

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 1997. The Jeffress Memorial Trust is administered by NationsBank of Virginia, N. A. Additional information about the program of the Trust may be obtained by writing to: Advisor, Thomas F. and Kate Miller Jeffress Memorial Trust, NationsBank, Private Client Group, P.O. Box 26688, Richmond, VA 23261-6688.

- Adele Addington, Virginia Military Institute Research Laboratories. The Assessment of Proteoglycan Degradation in Porcine Aortic Valves by Hydrolytic Enzymes. \$15,540 (oneyear).
- Carey K. Bagdassarian, The College of William and Mary. Enzymatic Activity and Protein-Matrix Flexibility: The Energetics and Dynamics of Catalysis by Cytidine Deaminase. \$19,000 (one year).
- Christopher M. Bailey, The College of William and Mary. Potential Neotectonic Activity Associated with the White Oak Run Fault, Blue Ridge Province, Northern Virginia. \$12,700 (one year).
- Alison A. Baski, Virginia Commonwealth University. Tailoring the Growth of Nanostructures using High-Index Silicon Surfaces. \$20,000 (one year)
- Robert Boggess, Radford University. Infusion of Metal-Containing Additives into Polyimides Using Supercritical Carbon Dioxide. \$20,000 (one year).
- Amy H. Bouton, University of Virginia. The Role of p130^{CAS} in Cellular Growth Regulation. \$20,000 (one year).
- William C. Broaddus, Virginia Commonwealth University. Mathematical Modeling of Distribution and Diffusion of Antisense Phosphorothioate Oligonucleotides in Rodent Brain Following Direct Intraparenchymal Infusion. \$20,000 (one year).
- Daniel J. Burke, University of Virginia. Molecular Genetics of the Spindle Checkpoint Using Targeted Gene Deletions in Mice. \$7,500 (one year renewal).
- Ann Campbell, Eastern Virginia Medical School. Molecular Pathogenesis of Murine Cytomegalovirus. \$19,400 (one year).
- John A. Carlisle, Virginia Commonwealth University. Electronic structure/property relationships in deeply-buried ultra-thin Silicon films. \$18,600 (one year).
- Martha A. Case, The College of William and Mary. Population Biological Factors Important for the Conservation of Native American Ginseng (*Panax quinquefolius*). \$14,810 (one year).
- Daniel A. Cristol, The College of William and Mary. The Role of the Avian Hippocampus in Migration Behavior. \$14,275 (one year).
- Robin Lee Davies, Sweet Briar College. Assembly of a Cosmid-Based Map of Chromosome 12p13. \$10,000 (one year renewal).

- Randall D. Davy, Liberty University. The Reactions of Small Lithium Clusters and Hydrogenated Lithium Clusters with Hydrogen Molecules. \$20,000 (one year).
- John A. DeSimone, Virginia Commonwealth University. Cell Volume Regulation in Taste Receptor Cells During Gustatory Stimulation. \$19,857 (one year).
- M. Samy El-Shall, Virginia Commonwealth University. Ion Nucleation as Amplifier and Detector in Chemical Analysis. \$10,000 (one year renewal).
- Allen D. Everett, University of Virginia. Developmental Mapping of Hepatoma Derived Growth Factor in the Rat. \$13,385 (one year).
- Reyna Favis, Virginia Polytechnic Institute and State University. Investigating Differentiation in *Dictyostelium discoideum* through the Analysis of Glycogen Phosphorylase 2 Gene Regulation. \$10,000 (one year renewal).
- Bin Gao, Virginia Commonwealth University. Molecular Mechanisms of Down Regulation of the 1B Adrenergic Receptor Gene Expression in Regenerating Liver and Liver Tumor Cells. \$10,000 (one year renewal).
- Jill Nelson Granger, Sweet Briar College. Dithiophosphate DNA: Studies on their Purification and Anti-Viral Activity. \$10,000 (one year renewal).
- Robert M. Granger, II, Virginia Military Institute Research Laboratories. Synthesis and Characterization of a Series of platinum(IV)diimine complexes. \$13,865 (one year).
- A. C. Hillier, University of Virginia. Design and Interfacial Chemistry of Polymer-Stabilized Bilayer Lipid Membranes. \$16,913 (one year).
- Robert J. Hinkle, The College of William and Mary. Expanding the Scope of Alkenyl(aryl)iodonium Substitutions. \$14,952 (one year).
- Julia W. P. Hsu, University of Virginia. Pulsed Laser Deposition System for Oxide Thin Films. \$20,000 (one year).
- W. Christopher Hughes, James Madison University. Implantation and Annealing of GaN for Doping and Patterning. \$17,500 (one year).
- Scott D. Hyman, Sweet Briar College. A High Resolution Study of Discrete Radio Sources in Nearby Spiral Galaxies. \$8,400 (one year).
- Wayne L. Hynes, Old Dominion University. Examination of the Extracellular, Chromosomally Encoded, Hyaluronidase of *Streptococcus pyogenes*. \$19,415 (one year).
- Xi Jiang, Eastern Virginia Medical School. Genetic and Antigenic Characterization of Sapporo-like Calciviruses. \$10,000 (one year renewal).
- Tappay H. Jones, Virginia Military Institute Research Foundation. Formicine Semiochemicals: The Biodiversity of Ant Venoms and Pheromones as Taxonomic Characters. \$10,000 (one year renewal).
- William G. Kearns, Eastern Virginia Medical School. Integration of Recombinant AAV-CFTR in Diploid Cells: Applications to Human Gene Therapy. \$10,000 (one year renewal).
- Joyce A. Lloyd, Virginia Commonwealth University. Coordinate Developmental Regulation of the Human α - and Globin Genes. \$20,000 (one year).
- Ulrike Lorenz, University of Virginia. The mechanism(s) and functional implications of SHP-1's action in T cells. \$20,000 (one year).
- Mary C. Mahoney, Eastern Virginia Medical School. Regulation of the SOL-reductase enzyme within the non-human primate epididymis. \$10,000 (one year renewal).

