

Nebraska Tobacco Settlement  
Biomedical Research  
Development Fund

Fiscal Year

2011-2012

**Progress Report**

University of Nebraska Medical Center  
University of Nebraska-Lincoln  
Creighton University  
Boys Town National Research Hospital

# Nebraska Tobacco Settlement Biomedical Research Development Fund

Fiscal Year 2011-2012

## Table of Contents

<b>Program Overview.....</b>	<b>2</b>
----------------------------------	----------

<b>Section I. Fund Allocation.....</b>	<b>3</b>
Fund Allocation to Each Institution	

<b>Section II. Project Progress Descriptions.....</b>	<b>8</b>
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University of Nebraska Medical Center  
University of Nebraska-Lincoln  
Creighton University  
Boys Town National Research Hospital

# **NEBRASKA TOBACCO SETTLEMENT BIOMEDICAL RESEARCH DEVELOPMENT FUND**

## **PROGRAM OVERVIEW**

The Nebraska Tobacco Settlement Biomedical Research Development Fund (NTSBRDF) continues to be an invaluable and irreplaceable source of support for the biomedical research enterprise in Nebraska. Research supported by the NTSBRDF provides opportunities for new discoveries that will advance the health and well-being of the citizens of Nebraska and throughout the world. In addition, the NTSBRDF also provides opportunities for economic development and jobs in Nebraska.

According to a December 14, 2010 report from Goss and Associates Economic Solutions (*"The Economic Impact of the Tobacco Settlement Biomedical Research and Development fund on the State of Nebraska, 2002-2010"*), the NTSBRDF has been a key stabilizer and growth engine for Research Consortium programs that have contributed a total of more than \$2.1 billion to the economy of the state of Nebraska, resulting in more than \$98 million in state and local tax collections, and supporting an average of 1,791 jobs at an average salary of more than \$45,000 per year. According to the National Science Foundation, medical research and development was the only bioscience field in Nebraska where growth exceeded the national average.

Investment of NTSBRDF dollars in state-of-the-art research facilities and projects provides tremendous opportunities to improve the health and well-being of Nebraskans. World-class scientists at the four partner institutions conduct research that advances life-saving therapies in all of the major health problems that threaten the life and well-being of Nebraskans, including: heart and vascular diseases, stroke, cancer, and neurodegenerative diseases; infectious diseases; hearing, vision and communications; nutrition and obesity; surgery and organ transplantation, and more.

In recent years, collaborative projects across the partner institutions have also been initiated. As a result of these partnerships, new projects in Engineering for Medicine are being conducted by faculty from UNL and UNMC with support from the NTSBRDF. Examples of these projects include development of diagnostic imaging techniques for traumatic brain injuries using animal models and development of a computational model that simulates blood flow in large vessels to facilitate design and testing of blood vessel grafts prior to surgery.

The members of the Research Consortium are profoundly grateful to the legislative and executive branches of the government of the great state of Nebraska for the trust they have shown us by making the NTSBRDF investment in research. We pledge to produce even greater benefits to the people of Nebraska in the future.

Nebraska Tobacco Settlement Biomedical  
Research Development Fund

**Section I**

**Fund Allocation to Each Institution**

University of Nebraska Medical Center

University of Nebraska-Lincoln

Creighton University

Boys Town National Research Hospital

**University of Nebraska Medical Center**  
**Nebraska Tobacco Settlement Biomedical Research Development Fund**  
**FY 2012 Allocation**

<b>Strategic Faculty Recruitment and Retention</b>	<b>FY 2011-2012 Allocation</b>
College of Medicine	
Biochemistry/Molecular Biology	\$ 337,910
Surinder Batra, PhD	
Cellular & Integrative Physiology	\$ 235,805
Lie Gao, MD, PhD; George Rozanski, PhD; Steven Sansom, PhD; Matthew Zimmerman, PhD	
Genetics, Cell, Biology & Anatomy	\$ 570,385
Vimla Band, PhD; Chittibabu Guda, PhD; Runqing Lu, PhD; Shantaram S. Joshi, PhD; J. Graham Sharp, PhD	
Emergency Medicine	\$ 7,057
Yulong Li, MD, PhD	
Internal Medicine	\$ 330,600
Stephen J. Bonasera, MD, PhD; Duygu Dee Harrison-Findik, DVM, PhD; Phyllis A. Nsiah Kumi, MD; Jennifer L. Larsen, MD; Stephen Rennard, MD (H. Basma)	
Pathology/Microbiology	\$ 709,555
Kenneth Bayles, PhD; Wing Chan, MD; Kai Fu, MD, PhD; Steven Hinrichs, MD; Tammy Kielian, PhD; Zhixin Zhang, PhD	
Pharmacology/Exp Neuroscience	\$ 800,055
Shilpa Buch, PhD; Howard Fox, MD, PhD, Howard Gendelman, MD; James Haorah, PhD; Jialin Zheng, MD	
Radiology	\$ 101,000
Michael Boska, PhD	
School of Allied Health Professions	\$ 104,285
Corrine K. Hanson, PhD, RD, LMNT; Jack E. Turman Jr, PhD	
Surgery	\$ 293,880
B. Timothy Baxter, MD; Dmitry Oleynikov, MD; Nora Sarvetnick, PhD	
College of Dentistry	\$ 88,555
Keith R. Johnson, PhD; Ali Nawshad, PhD; Gregory Oakley, PhD; Aimin Peng, PhD	
College of Nursing	\$ 307,890
Michele C. Balas, PhD; Marlene Cohen, PhD; Polly A. Hulme PhD; Michael Rice, PhD; Barbara A. Swore Fletcher, PhD; Sarah Thompson, PhD	
College of Pharmacy	\$ 370,920
Courtney Fletcher, PharmD; Jered Garrison, PhD; Yuri Lyubchenko, PhD	
College of Public Health	\$ 218,455
Panigrahi Pinaki, MD; Risto Rautiainen, PhD; James P. Stimpson, PhD; Ka-Chun Siu, PhD; Sandra Wells Paine, PhD	
Eppley Institute	\$ 944,615
Hamid Band, MD, PhD; Michael Brattain, PhD; Kenneth H. Cowan, MD, PhD; Jixin Dong, PhD; Michael A. (Tony) Hollingsworth, PhD; Mayumi Naramura, MD; Amarnath Natarajan, PhD; Rene Opavsky, PhD; Angie A. Rizzino, PhD; Ming-Ying Tsai, PhD	
Munroe Meyer Institute	\$ 189,520
Anna Dunaevsky-Hutt, PhD; Shelly D. Smith, PhD	
<b>Subtotal</b>	<b>\$ 5,610,487</b>
<b>Research Program &amp; Infrastructure Development</b>	
Biosciences Research Training Program (B RTP)	\$ 60,000
COM Core Lab Support	\$ 100,000
Comparative Medicine Operations	\$ 250,000
Comparative Medicine Animal Care Cost Support	\$ 250,000
Grants & Contract Specialist: Vetter	\$ 42,175
IRB/IACUC Accreditation Consultant	\$ 10,400
IRB & SPAdmin - ITS Svc Level Agreements	\$ 186,720
Library - Scopus Subscription	\$ 24,000
UNMC Institutional Official Support	\$ 50,000
<b>Subtotal</b>	<b>\$ 973,295</b>
<b>Research in Health and Health Disparities</b>	
Center for Reducing Health Disparities	\$ 429,460
Workforce Diversification (Michael McCaskill)	
Great Plains Health Research Consortium	\$ 29,910
Biological Pathways in Childhood Speech and Language Impairments (Jordan Greene)	
Virginia-Nebraska Alliance	\$ 163,155
<b>Subtotal</b>	<b>\$ 622,525</b>
<b>Joint UNMC-UNL Research Projects</b>	
Magnetic Resonance Elastography of Traumatic Brain Injury (Kelso)	\$ 2,500
Surgery Engineering for Medicine Seed Award (Pipinos)	\$ 36,820
<b>Subtotal</b>	<b>\$ 39,320</b>
<b>Total FY 2011-12 Allocation</b>	<b>\$ 7,245,627</b>

