

2004 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 2004.

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, Private Bank, P. O. Box 26688, Richmond, VA 23261-6688. An unofficial website is listed under Grants and Awards, www.vacadsci.org/grants.htm.

Julio C. Alvarez. Virginia Commonwealth University. Development of Electrochemical Biosensors in Plastic Microfluidic Chips. \$30,000. (one year).

Rebecca Ambers. Sweet Briar College. The Influence of Clay Mineralogy and Mineral Cements on Stream Channel Erodability. \$30,000. (one year).

Joseph D. Ametep. Hollins University. Studying and Using Discharges from a Novel High-Energy Ultraviolet Light Source for Destroying Viruses and Bacteria in Drinking Water. \$30,000. (one year).

Mark Anderson. Virginia Polytechnic Institute and State University. Development and Characterization of a Multisensor Array for Biosensing. \$30,000. (one year).

Craig Bayse, Old Dominion University. Understanding the Role of Selenium Interactions in the Activity of Selenoproteins and their Mimics: A Theoretical Study. \$30,000. (one year).

Barney M. Bishop, George Mason University. Folding β -Defensins and Precursors of Peptides. \$28,280. (one year).

Robert A. Bloodgood, University of Virginia School of Medicine. Calcium Regulation of Whole Cell Locomotion. \$10,000. (one year renewal).

Bonnie L. Brown, Virginia Commonwealth University. Isolation and Analysis of Molecular Markers for Genome Mapping of Oysters. \$10,000. (one year renewal).

Jan Chaloupka. The College of William and Mary. The Effect of the Longitudinal Electrical Field in an Intense Laser Pulse on the Double Ionization of Atoms. \$30,000. (one year).

Stuart C. Clough, University of Richmond. The Preparation and Application of 5-chloro-5-aryl-2, 4-pentadienoates to the Regioselective Synthesis of Heterocycles and Carbocycles. \$10,000. (one year renewal).

Randolph A. Coleman, College of William and Mary. Biochemical Studies of G-Protein Coupled Receptors via Stimulation and Modeling. \$30,000. (one year).

Roland Cooper, Old Dominion University. Alkylation of Proteins by the Antimalarial Drug Artemisinin. \$30,000. (one year).

Richard M. Costanzo, Virginia Commonwealth University. Recovery from Olfactory Nerve Injury. \$30,000. (one year).

Gary G. Coté, Radford University. Regulation of Plant Crystal-Containing Idioblast Cells by Herbivory. \$7,820. (one year renewal)

Brian Cusato, Sweet Briar College. The Pavlovian Conditioning on Sexual Behavior and Fertility in Female Japanese Quail (*Coturnix japonica*). \$10,000. (one year renewal).

Janet Chen Daniel, James Madison University. Identification of Amino Acid Sequence Motifs Involved in the Determination of Substrate Specificity of the STPI Hexose Transporter of *A. rabidopsis thaliana*. \$10,000. (one year renewal).

Jonathan Dattelbaum, University of Richmond. Genetically Engineered Protein Biosensors for Glutamate: An Important Human Neurotransmitter. \$30,000. (one year).

Keith Davies, George Mason University. Transport of Diazoniumdiolates in Liposome Media. \$25,000. (one year).

Swati P. Deb, Virginia Commonwealth University. Function and Dysfunction of the Human Oncoprotein MDM2. \$30,000. (one year).

Antonio del Castillo, Virginia Commonwealth University. Role of Feto Protein Transcription Factor (FTF) in Bile Acid Synthesis. \$10,000. (one year renewal).

Christopher Del Negro, The College of William and Mary. Do Pacemaker Neurons Generate the Rhythm for Breathing?. \$10,000. (one year renewal).

James Eason, Washington and Lee University. The Mechanisms of Defibrillation During Acute Myocardial Ischemia \$10,000. (one year renewal).

Marcia B. France, Washington and Lee University. Chiral Schiff Base Complexes as Catalysts for Asymmetric Cyclopropanation. \$10,000. (one year renewal).

Mark L. Gabriele, James Madison University. Understanding Early Circuit Formation and the Spatial Arrangement of Ascending and Descending Projection Patterns in the Developing Auditory System Prior to the Onset of Hearing. \$10,000. (one year renewal).

George W. Gilchrist, The College of William and Mary. The Genetic Architecture of Rapidly Evolving Traits in Invading Populations of *Drosophila suhobscura*. \$10,000. (one year renewal).

Earl W. Godfrey, Eastern Virginia Medical School. Identification of Candidate Proteins for Polysynaptic Differentiation of the Neuromuscular Junction. \$10,000. (one year renewal).

Emma Goldman, University of Richmond. Synthesis and Characterization of a Series of Dicopper Compounds for Use as Electro catalysts in the Reduction of Carbon Dioxide. \$10,000. (one year renewal).