- Richard Marconi, Virginia Commonwealth University. Analysis of the role of circular plasmid encoded gene products in the pathobiology of Lyme Disease. \$10,000 (one year renewal).
- M. Alex Meredith, Virginia Commonwealth University. Organization of Multisensory Cortical Circuits. \$9,975 (one year renewal).
- David C. Muddiman, Virginia Commonwealth University. Development of Analytical Electrospray Ionization Fourier Transform Mass Spectrometry for the Quantification and Structural Elucidation of Biological Materials. \$20,000 (one year).
- Linda E. Muske, University of Virginia. Neural and Behavioral Correlates of GnRH Peptides. \$19,392 (one year).
- Brooks H. Pate, University of Virginia. The Dynamics of Conformer Interconversion Studied Using Infrared-Microwave-Microwave Triple Resonance Spectroscopy. \$10,000 (one year renewal).
- K. Kevin Pfister, University of Virginia. Association of Dynactin with the Cytoskeleton. \$19,971 (one year).
- Robert D. Pike, The College of William and Mary. A Chemical Investigation of Cationic (Alkene)Mn, (Alkyne)Mn, and (Diene)Mn Complexes. \$12,800 (one year).
- Lin Pu, University of Virginia. Asymmetric Epoxidation of , Unsaturated Ketones Catalyzed by Polybinaphthols. \$20,000 (one year).
- Robert E. Ratzlaff, Old Dominion University. The Neurogenic Component of Cutaneous Allergic Reactions in Mice. \$20,000 (one year).
- Kodi S. Ravichandran, University of Virginia. Functional Specificity of SHIP in T Lymphocyte Signaling. \$20,000 (one year).
- Laurel W. Rice, University of Virginia. Estrogen Receptor Forms in Normal and Malignant Endometria. \$19,600 (one year).
- Emilie F. Rissman, University of Virginia. Role of the Alpha Estrogen Receptor in Organization and Activation of Neural Systems. \$19,263 (one year).
- John A. Rosecrans, Virginia Commonwealth University. A Mechanism for Neuroendocrine Mediated Immunomodulation Induced by Cocalne. \$10,000 (one year renewal).
- Miriam D. Rosenthal, Eastern Virginia Medical School. Effects of Estrogen on Expression of Cytosolic Phospholipase A₂ in Baboon and Human Placenta. \$17,800 (one year).
- Oliver John Semmes, University of Virginia. Molecular Characterization of HTLV-I Tax-Induced Chromosomal Damage. \$14,900 (one year).
- Barbara A. Siles, College of William and Mary. The Characterization of Heterogeneous Agarose/Hydroxyethyl Cellulose Matrices for the Separation of DNA Fragments Using Capillary Electrophoresis. \$9,976 (one year renewal).
- Alisa M. Smith, University of Virginia. Analysis of the antigenic structure of the major house dust mite allergen Der p 2 using site-directed mutagenesis. \$10,000 (one year renewal).
- Albert T. Sneden, Virginia Commonwealth University. New Phenylpropanoid Glycosides from Virginia *Polygonum* Species. \$10,100 (one year).
- Michael J. Soihaug, Eastern Virginia Medical School. The Mechanisms of Nitric Oxide Regulation in the Developing Kidney. \$9,847 (one year renewal)

