molecular Determinants of Membrane Protein Interactions Involved in Bacterial Pathogenesis using NMR and EPR Spectroscopy. \$20,000. (one year).

Benjamin Corl, Virginia Polytechnic Institute and State University. Bovine Scd: Characterizing an Ortholog of Human Scd5, A Novel Stearoyl-CoA Desaturase Expressed in Brain. \$25,000. (one year).

Robin D. Couch, George Mason University. Elucidating the Structural Basis of HMGCoA Reduction in Lovastatin Derivatives. \$24,000. (one year).

Daniel N. Cox, George Mason University. Dissecting Class-Specific Dendrite Morphogenesis via Laser Capture Microdissection with Transcriptional Expression Profiling. \$22,000. (one year).

Rafael Davalos, Virginia Polytechnic Institute and State University. Quantitative Evaluation of Micro-Electroporation. \$20,000. (one year).

C. Wade Downey, University of Richmond. The Development of New Stereo-Selective Intra Molecular Pericyclic Reactions. \$10,000. (one year renewal).

Malgorzata Dukat, Virginia Commonwealth University/Medical College of Virginia. Novel Approaches to Pain Management. \$10,000. (one year renewal).

Jeffrey L. Dupree, Virginia Commonwealth University/Medical College of Virginia. The Role of Sulfatide in Regulating Oligodendrocyte Population and Maturation. \$10,000. (one year renewal).

Sarah H. Elsea, Virginia Commonwealth University/Medical College of Virginia. Investigating the Role of TomIL2 in Immune Response and Susceptibility to Infection. \$25,000. (one year).

Alev Erisir, University of Virginia. Afferent-target Relations in Developing Visual Cortex: Recovery from Deprivation. \$10,000. (one year renewal).

Joshua Erlich, College of William and Mary. Hadrons, Strings, and Cosmology. \$10,000. (one year renewal).

Mirela S. Fetea, University of Richmond. Dynamic Symmetries in Nuclei. \$10,000. (one year renewal).

James A. Foster, Randolph-Macon College. A Focused Proteomic Approach to Identify Novel Sperm a Surface Adhesion Proteins and Receptors for the Egg Zona Pellucida. \$20,000. (one year).

Laura F. Galloway, University of Virginia. Evolution at the Edge: The Role of Genetic Variation in the North American Invasion by the Japanese Honeysuckle (*Lonicerajaponica*). \$26,492. (one year).

Phillip M. Gerk, Virginia Commonwealth University/Medical College of Virginia. Acute Effects of Oxidative Stress on Placental ABC Transporters. \$10,000. (one year renewal).

Siddhartha S. Ghosh, Virginia Commonwealth University/Medical College of Virginia. Regulation of Renalase, the Enzyme Modulating Hypertension and Renal Disease. \$10,000. (one year renewal).

Glenda Gillaspay, Virginia Polytechnic Institute and State University. The Biochemistry of PHD Fingers. \$15,000. (one year).

Daniel Gottlieb, Sweet Briar College. The Role of a Number of Trials in the Acquisition of Conditional Responding. \$10,000. (one year renewal).

Lesley H. Greene, Old Dominion University Research Foundation. Elucidating the Key Determinants of Protein Folding and Stability in the Death Domain Superfamily. \$22,000. (one year).

Alex Greenwood, Old Dominion University Research Foundation. Forensics Analysis of the Distant Past: Population Genetics of the Woolly Mammoth (*Mammuthusprimigenius*) Using Various Variable Loci. \$25,000. (one year).

Heather Griscom, James Madison University. The Effect of Environmental Factors on the Performances of Pure and Hybrid American Chestnut Seedlings. \$25,000. (one year).

Gregorio G. Gomez, Virginia Commonwealth University/Medical College of Virginia. Role of Extracellular Adenosine on Immunological Activation of Human Mature Mast Cells. \$20,000. (one year).

Georgia Hammond, Radford University. Examining Arsenic Metabolism in Bacterial Communities Present in an Abandoned Arsenic Mine. \$20,000. (one year).

April L. Hill, University of Richmond. Development of a "Model Sponge System" to Study the Evolution of Early Animal Body Plans and Sensory Systems. \$25,000. (one year).

Robert Humston, Virginia Military Institute. Reconstructing Movement Patterns of Smallmouth Bass (*Micropterus dolomieu*) from Elemental Chemistry of Otoliths. \$10,000. (one year renewal).

Carol A. Hurney, James Madison University. Cloning and Expression of *MyoD* and *Myf5* in the Four-Toed Salamander: Insights into Segmentation and Tail Development. \$10,000. (one year renewal).

Scott Huxtable, Virginia Polytechnic Institute and State University. Thermal Management Through Understanding and Control of Solid-State Interfacial Thermal Conductance. \$10,000. (one year renewal).

Michael Klemba, Virginia Polytechnic Institute and State University. Roles of Aminopeptidase P in Peptide Catabolism in the Human Malaria Parasite *Plasmodium falciparum*. \$10,000. (one year renewal).

Scott W. Knight, University of Richmond. The Role of Zinc-Finger Protein in RNA Interference. \$10,000. (one year renewal).