**University of Nebraska-Lincoln  
Nebraska Tobacco Settlement Biomedical Research Development Fund  
FY2012 Allocations**

<b><u>Strategic Faculty Recruitment and Retention</u></b>	<b><u>FY2012 Allocation</u></b>
Gary Pickard, Ph.D., Veterinary Medicine and Biomedical Sciences	40,000
Heriberto Cerutti, Ph.D., Center for Plant Science Innovation	40,000
Dennis Molfese, Ph.D., Psychology	171,569
Jiri Adamec, Ph.D., Biochemistry	217,000
Sherri Jones, Ph.D., Special Education & Communication Disorders	106,167
Shi-hua, Xiang, Nebraska Center for Virology	<u>293,376</u>
<b>Subtotal</b>	<b>868,112</b>

<b><u>Research Program and Infrastructure Development</u></b>	
Faculty Development in Biomedical Sciences	96,145
Nebraska Center for Virology Director (Charles Wood, Ph.D.)	20,000
Fatty Acid Analogs as Novel Therapeutic Agents for Pathogenic Mycobacteria (Patrick Dussault, Ph.D.; Chemistry)	100,000
Analysis of Signal Transducing Proteins Toward Biomedical Application (Etsuko Moriyama, Ph.D.; Biological Sciences)	100,000
Corticosterone Rhythms in Aged Mice (Gary Pickard, Ph.D. and Patricia Sollars, Ph.D.; Veterinary Medicine and Biomedical Sciences)	52,081
Center for Brain, Biology and Behavior Database (Dennis Molfese, Ph.D.; Psychology)	70,000
Renovation of Laboratory for Functional MRI Research (Dennis Molfese, Ph.D.; Psychology)	<u>1,500,000</u>
<b>Subtotal</b>	<b>1,938,226</b>

<b><u>Minority Health Research Grants</u></b>	
Race Differences in Biological and Social Markers of Acute and Chronic Stress Among Low Income Mothers and Children (Bridget Goosby, Ph.D.; Sociology)	59,038
Minority Health Disparities Initiative Center (Rick Bevins, Ph.D.; Psychology)	<u>152,192</u>
<b>Subtotal</b>	<b><u>211,230</u></b>

<b>Total FY2012 Allocation</b>	<b><u>3,017,568</u></b>
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**Creighton University**

**Nebraska Tobacco Settlement Biomedical Research Development Fund  
FY2012 Allocation**

<b>Strategic Faculty Recruitment and Retention</b>	<b>FY 2011-2012 Allocation</b>
School of Dentistry	
Periodontics	\$ 109,895
Martha Nunn, DDS	
Prosthodontics	\$ 94,480
Alvin Wee, DDS, MS	
School of Medicine	
Biomedical Sciences	\$ 100,000
Kenneth Kramer, PhD	
Biomedical Sciences	\$ 100,000
Deniz Yilmazer-Hanke, PhD	
Pharmacology	\$ 100,000
Kristina Simeone, PhD	
<b>Subtotal</b>	<b>\$ 504,375</b>
<b>Research Program &amp; Infrastructure Development</b>	
Gene Therapy Program in Occlusive Vascular Disease	\$ 76,271
Role of HERC2 in Lymphocyte Development V(D)J Recombination	\$ 60,000
ER-A36: A Novel Target for Treatment of ER-Negative Breast Cancer	\$ 100,000
Regulator of G-Protein Signaling Proteins: Targets for Treatment of Asthma	\$ 20,000
Changes in Cortical and Spinal Excitability Following Ankle Manual Therapy	\$ 100,000
Immunomodulation of Mucosal Inflammation in Inflammatory Bowel Disease	\$ 50,000
Influence of DRD4 Genotype on Smoking Cessation with Duloxetine	\$ 50,000
Effects of Vitamin D on the Expression of TREM-1 and TREM-2 by Oral Keratinocytes	\$ 50,000
School of Medicine Research Faculty Bridge Support	\$ 630,000
Associate Vice President for Health Sciences Postdoctoral Support	\$ 48,391
Technical Editing Core Support	\$ 31,765
Biostatistical Core Support	\$ 101,748
<b>Subtotal</b>	<b>\$ 1,318,175</b>
<b>Minority Health Research Grants</b>	
Center for Promoting Health and Health Equality	\$ 109,035
Benson Community Health Center	\$ 13,200
<b>Subtotal</b>	<b>\$ 122,235</b>
<b>Total FY 2011-12 Allocation</b>	<b>\$ 1,944,785</b>

**Boys Town National Research Hospital**  
**Nebraska Tobacco Settlement Biomedical Research Development Fund**  
**FY2012 Allocation**

	<b>Allocation</b>
<b><u>Strategic Faculty Recruitment and Retention</u></b>	
Sophie Ambrose, PhD, Lied Learning and Technology Center	36,600
Ryan McCreery, PhD, Audiology and Vestibular Services	45,936
Kayla Pope, MD, JD, Neurobehavioral Disorders	147,794
Monita Chatterjee, Ph.D, Lied Learning and Technology Center	72,840
Kristen Janky, PhD, Audiology and Vestibular Services	69,106
Walt Jesteadt, PhD, Hearing Research	44,338
Barbara Morley, PhD, Hearing Research	21,721
Nicholas Smith, PhD, Lied Learning and Technology Center	68,436
Richard Tempero, MD, PhD, Otolaryngology	213,043
Edward Walsh, PhD, Hearing Research	94,950
Marisa Zallocchi, PhD, Usher Syndrome Center	101,765
<b>Subtotal</b>	<b>\$916,529</b>
 <b><u>Research Program and Infrastructure Development</u></b>	
Animal Care Facility Core, JoAnn McGee, PhD	28,000
Usher Syndrome Center Core Support, Dominic Cosgrove, PhD	60,142
Core Center for Communication Disorders Supplement, Walt Jesteadt, PhD	40,000
New Projects Fund, Michael Gorga, PhD	5,000
Recruitment Fund, Walt Jesteadt, PhD	22,000
Postdoctoral Training, Walt Jesteadt, PhD	20,400
BPPV Pilot Project, Yesha Lundberg, PhD	86,098
<b>Subtotal</b>	<b>\$261,640</b>
 <b><u>Minority Health Research Grants</u></b>	
Minority Recruitment, Michael Gorga, PhD	19,186
Spanish-English Bilinguals, Kanae Nishi, PhD	47,712
<b>Subtotal</b>	<b>\$66,898</b>
<b>Total FY2012 Allocation</b>	<b>\$1,245,067</b>

Nebraska Tobacco Settlement Biomedical  
Research Development Fund

**Section II**  
**Project Progress Descriptions**

University of Nebraska Medical Center

University of Nebraska-Lincoln

Creighton University

Boys Town National Research Hospital

**UNIVERSITY OF NEBRASKA MEDICAL CENTER**  
**Nebraska Tobacco Settlement Biomedical**  
**Research Development Fund (NTSBRDF)**

Year 11: July 1, 2011-June 30, 2012  
**Progress Report**

**Executive Summary**

The UNMC investment of NTSBRDF dollars is concentrated in three areas:

- Recruitment and retention of excellent scientists
- Research infrastructure development and improvement
- Research in health and health – care disparities.

During the year of this report, 2011-12 UNMC received \$7,245,627 in Nebraska Tobacco Settlement Funds, investing \$5,610,487 in strategic recruitment and in the retention of researchers of merit including \$1,684,195 for the retention or recruitment of women and members of under-represented minorities; \$973,295 in infrastructure development; \$39,320 in joint research projects; and \$622,525 in research projects directed at health care disparities or fostering new partnerships with under-represented minority groups (8.6% of the total 2011-2012 award). Combined commitment to recruitment of women and minorities and minority health issues was \$2,306,720.