- Charles I. Sukenik, Old Dominion University. Ultracold Molecular Physics. \$20,000 (one year).
- A. Kurt Thaw, Sweet Briar College . Interactions of Taste and Satiety Peptides in the Rat. \$10,000 (one year renewal).
- Robert M. Tombes, Virginia Commonwealth University. Role of Novel Human CaMK-II Isozymes in Cell Cycle Control. \$19,000 (one year).
- Bruce J. Turner, Virginia Polytechnic Institute and State University. Characterization of a New Family of Retrotransposable Elements in the Genomes of Teleost Fishes. \$10,000 (one year renewal).
- Robert M. Umek, University of Virginia. C/EBP Isoforms in Adipocyte Differentiation. \$10,000 (one year renewal).
- Leposava Vuškovi, Old Dominion University. Investigation of Proton Transfer Reactions Applicable to Lung Cancer Related Studies of Exhaled Alveolar Air. \$10,000 (one year renewal).
- W. Michael Wormington, University of Virginia. Translational Control Mechanisms During Early Development. \$7,500 (one year renewal).
- H. T. Wright and John Bigbee, Virginia Commonwealth University. Alzheimer's Amyloid Peptide Interactions with Serpins and Cell Surface Receptors. \$17,665 (one year).
- Donald R. Young, Virginia Commonwealth University. Interacting biotic mechanisms that control shrub establishment on Atlantic Coast Barrier Islands. \$9,910 (one year renewal).
- Guichao Zeng, Virginia Commonwealth University. Promoter Elements and Transcription Factors of GD3-Synthase Gene. \$18,324 (one year).

Request for Materials for Life Sciences Galleries

The Science Museum of Virginia is nearing the end of the conceptual design phase of developing its new Life Sciences Exhibition Galleries in Molecular Biology/Genetics, Human Biology/Health Sciences, and Environmental Biology. The Museum's Life Sciences development team and its design firm, West Office Exhibition Design in Oakland, California, have created a list of specific artifacts and images (i.e. slides, prints, and video) that will enhance the visitor's experiences in the new galleries.

Please consider joining other community members with your in-kind donation of any of the items listed below. We seek original materials from researchers that are free of copyright, and with permission to use them in exhibits.

To facilitate the incorporation of your materials in the exhibit design vehicles and graphics, please number and label each image (e.g. slide, micrograph, x-ray, video) according to a written description of their contents; the specific donor(s), and their title(s), mailing addresses, phone numbers, and email addresses.

We thank you in advance for your continued support in making the Science Museum of Virginia a world class museum with materials from your research.

Please feel free to contact me.

Eugene G. Maurakis, Ph.D.

Museum Scientist

Science Museum of Virginia

2500 West Broad Street

Richmond, VA 23220

email (maurakis@smv.mus.va.us) or

telephone (804-367-6795)

Your contributions will be acknowledged in the exhibition galleries, and in publications of the Museum. **Please note that all materials should be received at the Science Museum by June 30, 1998.**

In-Kind Donation List for Life Sciences Exhibitions

Exhibit #	ITEM
A 1	taxidermy and slides/photographs/video - lamprey, shark, bony fish, amphibian, turtle, alligator, snake, bird, primate
A 3	Scanning Electron Microscope (e.g. Hitachi 2300 Series SEM) SEM and TEM micrographs (any subject)
A 4	Misc. Equipment 10 dissecting zoom microscopes 5 compound microscopes
B 10	Antique microscope and modern microscope; and color photographs, color slides, and TEM and SEM micrographs - epithelial, nerve, muscle (cardiac, striated, smooth), connective tissues (bone, cartilage, fibrous, loose, adipose, erythrocytes, leukocytes, plant cell, bacteria cell, yeast, protista, viral cells)