Eugene B. Kolomeisky, University of Virginia. Theoretical Aspects of Ground-State Manipulation of Individual Particles. \$7,000. (one year renewal).

Joel P. Kuehner, Washington and Lee University. Investigation of Nonresonant Laser-Induced Electrostrictive Gratings for Temperature Measurements in Air at Subatmospheric Pressure. \$10,000. (one year renewal).

Buoy K. Kundu, University of Virginia Medical School. *In vivo* FDG-PET Imaging to Evaluate Glucose Uptake, Metabolism and Cardiac Function in a Mouse Model of Myocardial Hypertrophy. \$20,000. (one year).

David A. Lanning, Virginia Commonwealth University/Medical College of Virginia. Homeobox Gene Expression in Fetal and Rabbit Wounds. \$10,000. (one year renewal).

Chris Lantz, James Madison University. Regulation of Contact Hypersensitivity and Basophil Development in Mice by Interleukin-3 Derived from CD4 Cells. \$10,000. (one year renewal).

Jonathan M. Link, Virginia Polytechnic Institute and State University. The LENS Solar Neutrino Detector and Sterile Neutrinos. \$20,000. (one year).

Joyce Lloyd, Virginia Commonwealth University/Medical College of Virginia. Roles of ELKF and KLF2 in Embryonic Erythropoiesis and Globin Gene Regulation. \$20,000. (one year).

John M. McDowell, Virginia Polytechnic Institute and State University. Functional Conserved Oomycete Effector Proteins. \$20,000. (one year).

Kevin P. C. Minbiole, James Madison University. Amphibian Protection: The Antifungal Effects of Beneficial Bacteria on Salamander Skin. \$25,000. (one year).

Jonathan D. Monroe, James Madison University. Subcellular Localization of Nine BetaAmylases from *Arabidopsis thaliana*. \$25,000. (one year).

Isis Mullarky, Virginia Polytechnic Institute and State University. Mechanisms of Immune Evasion by Intracellular *Staphylococcus aureus*. \$20,000. (one year).

Anthony V. Nicola, Virginia Commonwealth University/Medical College of Virginia. Cellular Function Required for an Early Stage of Herpesvirus Entry into Host Cells. \$10,000. (one year renewal).

Irma Novikova, College of William and Mary. Investigation of All-Optical Resonances for Compact Atomic Clocks using VCSEL-based Laser System. \$10,000. (one year renewal).

Konstantinos Orginos, College of William and Mary. Hadron Physics with Lattice QCD. \$10,000. (one year renewal).

Kyungwha Park, Virginia Polytechnic Institute and State University. Computational Study of Magnetic Properties of Molecular Nanomagnets Tethered to Gold Surfaces. \$10,000. (one year renewal).

Carol Parish, University of Richmond. Potential Anti-Cancer Warhead Drugs: A Theoretical Investigation of the Electronic Nature of Eneidyne Cyclization. \$10,000. (one year renewal).

K. Kevin Pfister, University of Virginia Medical School. The Interaction of Cytoplasmic Dynein and the Spindle Checkpoint Protein Bub3. \$20,000. (one year).

Tara Phelps-Durr, Radford University. Molecular and Genetic Analysis of HIRA Function During *Arabidopsis* Development. \$25,244. (one year).

Padma Rajagopalan, Virginia Polytechnic Institute and State University. The Design of Cellular Architectures using Polyelectrolyte Scaffolds. \$20,000.

Maria Redlak, Virginia Commonwealth University/Medical College of Virginia. Deoxycholate-Induced Apoptosis in Gastric Epithelial Cells: HSP70 in Mediation and Prevention. \$25,000. (one year).

Hans Robinson, Virginia Polytechnic Institute and State University. Optically Controlled Spin Transport in Semiconductor Nanostructures. \$10,000. (one year renewal).

Phillip D. Rubin, George Mason University. Simulation and Code Development for the Daya Bay Neutrino Oscillation Experiment. \$25,700. (one year).

Laura Runyon-Janecky, University of Richmond. Characterization of Intracellular Adaptation Genes in the Tsetse Fly Secondary Endosymbiont *Sodalis glossinidius*. \$10,000. (one year renewal).

Masahiro Sakagami, Virginia Commonwealth University/Medical College of Virginia. Pulmonary Delivery of Gut Secreting Peptides for Appetite Suppression in Rats. \$20,000. (one year).

Webster L. Santos, Virginia Polytechnic Institute and State University. Synthesis of Borinic and N-Terminal Borinic Acids as Inhibitors of the Malarial Proteases Facilysin. \$20,000. (one year).

Catherine Sarisky, Roanoke College. From Peptide to Protein: Does the Larger Context Matter for Strand Register Development? \$20,000. (one year).

Harry D. Schreiber, Virginia Military Institute. Coloring Mechanism in Hydrangea Sepals and Related Flowers. \$10,000. (one year renewal.)

Sean T. Scully, James Madison University. Neutrino Constraints on the Origin of UltraHigh Energy Cosmic Rays. \$10,000. (one year renewal).