Since the NTSBRDF program was activated at the beginning of fiscal year 2001-02, our ability to apply the funds to strategic recruitment and retention of top-notch scientists has supported remarkable gains in the growth of research funding: using standard growth indices as a reference (U.S. annual inflation, the growth of NIH support, or the historical growth rate of UNMC research), it would have been predicted that, in 11-12, UNMC research funding would reach a total of about \$62.8M rather than the actual total of over \$88.7M. This difference of over \$25M is compounded every year, and has had a large impact, not only upon the progress of key health-related research, but upon the economies of Omaha and the State of Nebraska. The continuing success of the UNMC research enterprise is sensitively dependent upon the wise application of NTSBRDF dollars.

During the entire eleven-year period of NTSBRDF support beginning in 2001, UNMC has invested about \$41.8M in the strategic recruitment or retention of 155 researchers of merit. It is remarkable that these scientists, at the time of this report, have attracted a total of over \$586M in extramural research support subsequent to their receiving NTSBRDF funding, for a return on investment of approximately 14 to 1.

## **Strategic Faculty Recruitment & Retention**

UNMC total extramural support for research has grown about 118% during the eleven years that we have been able to leverage support from NTSBRDF. In 2011-2012, UNMC invested \$5,610,487 in strategic recruitment and retention. Total extramural funding for these researchers at the time they received NTSBRDF support was approximately \$188M, indicating once again that NTSBRDF dollars are well-invested. Federal funding sources included: National Institutes of Health [National Cancer Institute (NCI), National Center for Research Resources (NCRR), National Heart, Lung, Blood Institute (NHLBI), National Institute on Aging (NIA), National Institute of Alcohol Abuse & Alcoholism (NIAAA), National Institute of Allergy & Infectious Diseases (NIAID), National Institute of Child Health & Human Development (NICHD), National Institute on Drug Abuse (NIDA), National Institute of Dental & Craniofacial Research (NIDCR), National Institute of Diabetes & Digestive & Kidney Diseases (NIDDK), National Institute of General Medical Sciences (NIGMS), National Institute of Mental Health (NIMH), National Institute of Neurological Disorders and Stroke (NINDS)]; Department of Health and Human Services (DHHS) [Centers for Disease Control and Prevention (CDC)/National Institute for Occupational Safety and Health (NIOSH), Health Resources and Services Administration (HRSA)]; National Aeronautics and Space Administration (NASA); and the United States Army.

### **Funded Investigators** (First Time NTSBRDF support during 2011-2012)

**Investigator:** Kenneth H. Cowan, MD, PhD

**Position Title & Department:** Director, Eppley Institute

**Expertise:** Tumor Suppressor Genes, Cancer Development & Progression

**External Funding:**

Current Funding Total: \$21,551,947

Funding sources: DHHS/NIH/NCI/NCRR, NE-DHHS/LB595, Helmsley Charitable Trust

**Investigator:** Anna Dunaevsky-Hutt, PhD

**Position Title & Department:** Associate Professor, MMI, Developmental Neuroscience

**Expertise:** Human Neurodevelopmental Disorders, Learning Induced Brain Changes

**External Funding:**

Current Funding Total: \$1,540,690

Funding sources: DHHS/NIH/NICHD

**Investigator:** Lie Gao, MD, PhD  
**Position Title & Department:** Assistant Professor, COM, Cellular/Integrative Physiology  
**Expertise:** Neurological Influences on Chronic Heart Failure (CHF)  
**External Funding:**  
Current Funding Total: \$1,836,701  
Funding sources: DHHS/NIH/NHLB

**Investigator:** Amarnath Natarajan, PhD  
**Position Title & Department:** Associate Professor, Eppley Institute  
**Expertise:** Compound Formulation, Cancer Targeted Therapeutics  
**External Funding:**  
Current Funding Total: \$1,226,829  
Funding sources: DHHS/NIH/NCI

**Investigator:** Risto Rautiainen, PhD  
**Position Title & Department:** Associate Professor, COPH, Environmental, Agricultural & Occupational Health Science  
**Expertise:** Agricultural & Occupational Health and Safety  
**External Funding:**  
Current Funding Total: \$5,161,436  
Funding sources: DHHS/CDC/NIOSH

**Investigator:** James P. Stimpson, PhD  
**Position Title & Department:** Associate Professor, COPH, Health Services Research & Administration  
**Expertise:** Health Policy, Medical Sociology, Health Services  
**External Funding:**  
Current Funding Total: \$162,343  
Funding sources: DHHS/NIH/NCI, University of North Texas Health Science Center

### **Mentored Program for Under-Represented Minority and Other Junior Investigators**

**Investigator:** Corrine K. Hanson, PhD, RD, LMNT  
**Position Title & Department:** Assistant Professor, SAHP, Medical Nutrition Education  
**Expertise:** Infant Nutrition, Growth Disorders  
**External Funding:** Pending

**Investigator:** Phyllis A. Nsiah-Kumi, MD  
**Position Title & Department:** Assistant Professor, COM, Internal Medicine - General Medicine  
**Expertise:** Health Disparities, Health Literacy and Patient Education  
**External Funding:**  
Current Funding Total: \$37,545  
Funding sources: Nebraska Association of Local Health Directors (NALHD)

**Investigator:** Ka-Chun Siu, PhD  
**Position Title & Department:** Assistant Professor, COPH, Environmental, Agricultural & Occupational Health Science  
**Expertise:** Biomechanics, Fall Prevention in Aging, Human Balance Control  
**External Funding:** Pending

**Investigator:** Barbara A. Swore Fletcher, PhD  
**Position Title & Department:** Assistant Professor, CON, Adult Health & Illness  
**Expertise:** Symptom Management in Cancer Care, Caregiver Support  
**External Funding:** Pending

### **Investigators of High Potential for Extramural Funding**

**Investigator:** Michele C. Balas, PhD  
**Position Title & Department:** Assistant Professor, CON, Community Based Research  
**Expertise:** Delirium in Hospitalized Patients, Geriatrics  
**External Funding:** Pending

**Investigator:** Hesham E. Basma, PhD  
**Position Title & Department:** Instructor, COM, Internal Medicine - Pulmonary  
**Expertise:** Regenerative Medicine  
**External Funding:** Pending

**Investigator:** Michael Boska, PhD  
**Position Title & Department:** Vice Chairman, Radiology Research, & Professor, COM, Radiology  
**Expertise:** Magnetic Resonance Imaging (MRI) & Spectroscopy (MRS) Methods  
**External Funding:** Pending

**Investigator:** Marlene Z. Cohen, RN, PhD  
**Position Title & Department:** Professor, CON, Adult Health & Illness  
**Expertise:** Mental Health and Disease Prevention  
**External Funding:** Pending

**Investigator:** Jixin Dong, PhD  
**Position Title & Department:** Assistant Professor, Eppley Institute  
**Expertise:** Cancer Cell Growth  
**External Funding:** Pending

**Investigator:** Kai Fu, MD, PhD  
**Position Title & Department:** Associate Professor, COM, Pathology/Microbiology & Associate Director, Asia-Pacific Rim Research Development Program  
**Expertise:** Hematopathology, Lymphoma Research  
**External Funding:** Pending

**Investigator:** Steven H. Hinrichs, MD  
**Position Title & Department:** Chairperson & Professor, COM, Pathology/Microbiology  
**Expertise:** Infectious Disease, Biopreparedness, Development of Diagnostic Assays  
**External Funding:** Pending

**Investigator:** Polly A. Hulme, PhD  
**Position Title & Department:** Associate Professor, CON, Community Based Research  
**Expertise:** Culture and Evidence -Based Practice, Hispanic Health Issues  
**External Funding:** Pending

**Investigator:** Shantaram S. Joshi, PhD  
**Position Title & Department:** Professor, COM, Genetics Cell Biology and Anatomy  
**Expertise:** Molecular Characterization of B Lymphocytic Malignancies  
**External Funding:** Pending

**Investigator:** Jennifer L. Larsen, MD  
**Position Title & Department:** Vice Chancellor for Research, Professor, COM, Internal Medicine - Diabetes, Endocrinology & Metabolism  
**Expertise:** Diabetes, Clinical and Translational Research  
**External Funding:** Pending