William M. Grogan, Virginia Commonwealth University/Medical College of Virginia. Characterization and Quantification of Post-Translationally Modified Cholesteryl Esterases in Biological Samples by Electrospray Tonization-Fourier Transformion Cyclotron resonance (ESI-FTICR) Mass Spectrometry. \$10,000. (one year renewal).

Susan R. Halsell, James Madison University. Characterization of Mutations that Affect RhoA Signal Transduction During the Development of *Drosophila melanogaster*. \$30,000. (one year).

Barbara Hargrave, Old Dominion University. Development of a Mouse Model to Investigate Gender Differences in the Susceptibility to Cardiovascular Disease. \$9,920. (one year renewal).

Reid Harris, James Madison University. The Population Ecology of a Salamander Species in Relation to its Bacterial Symbiosis. \$27,500. (one year).

James B. Herrick, James Madison University. Exogenous Isolation and Characterization of Antibiotic Resistance Plasmids from an Agriculturally-Impacted Stream. \$10,000. (one year renewal).

Joel W. Hockensmith, University of Virginia Medical School. Inhibitors of DNA-Dependent ATP Hydrolytic Activity and Associated Functions. \$10,000. (one year renewal).

Walter M. Holmes, Virginia Commonwealth University Health System. Molecular Basis for Themotoga Protein and RNA Heat Stability. \$30,000. (one year).

Robert Humston, Virginia Military Institute. Reconstructing Movement Patterns of Smallmouth Bass (*Micropterus dolomieu*) from Elemental Chemistry of Otoliths. \$30,000. (One year).

Scott Hyman, Sweet Briar College. A Galactic Center Variable and Transient Radio Source Monitoring Program. \$10,000. (one year renewal).

Helen F Anson, Washington and Lee University. Metabolic Regulation of the Onset of Puberty. \$10,000. (one year renewal).

Jeffrey E. Janovetz, Sweet Briar College. The Functional Morphology of Feeding in Piranhas and Related Fishes. \$30,000. (one year).

Kenneth W. Kambis, College of William and Mary. The Effects of Carbohydrate Ingestion Mood State During Endurance Work Performance at Moderate and High Altitude. \$20,000. (one year).

Giti Khodaparast. Virginia Polytechnic Institute and State University. Tetrahertz Emission from Parabolic Semiconductor Heterostructures. \$30,000. (one year).

Todd Kitten. Virginia Commonwealth University Health System. Systematic Mutagenesis of Surface Protein Genes in the Endocarditis Pathogen, *Streptococcus sanguis*. \$30,000. (one year).

Brian M. Kelley, Bridgewater College. The Influence of Adolescent Nicotine Exposure on Adult Drug Sensitivity and Substance Abuse Risk. \$10,000. (one year renewal)

Keith G. Kozminski. University of Virginia. Regulation of Polarized Morphogenesis Functional Analysis of Zds2p in *S. cerevisiae*. \$22,500. (one year).

Rahul Kulkarni. Virginia Polytechnic Institute and State University. Computational Analysis of Bacterial Quorum-Sensing Networks. \$27,000. (one year).

Lisa M. Landino, The College of William and Mary. Probing the Reactivity of the Sulfhydryl Groups of Microtubule Proteins. \$10,000. (one year renewal).

David A. Lanning. Virginia Commonwealth University Health System. Homeobox Gene Expression in Fetal and Rabbit Wounds. \$30,000. (one year).

Michael C. Leopold, University of Richmond. Biological Enhanced Metallic Nonoparticles: The Next Dimension of Protein Enhanced Monolayer Electrochemistry. \$10,000. (one year renewal).

Nilanga Liyanage, University of Virginia. Construction of a Proto-Type Multi-Wire Proportional Chamber for Jefferson Lab. Engineering. \$10,000. (one year renewal)

Dongmin Liu. Virginia Polytechnic Institute and State University. Molecular Mechanism of Dehydroepiandrosterone in Regulation of Angiogenesis. \$30,000. (one year).

Rowan Lockwood, The College of William and Mary. Live-Dead Assemblage Comparisons in the Chesapeake Bay: Laying the Groundwork for Paleological Analyses of Holocene Benthic Molluscs. \$10,000. (one year renewal).

Gyorgy Lonart, Eastern Virginia Medical School. Interaction of Phospho-RIM1a with the Release Machinery. \$30,000. (one year).

Robin Looft-Wilson, The College of William and Mary. Vascular Cell-to-Cell Communication in Hyperhomocysteinemia. \$30,000. (one year).

Michael Madigan, Virginia Polytechnic Institute and State University. Effects of Low Back Fatigue on Balance. \$10,000. (one year renewal).