- B 12 video of sarcomere contraction, phagocytosis, vacuole filling/emptying, cilia (ciliated columnar cell action), movement of *Paramecium*, flagella, sperm motility, and *Euglena* movement
- C3 video footage/color slides/photographs and micrographs for each of the following body tissues/systems:
- Tissues -**
epithelial (squamous, cuboidal, and columnar, ciliated pseudostratified columnar epithelium in respiratory system, and ciliated epithelium of oviduct)
nervous - nerve, ganglia, synapse
muscle - smooth, striated, cardiac
connective - bone, loose connective tissue, adipose, dense connective tissue, hyaline, elastin, and fibro cartilage, erythrocytes, leukocytes, platelets
- Systems -**
- Integumentary - SEM micrograph of skin, hair, microridge pattern of cells
 Hematoxylin & eosin slides of x-sec of skin
 normal and abnormal skin (e.g. melanoma)
- Digestive - SEM micrograph of tongue, stomach, intestine
 normal tooth, plaque, caries (fluorine), cheliosis, pellagra (niacin), dermatitis (biotin), scurvy (vitamin C), osteoporosis (calcium)
 video of swallowing bolus, peristalsis, endoscopy (normal vs polyps)
 x-ray of gall stones
- Nervous - PET scans of brain activity (hearing words, see words, speaking words, generating words)
 video of brain surgery, corneal transplant
 color slides/photographs/SEM micrographs/and/or video of neuron, ganglia, olfactory epithelial tissue (nasal mucosa), olfactory bulb, whole retina, rods and cones, normal and glaucoma, otoliths, utricle, saccule, tympanic membrane, with and without tubes, normal and infected ear, ossicles, auditory nerve, taste papilli and taste buds
- Endocrine - slides/photographs of charts of sources and targets of hormones,
 pituitary (anterior & posterior lobes), thyroid, parathyroid, adrenal, pancreas, pineal, thymus, ovary, testis
 e.g. normal and anomalies
 gigantism, dwarfism, acromegaly (GH)
 goiter (thyroid)
 rickets (parathyroid and calcium metabolism)
- Skeletal - x-ray of whole skeleton, joints, vertebrae, etc. (normal and arthritic), osteoporosis, tuberous sclerosis, etc., fetal skull at birth and 2 days after, and infant skull fontanel (relate to dehydration)
 video of movement of limbs, bones and joints during activities (e.g. walking, breathing, chewing, writing)
 normal bone, fractured bone, and healed fracture
 orthoscopic surgery
 Orthoscopic surgery tools

- Muscular - color slides/photographs of smooth, skeletal(striated), and cardiac (intercalary discs)
video of sarcomere contraction, muscle contraction
- Immune - Color slides/photographs/video of barriers at body surface (skin, tears)
Color slides/photographs/video of **nonspecific responses** (neutrophils, eosinophils, basophils, macrophages, blood clotting proteins), phagocytosis, SEM micrograph of macrophage with cytoplasmic extension on bacteria. Color slides/photographs/video of **immune response** (T cells and B cells - T cell attack by HIV)
- Circulatory - video of blood flow through capillary, video of heart contraction
video of EKG, video of opening and closing of bicuspid and tricuspid valves, video of artificial valve action, video of heart transplant, video of dye in coronary system, blockage, catheterization, blockage, balloon angioplasty, stent implantation, video of pacemaker and defibrillator implantations, x-ray of implanted artificial pacemaker, video of diagram of natural pacemaker action, color slide/photograph and SEM of erythrocytes (normal & sickle), **Artificial Heart, LVAD**
- Respiratory - video of x-ray during breathing
SEM micrograph of mucous secreting cells in bronchus
color slide/photograph of alveoli of normal and smoker's lung
color slide/photograph of alveoli of normal and pneumonia
vibration of vocal cords during talking
- Excretory - video of kidney transplant
video, x-ray of kidney stones, and removal
slides/photographs of nephron, tubules
- Kidney Dialysis Machine
- Reproductive - color slides/photographs and/or SEM micrographs of egg in oviduct, fertilization, egg swarmed by sperm, fetal development weeks 1-40video of ultrasound of fetus, fetal movement, heartbeat, blood flow, etc.
video animation of cleavage, gastrulation, cell differentiation, morphogenesis, organogenesis. Contraceptive Devices
- C 4 three plastic human skeletons
prosthetic devices (artificial limbs and joints)
- C 7 heart lung machine
- C 8 plastic human fetal development series
- C 9 1st kidney transport machine
- C 10 eye chart
ophthalmology equipment
artificial cornea
hearing testing booth
- C 16 electronic sphygmomanometer
- C 17 thermograph camera
- D 7 vertebrates representative of classes, shells, butterflies, beetles, anthropoid skulls

D 9 **Environmental Tools of the Trade** - trawl nets and boards, seine, benthic dredge, water bottle samplers, temperature recorders (for El Niño), binocular night viewing device

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