**Investigator:** Runqing Lu, PhD  
**Position Title & Department:** Associate Professor, COM, Genetics Cell Biology and Anatomy  
**Expertise:** Immune Cell Development, B-Cell Leukemia  
**External Funding:** Pending

**Investigator:** Aimin Peng, PhD  
**Position Title & Department:** Assistant Professor, COD, Oral Biology  
**Expertise:** Cell Cycle Regulation, DNA Damage Response in Cancer  
**External Funding:** Pending

**Investigator:** Michael Rice, PhD  
**Position Title & Department:** Professor, CON, Community Based Research  
**Expertise:** Psychiatric Nursing  
**External Funding:** Pending

**Investigator:** George J. Rozanski, PhD  
**Position Title & Department:** Professor, COM, Cellular & Integrative Physiology  
**Expertise:** Cellular Cardiac Electrophysiology, Ventricular Arrhythmias  
**External Funding:** Pending

**Investigator:** Ming-Ying Tsai, PhD  
**Position Title & Department:** Assistant Professor, Eppley Institute  
**Expertise:** Cellular Mechanisms in Cancer Development and Treatment  
**External Funding:** Pending

**Funded Investigators** (Received Continuing NTSBRDF support during 2011-2012)

**Investigator:** Hamid Band, MD, PhD  
**Position Title & Department:** Professor, Eppley Institute  
**Expertise:** Cellular Signaling in Cancer, Breast Cancer  
**External Funding:**  
Current Funding Total: \$6,569,980  
Funding sources: US Army, DHHS/NIH/NCI

**Investigator:** Vimla Band, PhD  
**Position Title & Department:** Chairperson & Professor, COM, Genetics Cell Biology and Anatomy  
**Expertise:** Cancer, Diagnostic/Prognostic Markers for Breast Cancer  
**External Funding:**  
Current Funding Total: \$3,342,791  
Funding sources: US Army, DHHS/NIH/NCI

**Investigator:** Surinder Batra, PhD  
**Position Title & Department:** Chairperson & Professor, COM, Biochemistry and Molecular Biology  
**Expertise:** Pancreatic Cancer, Development of Diagnostic/Prognostic Markers for Cancer

**External Funding:**

Current Funding Total: \$10,335,571

Funding sources: DHHS/NIH/NCI

**Investigator:** Benard Timothy Baxter, MD

**Position Title & Department:** Professor, COM, Surgery

**Expertise:** Aortic Aneurysms, Causes and Treatments for Aneurysms; Surgical Interventions

**External Funding:**

Current Funding Total: \$1,485,000

Funding sources: DHHS/NIH/NHLBI

**Investigator:** Kenneth Bayles, PhD

**Position Title & Department:** Associate Vice Chancellor for Basic Science Research, & Professor, COM, Pathology/Microbiology

**Expertise:** Antibiotic Development, Biofilm Physiology

**External Funding:**

Current Funding Total: \$14,367,085

Funding sources: US Army, DHHS/NIH/NIAID, Emergent BioSolutions

**Investigator:** Stephen J Bonasera, MD, PhD

**Position Title & Department:** Assistant Professor, COM, Internal Medicine - Geriatrics

**Expertise:** Neurobiology of Aging

**External Funding:**

Current Funding Total: \$3,173,186

Funding sources: DHHS/NIH/NIA, Alzheimer's Association

**Investigator:** Michael Brattain, PhD

**Position Title & Department:** Professor & Associate Director, Eppley Institute

**Expertise:** Colon Cancer, Molecular Targeting in Cancer

**External Funding:**

Current Funding Total: \$4,225,436

Funding sources: DHHS/NIH/NCI

**Investigator:** Shilpa Buch, PhD

**Position Title & Department:** Professor, COM, Pharmacology & Experimental Neurosciences

**Expertise:** Infectious Diseases of the Brain and their Treatment

**External Funding:**

Current Funding Total: \$7,365,510

Funding sources: DHHS/NIH/NIDA/NIMH/NIAID

**Investigator:** Wing Chan, MD

**Position Title & Department:** Professor, COM, Pathology/Microbiology

**Expertise:** Molecular Diagnosis of Cancer, Lymphoma, Diagnostic/Prognostic Marker Development

**External Funding:**

Current Funding Total: \$1,474,174

Funding sources: DHHS/NIH/NCI, Lymphoma Research Foundation, University of Arizona, University of Nebraska Foundation

**Investigator:** Courtney Fletcher, PharmD

**Position Title & Department:** Dean & Professor, COP, Dean's Office

**Expertise:** HIV/AIDS Drug Research, Retroviral Research, Pediatric Drug Development

**External Funding:**

Current Funding Total: \$579,681

Funding sources: Johns Hopkins University, Brigham & Women's Hospital

**Investigator:** Howard Fox, MD, PhD

**Position Title & Department:** Senior Associate Dean for Research & Professor, COM, Pharmacology & Experimental Neurosciences

**Expertise:** Infectious and Neurodegenerative Diseases and Substance Abuse

**External Funding:**

Current Funding Total: \$16,256,754

Funding sources: DHHS/NIH/NIMH/NIDA, University of Missouri-Kansas City

**Investigator:** Jered Garrison, PhD

**Position Title & Department:** Assistant Professor, COP, Pharmaceutical Science

**Expertise:** Drug Development, Nanomedicine and Molecular Targeting

**External Funding:**

Current Funding Total: \$782,062

Funding sources: DHHS/NIH/NCI, Eppley Cancer Center

**Investigator:** Howard E. Gendelman, MD

**Position Title & Department:** Chairman & Professor, COM, Pharmacology & Experimental Neuroscience

**Expertise:** Neurodegenerative Disease, Infectious Disease, Neuroimmunology, & Nanomedicine

**External Funding:**

Current Funding Total: \$19,069,257

Funding sources: DHHS/NIH/NIDA, University of Nebraska-Lincoln, Elan Pharmaceuticals, Inc.

**Investigator:** Chittibabu Guda, PhD  
**Position Title & Department:** Associate Professor, COM, Genetics Cell Biology and Anatomy  
**Expertise:** Bioinformatics and Systems Biology  
**External Funding:**  
Current Funding Total: \$814,074  
Funding sources: DHHS/NIH/NIGMS

**Investigator:** James Haorah, PhD  
**Position Title & Department:** Associate Professor, COM, Pharmacology & Experimental Neurosciences  
**Expertise:** Alcoholism and Oxidative Stress' Impact on Brain Cells  
**External Funding:**  
Current Funding Total: \$876,074  
Funding sources: DHHS/NIH/NIAAA, Temple University

**Investigator:** Duygu Dee Harrison-Findik, DVM, PhD  
**Position Title & Department:** Associate Professor, COM, Internal Medicine  
**Expertise:** Molecular Regulation in Alcoholic Liver Disease  
**External Funding:**  
Current Funding Total: \$1,634,932  
Funding sources: DHHS/NIH/NIAAA

**Investigator:** Michael A. (Tony) Hollingsworth, PhD  
**Position Title & Department:** Professor, Eppley Institute  
**Expertise:** Pancreatic Cancer  
**External Funding:**  
Current Funding Total: \$10,917,641  
Funding sources: DHHS/NIH/NCI, University of Texas Health Science Center at San Antonio

**Investigator:** Keith R. Johnson, PhD  
**Position Title & Department:** Professor, COD, Oral Biology  
**Expertise:** Cellular Signaling in Cancer  
**External Funding:**  
Current Funding Total: \$8,839,860  
Funding sources: U.S. Army, DHHS/NIH/NIGMS

**Investigator:** Tammy Kielian, PhD  
**Position Title & Department:** Professor, COM, Pathology/Microbiology  
**Expertise:** Bacterial Infections of the Central Nervous System

**External Funding:**

Current Funding Total: \$1,491,099

Funding sources: DHHS/NIH/NINDS, Batten Disease Support and Research Association (BDSRA)