Irma Mazilu, Washington and Lee University. A Study of Some Non-Equilibrium Driven Models and Their Contribution to the Understanding of Molecular Motors. \$30,000. (one year).

John Ross McClung, Virginia Commonwealth University. Extraocular Muscle Compartmentalization. \$23,000. (one year).

Robert J. McKallip, Virginia Commonwealth University. The Effects of Cannabinoid Exposure on Tumor Growth and the Anti-Tumor Immune Response. \$30,000. (one year).

W. Alex Meredith, Virginia Commonwealth University Health System. Effect of Measured Deafness in Cortical Sensory Processing. \$30,000. (one year).

Jeffrey K. Nelson, The College of William and Mary. Studies of the Charge Asymmetry in Cosmic Ray Muons and Atmospheric Neutrino Interactions. \$30,000. (one year).

Gregory M. Plunkett, Virginia Commonwealth University. Evolutionary Patterns in Plerandra Group of *Schefflera* (Araliaceae). \$29,219. (one year).

Joseph H. Porter, Virginia Commonwealth University. Effects of Antipsychotic Drugs on Phencyclidine (PCD)-Induced Impairments in Reference and Working Memories in Mice. \$10,000. (one year renewal).

Robyn A. Puffenbarger, Bridgewater College. Cannabinoid Receptor Expression in Macrophages. \$10,000. (one year renewal).

Leonard Pysh, Roanoke College. SABRE and Root Cell Shapes in *Arabidopsis thaliana*. \$29,000. (one year).

Jennifer Radkiewicz, Old Dominion University. An Investigation of 2-Aminoethoxydiphenylborate and Analogs as Store-Operated Calcium Entry Channel Inhibitors. \$10,000. (one year renewal).

Gary Radice, University of Richmond. Origin and Specification of Lymphatic Heart Myoblasts. \$25,000. (one year).

Shunlin Ren, Virginia Commonwealth University. Biochemical Study of Cholesterol Transporter in Bile Acid Synthesis. \$10,000. (one year renewal).

Terrie K. Rife, James Madison University. Understanding Transcriptional Changes of Nitric Oxide Synthetase Tin Neurons Using a PC12 Cell Model. \$10,000. (one year renewal).

Margaret Saha, The College of William and Mary. Novel Laser-Based Strategies for the Insertion of DNA into Cells of Living Organisms. \$10,000. (one year renewal).

Vladimir Siderov, Virginia Commonwealth University Health System. Active Delivery of Substrates by Ditopic Receptors. \$30,000. (one year).

Kevin Simon, James Madison University. Interaction Among Organic Matter, Microtubule Films, and Animals in Cave Stream Food Webs. \$30,000. (one year).

Caroline Smith, James Madison University. The Aeroacoustics of Turbulent Coanda Jets. \$10,000. (one year renewal).

Christopher M. Stevenson and Derek Wheeler, Department of Historic Resources Commonwealth of Virginia. The Hydration Dating of Historic Soda-Lime Glass: A New Archeological Dating Method. \$10,000. (one year renewal).

Kam Tang, Virginia Institute of Marine Science. Copepods as Microbial Hotspots in DMSP Dynamics: Effects of Host Feeding Activities on Attached DMSP-Consuming Bacteria. \$10,000. (one year renewal).

John M. Warrick, University of Richmond. CREB-Binding Protein Modulation in a *Drosophila* Model of MJD and the Role of Chaperones. \$29,000. (one year).

Raphael J. Witorsch, Virginia Commonwealth University. G-Screen Microassay for the Identification of Xenoglucocorticoids \$10,000. (one year renewal).

Roshna Wunderlich, James Madison University. Biomechanics of Bipedal Locomotion in *Propithecus verreauxi*. \$10,000. (one year renewal).

Grace A. Wyngaard, James Madison University. Variability in Chromatin as a Mechanism of Rapid Evolution. \$22,500. (one year).

Ping Xu, Virginia Commonwealth University. Comparative Genome of Virulence Related Genes in Streptococcus. \$30,000. (one year).

Henry M. Yochum, III, Sweet Briar College. Optical Spectroscopy of Defects in Undoped Yttrium Orthovanadate Crystals. \$10,000. (one year renewal)

Chenming Zhang, Virginia Polytechnic Institute and State University. Effectiveness of Site Selection by Molecular Modeling for Site-Directed Protein Mutagenesis. \$10,000. (one year renewal).

Quibing Zhou, Virginia Commonwealth University. D N A P r o m o t e d Intercalating/Alkylating Drugs. \$10,000. (one year renewal).

Patty Zwollo, College of William and Mary. Developing Molecular Tools for the Analysis of Trout Humoral Immunity: Isolation of Gene Encoding Transcription Factors PAX-5 and Blimp-1 Monoclonal Antibody Production. \$30,000. (one year).