Kyle N. Seifert, James Madison University. The Role of Ssr-2 and Accessory Secretory Genes in the Pathogenesis of a Highly Virulent Lineage of Group B streptococci. \$10,000. (one year renewal).

Dana E. Selley, Virginia Commonwealth University/Medical College of Virginia. Investigation of a Novel CB1 Receptor-Interacting Protein. \$21,000. (one year).

Leah B. Shaw, The College of William and Mary. Modeling Epidemics Across Space and Through Dynamic Social Networks. \$25,000. (one year).

Rita Shiang, Virginia Commonwealth University/Medical College of Virginia. Characterization of Genes Downstream of the Treacher Collins Syndrome Gene, Tcofl. \$20,000. (one year).

Matthew S. Siderhurst, Eastern Mennonite University. Identifying Attractants for the Spotted Cucumber Beetle and the Striped Cucumber Beetle from Sprouting/Seedling Host Plants. \$25,000. (one year).

Laura Sim-Selley, Virginia Commonwealth University/Medical College of Virginia. Sphingosine-1-Phosphate Receptors: Regulation of a Novel CNS Receptor with Therapeutic Potential. \$21,000. (one year).

Ronald B. Smeltz, Virginia Commonwealth University/Medical College of Virginia. Synergy of Inflammation and Interleukin- 15 in Development of Effector Cytotoxic T Cells. \$10,000. (one year renewal).

Janet Steven, Sweet Briar College. The Evolution of Hermaphroditic and Unisexual Flowers in *Thalictrum macrostylum*: A Test of Multiple Causal Hypotheses. \$10,000. (one year renewal).

Traci Stevens, Randolph-Macon College. Analysis of the Effects of Bcr-Abl Expression in *Drosophila melanogaster*. \$10,000. (one year renewal.)

Jennifer Stewart, Virginia Commonwealth University. Biological Activity of CisTerpenones. \$10,000. (one year renewal).

David B. Strauss, Virginia Commonwealth University/Medical College of Virginia. Novel Regulation of the Lck Tyrosine Kinase and T Lymphocyte Activation. \$20,000. (one year).

John D. Styrsky, Lynchburg College. The Utilization of an Ant-Defended Acacia by an Orb-Weaving Spider: Potential Mechanism and Consequences for an Ant-Acacia Mutualism. \$24,817. (one year).

Kam W. Tang, The College of William and Mary-VIMS. Linking Zooplankton Ecology and Microbial Ecology: Experimental Study of Microbial Processes on Copepod Carcasses. \$21,000. (one year).

Dorothea Tholl, Virginia Polytechnic Institute and State University. Terpene Volatile Messengers in Plant Roots. \$10,000. (one year renewal).

David W. Thompson, The College of William and Mary. Silver Nanowire, Nanorod, and Nanosphere-High Performance Polymer Composites. \$10,000. (one year renewal).

Amy L. Throckmorton, Virginia Commonwealth University. Mechanical Cavopulmonary Assist for the Neonatal Single Ventricle Physiology. \$30,000. (one year).

James Tokuhisa, Virginia Polytechnic Institute and State University. Potato Tuber Toxins: The Biosynthesis of Steroid Glycoalkaloids in *Solanum chacoense*. \$22,000. (one year).

Amy Treonis, University of Richmond. Nematode Community Structure and Trophic Interactions in Agricultural Soil Amended with Cover Crops. \$10,000. (one year renewal).

James M. Turbeville, Virginia Commonwealth University. *Ramphogordius sanguineus*:

(Nemerta, Heteroemerta): Phylogeography and Specific Delimitation. \$20,000. (one year).

Erich Uffelman, Washington and Lee University. ^1H - ^{15}N HMBC Spectroscopy of Complexes Relevant to Green Chemistry. \$10,000. (one year renewal).

Christopher R. Watts, James Madison University. A Mouse Model for Studying the Role of the Elastin Gene (ELN) in Vocal Fold Development and Structure. \$23,500. (one year).

Sandra P. Welch, Virginia Commonwealth University/Medical College of Virginia. Sphingosine-1 Phosphate Receptor Induced Modulation of Endogenous Opioids. \$25,000. (one year).

James H. Westwood, Virginia Polytechnic Institute and State University. A Parasitic Plant as a Novel Tool for Studying Mobile mRNA. \$10,000. (one year renewal).

Sungsool Wi, Virginia Polytechnic Institute and State University. Membrane-Induced Conformation and Dynamics Study of Antimicrobial Peptide. \$10,000. (one year renewal.)

Ping Xu, Virginia Commonwealth University/Medical College of Virginia. Comparative Genome of Virulence Related Genes in *Streptococcus*. \$10,000. (one year renewal).

Hu Yang, Virginia Commonwealth University. A Multifunctional Dendritic Drug Delivery System for Brain-targeted Drug Delivery. \$15,300. (one year).

Zhongming Zhao, Virginia Commonwealth University/Medical College of Virginia. Analysis of Genetic Variation in Human CpG Islands. \$10,000. (one year renewal).

Kevin Zhou, Virginia Polytechnic Institute and State University. Investigation of a Robust Natural Alpha-glucosidase Inhibitor for Potential Prevention and Treatment of Type-2 Diabetes. \$29,540. (one year).