**Investigator:** Yulong Li, MD, PhD

**Position Title & Department:** Associate Professor, COM, Emergency Medicine

**Expertise:** Nervous System Function in Heart Failure and Diabetes

**External Funding:**

Current Funding Total: \$1,477,576

Funding sources: DHHS/NIH/NHLBI

**Investigator:** Yuri Lyubchenko, PhD, DS

**Position Title & Department:** Professor, COP, Pharmaceutical Science

**Expertise:** Atomic Force Microscopy, Protein Misfolding in Alzheimer's and Parkinson's Disease

**External Funding:**

Current Funding Total: \$1,641,822

Funding sources: DHHS/NIH/NIGMS, University of Minnesota

**Investigator:** Mayumi Naramura, MD

**Position Title & Department:** Assistant Professor, Eppley Institute

**Expertise:** Biochemical Pathways Controlling Cancer Stem Cells

**External Funding:**

Current Funding Total: \$706,875

Funding sources: U.S. Army, NE DHHS - LB606

**Investigator:** Ali Nawshad, PhD

**Position Title & Department:** Associate Professor, COD, Oral Biology

**Expertise:** Cleft Palate, Craniofacial Development

**External Funding:**

Current Funding Total: \$1,802,115

Funding sources: DHHS/NIH/NIDCR, University of Michigan

**Investigator:** Gregory G. Oakley, PhD

**Position Title & Department:** Associate Professor, COD, Oral Biology

**Expertise:** DNA Repair, Cellular Signaling

**External Funding:**

Current Funding Total: \$720,000

Funding sources: American Cancer Society

**Investigator:** Dmitry Oleynikov, MD  
**Position Title & Department:** Professor, COM, Surgery  
**Expertise:** Robotic Surgery, Minimally Invasive Surgery, Computer Assisted Surgery  
**External Funding:**  
Current Funding Total: \$3,180,785  
Funding sources: NASA, University of Nebraska - Lincoln, Foundation for Surgical Fellowships (FSF), Covidien, LifeCell Corporation

**Investigator:** Rene Opavsky, PhD  
**Position Title & Department:** Assistant Professor, Eppley Institute  
**Expertise:** Epigenetics, Lymphoma Causes, DNA Methylation  
**External Funding:**  
Current Funding Total: \$40,000  
Funding sources: NE DHHS - LB506

**Investigator:** Pinaki Panigrahi, MD  
**Position Title & Department:** Director, Center for Global Health & Development, & Professor, COPH, Epidemiology  
**Expertise:** Pathogenesis of Infectious & Inflammatory Diseases of the Gastrointestinal Tract  
**External Funding:**  
Current Funding Total: \$915,909  
Funding sources: DHHS/NIH/NICHD, London School of Hygiene and Tropical Medicine (LSHTM)

**Investigator:** Stephen Rennard, MD  
**Position Title & Department:** Professor, COM, Internal Medicine - Pulmonary  
**Expertise:** Chronic Obstructive Pulmonary Disease, Smoking Cessation, Lung Injury and Repair  
**External Funding:**  
Current Funding Total: \$3,426,420  
Funding sources: University of Michigan, University of North Carolina @ Chapel Hill, Otsuka Maryland Research Institute, Inc., GlaxoSmithKline, Pfizer, Inc.

**Investigator:** Angie A. Rizzino, PhD  
**Position Title & Department:** Professor, Eppley Institute  
**Expertise:** Stem Cell Biology and Gene Regulation  
**External Funding:**  
Current Funding Total: \$2,560,058  
Funding sources: DHHS/NIH/NIGMS, NE DHHS - LB506

**Investigator:** Steven C. Sansom, PhD  
**Position Title & Department:** Professor, COM, Cellular/Integrative Physiology  
**Expertise:** Diabetes and Hypertension  
**External Funding:**  
Current Funding Total: \$2,906,892  
Funding sources: DHHS/NIH/NIDDK

**Investigator:** Nora Sarvetnick, PhD  
**Position Title & Department:** Director, Nebraska Regenerative Medicine Project,  
& Professor, COM, Surgery  
**Expertise:** Regenerative Medicine, Regulation of the Immune Response,  
Immunological Implications of Diabetes, Immunology of Autoimmune Diseases  
**External Funding:**  
Current Funding Total: \$3,162,561  
Funding sources: DHHS/NIH/NIAID, University of Nebraska Foundation

**Investigator:** J. Graham Sharp, PhD  
**Position Title & Department:** Professor, COM, Genetics Cell Biology and Anatomy  
**Expertise:** Regenerative Medicine and Aging  
**External Funding:**  
Current Funding Total: \$40,000  
Funding sources: NE DHHS - LB506

**Investigator:** Shelley D. Smith, PhD  
**Position Title & Department:** Professor, Munroe Meyer Institute  
**Expertise:** Molecular Genetics of Language and Learning Disorders  
**External Funding:**  
Current Funding Total: \$10,368,114  
Funding sources: DHHS/NIH/NIGMS, University of Kansas

**Investigator:** Sarah Thompson, MSN, PhD  
**Position Title & Department:** Professor, CON, Community Based Research  
**Expertise:** End of Life Health Care, Geriatric Nursing  
**External Funding:**  
Current Funding Total: \$22,671  
Funding sources: DHHS/HRSA/OFAM/DGMO/RTB

**Investigator:** Jack E. Turman Jr., PhD  
**Position Title & Department:** Professor, School of Allied Health Professionals  
**Expertise:** Nutrition Interventions for Premature Infants  
**External Funding:**  
Current Funding Total: \$276,994  
Funding sources: NE DHHS, Learning Community of Douglas and Sarpy  
Counties

**Investigator:** Sandra Wells, PhD

**Position Title & Department:** Assistant Professor, COPH, Environmental, Agricultural & Occupational Health Science

**Expertise:** Lung Disease, Environmental Factors of Lung Injury

**External Funding:**

Current Funding Total: \$461,758

Funding sources: DHHS/CDC/NIOSH

**Investigator:** Zhixin Zhang, PhD

**Position Title & Department:** Associate Professor, COM, Pathology/Microbiology

**Expertise:** Immune System Development, Antibodies

**External Funding:**

Current Funding Total: \$3,320,335

Funding sources: DHHS/NIH/NIAID

**Investigator:** Jialin Zheng, MD

**Position Title & Department:** Assistant Vice Chancellor for Academic Affairs, Professor, COM, Pharmacology & Experimental Neurosciences

**Expertise:** Neurodegenerative Disease, Infectious Disease, Neuroimmunology

**External Funding:**

Current Funding Total: \$3,790,135

Funding sources: DHHS/NIH/NINDS

**Investigator:** Matthew C. Zimmerman, PhD

**Position Title & Department:** Associate Professor, COM, Cellular & Integrative Physiology

**Expertise:** Hypertension, Neuronal-derived Reactive Oxygen Species (ROS)

**External Funding:**

Current Funding Total: \$2,153,114

Funding sources: DHHS/NIH/NHLBI, American Heart Association - National

## **Research Program and Infrastructure Development**

A total of \$973,295 was invested in research program and infrastructure development in 2011-2012, in the general areas of animal facilities support, research core laboratories, grant management, and educational/training & compliance programs for NIH-funded scientists. These infrastructure items help support total research awards of over \$88.7M / yr.

Because of the increasing cost and sophistication of research technology, providing the finest research support facilities is vital to successful recruiting and retention of top researchers. One of the most important developments in biomedical genetics is growth in the use of genetically-modified mice, for example, in cancer research. In this reporting period, we have continued to provide significant NTSBRDF support to NIH-funded scientists that utilize these animals for models of human diseases. The Department of Comparative Medicine was awarded \$250,000 or 25.7% of the total for infrastructure for the merit-based support of animal costs for NIH-funded researchers.

NTSBRDF support has provisioned personnel and Information Technology Services to facilitate access of our scientists to management, informatics, educational, and other software applications to increase research efficiency and decrease the risk of non-compliance.

## **Research in Health and Health Disparities**

In 2011-12, UNMC invested \$622,525 in the overall UNMC health disparities initiative, by way of the Center for Reducing Health Disparities (CRHD), Great Plains Health Research Consortium (GPHRC) and the Virginia-Nebraska Alliance.

The mission of the CRHD is to promote health equity. Two strategies have been implemented to increase awareness of, reduce, and ultimately eliminate health disparities: (1) foster partnerships between the University of Nebraska Medical Center and stakeholder communities that are culturally and linguistically competent, trustworthy, and equitable and (2) build a strong portfolio in collaborative community based research, education, and service that will promote health and prevent disease. The vision of the CRHD is to become the premier Center of Excellence in the Midwest and nationwide devoted to improving public health and eliminating health disparities to achieve health equity. The CRHD launched the research branch in June 2011 to increase and diversify the Center's research portfolio specific to reducing health disparities and achieving health equity. The CRHD added new team members to complement existing CRHD staff strengths, namely Sondra Manske, MPH, CHES, Health Disparities Research Specialist, and Ariss Rogel-Mendoza, Outreach Project Associate. The CRHD created a Faculty Advisory Board consisting of 12 College of Public Health (COPH) faculty members that have expertise in health disparity

research to guide the research portfolio of the Center. The CRHD continues to build research infrastructure, such as capacity in health disparities research, by establishing and strengthening academic and community partnerships and convening research teams that can submit competitive health disparity research proposals for external funding. One workforce diversity award was made in 2011-12; an investment of \$429,460 was made in the Center for Reducing Health Disparities.

The Great Plains Center for Clinical and Translational Research (GP-CCTR) has a vision to be the national leader for innovative biotechnologies and strategies that can effectively identify and reduce the complex causes of rural health disparities. The GP-CCTR has a mission to promote vibrant partnerships between public and private organizations and the communities they serve, and provide centralized and strategic resources to multidisciplinary teams that can address health disparities of rural and diverse communities through translational research. The goals of the GP-CCTR are to (1) Develop a “home” for clinical and translational (C/T) research resources, (2) Develop novel biotechnologies better able to assess or treat diseases that contribute to regional health disparities, (3) Maintain strategies and resources that will transform research, and (4) Train the next generation of investigators and interdisciplinary research teams in the methods and tools of C/T research. To accomplish this aim, a request for pilot grants was disseminated and one project was awarded in 2011-12 (Recognized below), an investment of \$29,910 was made in the GPHRC.

**Project Title:** Biologic pathways in childhood speech and language impairments

**Principal Investigator:** Jordan Greene

**Summary:** Approximately 24% of school-age children in the United States have significant speech and language impairments (ASHA, 2009). Difficulty with speech and language in childhood has a clear negative impact on self-concept, social interactions, academic achievement, and vocational potential (Bird, Bishop, & Freeman, 1995; Silverman & Paulus, 1989). Despite advances in research, the cause of many childhood speech and language impairments remains elusive, and options for treatment are limited. To date, surprisingly few programmatic research efforts have been directed toward understanding the genetic and biological pathways of the impairments. Progress will require a focused effort by investigators with a diverse set of expertise in genetics, neurophysiology, neural imaging, and communication disorders. The goal of this research is to improve the assessment and treatment of children with speech and language impairments through a better understanding of biological pathways. This research addressed this need by investigating the genetic-brain-behavioral interactions in children with apraxia of speech or specific language impairment using non-invasive neuroimaging (magneto encephalography), physiological measures (articulatory kinematics), and genetic analyses. The outcomes of this research include (1) the establishment of new collaboration

between scientists within the NU system who are uniquely trained to apply well developed, complementary quantitative methods to investigate speech and language impairments, and (2) the development of innovative methods to assess speech and language impairments. These laboratory findings will translate to improved assessment methods leading to more accurate early identification and intervention for children with speech and language impairments.

The Virginia-Nebraska Alliance (The Alliance) is a unique partnership between unlikely partners to address the national need to diversify the healthcare and biomedical research workforce. The Alliance was formed in September 2004 between two of the Historically Black Colleges/Universities (HBCUs) within Virginia-- J. Sargeant Reynolds Community College and Virginia Commonwealth University (VCU)-- and the University of Nebraska Medical Center (UNMC). In 2006 The Alliance welcomed the University of Richmond (U of R), the University of Virginia (UVA), and Eastern Virginia Medical School (EVMS) as academic partners bringing five total HBCU into The Alliance. The agreement focuses on four key areas: student exchanges to cultivate undergraduate students with an interest in pursuing graduate education in health and basic sciences; research and clinician faculty exchanges; faculty research collaboration; and institutional collaboration for funding opportunities. Activities include student research opportunities during the summer, faculty exchanges, seminars and presentations, and collaborative grant applications. Students participating in summer research spend at least two summers at UNMC. This collaborative relationship between UNMC and Virginia HBCU with majority diverse student bodies is built to support disadvantaged undergraduate/graduate students in their pursuit of careers in healthcare/research via summer research and enrichment learning experiences. The objectives of the summer student program are to introduce talented diverse students to both UNMC educational programs and research resources. In this program, students become members of actively funded UNMC research teams and participate in 10 weeks of full-time laboratory research learning experiences. During this 10 week period, students develop technical laboratory skills, expand their scientific knowledge base, analyze data, document results, participate in team meetings, attend research weekly seminars, and present their work in a research poster session. Opportunities to interact with other summer students who have similar career goals are also provided. Researchers evaluate students at mid-session and end of the program. Evaluations from researchers and students have been very positive. Students in the most recent cohort (5) were from Hampton University (HU) and Virginia State University (VSU). They have been admitted to professional schools (2), graduate schools (2), and one student returned to VSU to complete his baccalaureate degree. An investment of \$163,155 was made in the Virginia-Nebraska Alliance.

**UNIVERSITY OF NEBRASKA-LINCOLN**  
**Nebraska Tobacco Settlement Biomedical**  
**Research Development Fund**

Year 11: July 1, 2011 - June 30, 2012  
Progress Report

**Executive Summary**

The eleven years of NTSBRDF funding have enabled the University of Nebraska-Lincoln to strategically invest funds to achieve tangible results and to build significant biomedical research capacity that have well served the State of Nebraska and the nation. UNL's goals for the NTSBRDF program are to increase our biomedical research capacity and external funding, which in turn will enable us to contribute to the improved health of Nebraskans and stimulate economic development and employment opportunities in the state.

UNL has invested the NTSBRDF funds in three main areas:

- **Recruitment and retention of biomedical research faculty**, whose work aligns with our strategic priorities and who either bring significant funding with them, or have a high likelihood of achieving relatively quick success in obtaining funding. This investment in faculty is one of the most effective means of increasing our research capacity and often has the most immediate return.
- **Development of new research projects or infrastructure** leading to NIH and other external funding. These grants are focused on major inter-disciplinary research programs aligned with the research priorities of UNL, NIH and other funding agencies. They also include investments in programs to develop collaborative projects with UNMC.
- Research projects that specifically address issues of importance to the health of Nebraska's **minority populations**.

In 2011-2012, UNL made 18 awards totaling \$3,017,568. These included an allocation of \$2,368,112 for 5 faculty recruitments and 2 faculty retentions; \$438,226 for 8 grants supporting infrastructure and new research projects; and \$211,230, or **7 percent of the total, for 2 projects in minority health research.**

As in the previous ten years of the NTSBRDF program, we are seeing impressive results from these investments in people and research projects. As a group, the new faculty recruits already have brought approximately \$1.32M in new external biomedical funding to UNL, with proposals pending for an additional \$33.11M in external funding. Related to the aging research infrastructure, NTSBRDF funds have been invested in cutting edge equipment and facilities to enhance our capacity to leverage extramural funding.

## Strategic Faculty Recruitment & Retention

**Introduction:** Strategic recruitment and retention grants at UNL have two goals: 1) expand faculty expertise in important areas of biomedical research and 2) to increase the base of NIH and other extramural funding. NTSBRDF funding allowed UNL to meet both of these goals. In 2012, four new faculty were hired and partially supported by NTSBRDF funding. These new faculty bring expertise in a wide variety of areas, including: brain imaging, proteomics, metabolomics, virology, stress biology, vestibular physiology, and metabolic diseases. As a group these new recruits already brought approximately \$1.32M in new external biomedical funding to UNL with applications pending for an additional \$33.11M in external funding. UNL also used NTSBRDF funds to retain faculty with critical expertise in the life sciences, cellular and molecular biology, and epigenetics. Investments were also made to further expand the capacity of the renowned Nebraska Center for Virology, an externally funded, collaborative center with UNL, UNMC and Creighton.

### Faculty Recruitment

**Investigator:** Dennis Molfese, Ph.D.

**Position Titles & Department:** Professor; Department of Psychology

**Expertise:** Brain imaging to study the emerging relationships between brain development, language, and cognitive processes.

**External Funding:**

Current Funding Total: \$432,796

Proposals Currently Pending: \$4,999,259

Funding Sources: NIH, NSF, American Cancer Society, Department of Defense

**Investigator:** Jiri Adamec, Ph.D.

**Position Titles & Department:** Associate Professor; Department of Biochemistry

**Expertise:** Oxidative stress, proteomics, metabolomics, cancer, neurodegenerative diseases, predictive biomarkers

**External Funding:**

Current Funding Total: \$159,520

Proposals Currently Pending: \$22,384,039

Funding Sources: NIH, NSF, USDA

**Investigator:** Sherri Jones, Ph.D.

**Position Title & Department:** Director, Department Chair, and Professor; Special Education and Communications Disorders

**Expertise:** Dr. Jones' basic research interests include understanding inner ear functional development and aging as well as the genetics of inner ear dysfunction. She is also interested in the role(s) the vestibular system may play in physiological homeostasis and how vestibular deficits may influence other systems such as the autonomic, cardiovascular, and skeletal motor systems. Her clinical research examines the effects of blast- or sports-related head trauma on vestibular and oculomotor functions; developmental aspects of the vestibule-ocular reflex and early developmental patterns for balance skills in normal and hearing-impaired children.

**External Funding:**

Current Funding Total: \$123,105

Proposals Currently Pending: \$3,181,865  
Funding Source: NIH

**Investigator:** Shi-Hua Xiang, Ph.D.

**Position Titles & Department:** Assistant Professor, Veterinary Medicine and Biomedical Sciences

**Expertise:** Dr. Xiang's long-term goal is to develop an effective vaccine or a long-term preventative strategy to counter HIV/AIDS. His research focuses on HIV envelope structure and envelope-based vaccine design and development. He is also interested in genetic engineering of commensal bacteria to act as a shield to combat HIV-1 infection and transmission.

Current Funding Total: \$611,119

Proposals Currently Pending: \$2,552,276

Funding Source: NIH

## Faculty Retention

**Investigator:** Heriberto Cerutti, Ph.D.

**Position Titles & Department:** Professor, School of Biological Sciences, Plant Science Initiative

**Expertise:** Gene silencing in eukaryotes

**External Funding:**

Current Funding Total: \$6,824,836

Proposals Currently Pending: \$4,160,611

Funding Sources: NIH, NSF

**Investigator:** Gary Pickard, Ph.D.

**Position Titles & Department:** Professor, Veterinary Medicine and Biomedical Sciences

**Expertise:** Circadian rhythms, retinal input, brain neurotransmitters, aging

**External Funding:**

Current Funding Total: \$1,287,780

Proposals Currently Pending: \$873,000

Funding Source: NIH

## Research Program & Infrastructure Development

**Introduction:** Grants were provided to support development of novel research programs with the potential to improve human health and to enhance the research infrastructure at UNL. These investments will enhance the ability of UNL faculty to compete for external biomedical research funding. In 2012, support was provided to enhance the professional development of faculty in biomedical sciences and recruit top-notch graduate students. The research projects funded in 2012 cover important areas of health research, including virology, development of novel therapeutics for pathogenic mycobacteria, bioinformatics, circadian clocks in the central nervous system, and developmental changes in brain, language, and cognitive processes across the lifespan. In 2012, funding was provided to partially support construction of approximately 28,000 ft<sup>2</sup> of laboratory space for researchers associated with the Center for Brain, Biology and Behavior to conduct cutting-edge brain and behavioral research associated with head injuries. NTSBRDF funding supported early basic research in these projects and served as a bridge to help researchers collect important preliminary data necessary for new and renewed NIH funding. Several of these projects include collaborators across institutions in Nebraska, evidence of the success of our efforts to promote more collaboration between the institutions.

## Research Program Development

**Project Title:** Faculty Development in Biomedical Sciences

**Amount of Funding:** \$96,145

**Description of Goals and Accomplishments:** A nationally known grant writing consultant provides workshops to UNL faculty to enhance competitiveness for federal funding.

**Project Title:** Fatty Acid Analogs as Novel Therapeutic Agents for Pathogenic Mycobacteria

**Principal Investigator:** Patrick Dussault, Ph.D.

**Amount of Funding:** \$100,000

**Description of Goals and Accomplishments:** This research is pursuing a new approach to the treatment of *Mycobacterium tuberculosis* (MTB) and targets a new family of therapeutics that would take advantage of the biosynthesis of mycolic acids. These fatty acids are responsible for the impermeability of mycobacterial cell walls. Eleven substrates have been synthesized in which a portion of a fatty acid that would normally be modified by mycobacteria is replaced by a functional group anticipated to instead undergo activation to a reactive metabolite. Three analogs have been identified that are more potent than *D*-cycloserine, a clinical drug. One of the most active structures is on a truncated fatty acid framework that lacks amphiphilic (detergent) properties, ruling out nonspecific activity based upon hydrophobicity. Control experiments demonstrated only limited general toxicity, suggesting that the molecules may be selective antibacterials. An NMR-based approach that will underpin metabolomics will be conducted in year 2.

**Project Title:** Analysis of Signal Transducing Proteins Toward Biomedical Application

**Principal Investigator:** Etsuko Moriyama, Ph.D.

**Amount of Funding:** \$100,000

**Description of Goals and Accomplishments:** Investigations used hidden Markov model (HMM) applications in protein classifications and investigated how the double chain Markov model (DCMM) can improve currently used HMM architectures. An HMM that incorporates protein structural information for protein classification is being developed, which can be extended with DCMM later for analyzing functional association among amino acid positions in G-protein-coupled receptors, regulators of G-protein signaling, nuclear receptors, and many other proteins. A new game-theoretic, linear-programming based method to analyze protein networks is also being developed. In this process, an affinity matrix will be constructed for each protein based on the domain profile. Using the zero-sum evolutionary game, an affinity graph among proteins where edges connecting nodes (proteins) are weighted with their similarity based on domain profiles will be constructed. The game theoretic framework provides the information on domains based on protein profiles and will be used to construct domain networks.

**Project Title:** Nebraska Center for Virology Support

**Principal Investigator:** Charles Wood, Ph.D.

**Amount of Funding:** \$20,000

**Description of Goals and Accomplishments:** Funds were provided as a stipend for serving as the Director of the pre-eminent Nebraska Center for Virology

**Project Title:** Circadian Rhythms, Cortisol, and Aging

**Principal Investigator:** Gary Pickard, Ph.D. and Patricia Sollars, Ph.D.

**Amount of Funding:** \$52,081

**Description of Goals and Accomplishments:** Bridge funds were provided to continue studies of the bidirectional communication between the central circadian clock located in the hypothalamic suprachiasmatic nucleus and peripheral circadian clocks throughout the body that may affect both metabolism and mood in the elderly.

**Project Title:** Center for Brain, Biology, and Behavior

**Principal Investigator:** Dennis Molfese, Ph.D.

**Amount of Funding:** \$70,000

**Description of Goals and Accomplishments:** This project will support development of a shared database and programming in the functional MRI research suite.

## Infrastructure Development

**Project Title:** Center for Brain, Biology, and Behavior

**Principal Investigator:** Dennis Molfese, Ph.D.

**Amount of Funding:** \$1,500,000

**Description of Goals and Accomplishments:** Tobacco settlement funds were used to help construct a research laboratory in the East Stadium Addition of Memorial Stadium. The project will include approximately 28,000 ft<sup>2</sup> of laboratory space for researchers associated

with the Center for Brain, Biology and Behavior (CB<sup>3</sup>). Other planned funding for the construction and equipment are from the Athletics Department, private sources and other university funds. Each year more than 1.5 million Americans suffer head injuries. Many of these head injuries are related to athletics, but the majority of these injuries are experienced during car accidents or on the battlefield. Faculty affiliated with the CB<sup>3</sup> will conduct cutting-edge biomedical and behavioral research that will lead to development of innovations that enhance the prevention, detection and treatment of severe head injuries and ultimately benefit society. External funding for this research will be pursued from the National Institutes of Health, the Department of Defense and other agencies.

## **Minority Health Research Grants**

**Introduction:** Minority health research grants support research focusing on the health needs of racial and ethnic minorities, particularly in the areas of biomarkers and stress in mothers and adolescent children. A new project at UNL is being initiated to develop a large-scale center with strategic efforts in science, policy, practice, and training related to research on minority health disparity issues in Nebraska and the nation.

**Project Title:** Race Differences in Biological and Social Markers of Acute and Chronic Stress Among Low Income Mothers and Children

**Principal Investigator:** Bridget Goosby, Ph.D.

**Amount of Funding:** \$59,038

**Description of Goals and Accomplishments:** This study will include African American mothers and a comparison group of low-income Caucasian mothers. The goals of this project are to assess the feasibility of collecting biomarker and survey data on economically disadvantaged mothers and their adolescent children. Surveys will assess social stressors including discrimination, parenting stress and health, and child health histories. Biological markers of health and chronic stress include C-Reactive Protein, Epstein Barr, and cortisol in mothers and cortisol samples from young adolescent offspring.

**Project Title:** Minority Health Disparities Research Initiative

**Principal Investigators:** Rick Bevens, Ph.D.

**Amount of Funding:** \$152,192

**Description of Goals and Accomplishments:** The primary objective of this initiative is to identify and strengthen the infrastructure, as well as the network of investigators and practitioners conducting research on critical minority health issues in Nebraska and the nation. The initiative will break down traditional academic silos and adopt an interdisciplinary and translational approach that includes science, policy, practice, and training. The goal is to develop a trans-disciplinary, large-scale center to conduct research on minority health disparities.

**CREIGHTON UNIVERSITY**  
**Nebraska Tobacco Settlement Biomedical**  
**Research Development Fund (NTSBRDF)**

Year 11: July 1, 2011-June 30, 2012  
**Progress Report**

**Executive Summary**

The Creighton University investment of the Nebraska Tobacco Settlement Biomedical Research Development Fund dollars is concentrated in three areas:

- Strategic Faculty Recruitment and Retention
- Research Program and Infrastructure Development
- Minority Health Research Grants.

With the support of the NTSBRDF, Creighton University continues to address some of the world's most complex and perplexing health care challenges. Research investigators play a fundamental role in enhancing the quality of life for individuals and in expanding the research community in Nebraska and the region. The primary purpose and use of the NTSBRDF program at Creighton University is to increase funding from federal health agencies and institutes. In 2011-2012, the collective efforts of the research investigators at Creighton University produced significant results. Creighton University received approximately \$30 million in extramural funding. Investigators were awarded federal grants from the Department of Defense, National Institutes of Health, National Science Foundation, Health Resources and Services Administration, and Agency for Healthcare Research and Quality, as well as many other non-federal grants from corporations and foundations. The university and its investigators look forward to continuing to use NTSBRDF funds as a springboard to benefit the citizens of Nebraska and to add to research and health care knowledge everywhere.

## Strategic Faculty Recruitment & Retention

Creighton University's goals include the recruitment of talented investigators and the enhancement of its research resources, research mentoring, and research faculty development. In 2011-12, Creighton University invested \$504,375 of the NTSBRDF funds to support new faculty in the departments of Biomedical Sciences and Pharmacology in the School of Medicine, and the departments of Periodontics and Maxillofacial Prosthodontics in the School of Dentistry. These investigators, Kristina Simeone, Kenneth Kramer, Deniz Yilmazer-Hanke, Alvin Wee, and Martha Nunn, used NTSBRDF funds to assist with start-up and the enhancement of their research endeavors.

### Funded Investigators

**Investigator:** Martha Nunn, PhD

**Position Title & Department:** Associate Professor, School of Dentistry, Department of Periodontics

**Expertise:** Epidemiology expertise in the areas of dental implants, treatment and prognosis

**External Funding:**

Current Year Funding Total: \$250,721

Funding sources: DHHS/AHRQ, DHHS/NIH/NIDCR

**Investigator:** Alvin Wee, DDS

**Position Title & Department:** Associate Professor, School of Dentistry, Department of Prosthodontics

**Expertise:** Early detection and quality of life for head and neck cancer patients

**External Funding:**

Current Year Funding Total: \$84,660

Funding sources: DHHS/NIH/NIDCR, Health Future Foundation

**Investigator:** Kenneth Kramer, PhD

**Position Title & Department:** Assistant Professor, School of Medicine, Department of Biomedical Sciences

**Expertise:** Zebrafish model system focused on understanding how changes to the glycosaminoglycans control development

**External Funding:**

Current Year Funding Total: \$180,625

Funding sources: DHHS/NIH/NIGMS

**Investigator:** Deniz Yilmazer-Hanke, PhD

**Position Title & Department:** Associate Professor, School of Medicine, Department of Biomedical Sciences

**Expertise:** Molecular and structural changes, gene expression and signal transduction mechanisms leading to neural plasticity and neurodegeneration in limbic brain regions

**External Funding:**

Current Year Funding Total: \$0

**Investigator:** Kristina Simeone, PhD

**Position Title & Department:** Assistant Professor, School of Medicine, Department of Pharmacology

**Expertise:** Neural mechanisms underlying epilepsy with the overarching goal of providing insights into the development of novel treatments for this neurologic disease

**External Funding:**

Current Year Funding Total: \$292,731

Funding sources: DHHS/NIH/NINDS

**Research Program & Infrastructure Development**

A total of \$1,318,175 was invested in research program and infrastructure development in 2011-2012, in a wide variety of topics, including Gene Therapy in Vascular Disease; Role of HERC2 in Lymphocyte Development V(D)J Recombination, A Novel Target for Treatment of ER-Negative Breast Cancer, Regulator of G-Protein Signaling Proteins for the Treatment of Asthma, Changes in Cortical and Spinal Excitability Following Ankle Manual Therapy, Immunomodulation of Mucosal Inflammation in Inflammatory Bowel Disease, Influence of DRD4 Genotype on Smoking Cessation with Duloxetine, Effects of Vitamin D on the Expression of TREM-1 and TREM-2 by Oral Keratinocytes, and Development of Novel Strategies to Promote Neural Repair After Stroke . Moreover, the Research Program and Infrastructure Development portion of the NTSBRDF supported biomedical research by providing bridge funding for research faculty and employing a Biostatistician and Technical Writer/Editor to aid investigators in the development of competitive applications.

**Funded Investigators**

**Investigator:** Devendra Agrawal, PhD

**Position Title & Department:** Professor, School of Medicine, Department of Biomedical Sciences

**Project Title:** Gene Therapy Program in Occlusive Vascular Disease

**External Funding:**

Current Year Funding Total: \$2,337,504

Funding sources: DHHS/NIH/NIAID, DHHS/NIH/NIHLB

**Investigator:** Patrick Swanson, PhD

**Position Title & Department:** Associate Professor, School of Medicine, Department of Medical Microbiology and Immunology

**Project Title:** Role of HERC2 in Lymphocyte Development V(D)J Recombination

**External Funding:**

Current Year Funding Total: \$501,250

Funding sources: DHHS/NIH/NIAID, NE-DHHS

**Investigator:** Zhaoyi Wang, PhD  
**Position Title & Department:** Professor, School of Medicine, Department of Medical Microbiology and Immunology  
**Project Title:** ER-A36: A Novel Target for Treatment of ER-Negative Breast Cancer  
**External Funding:**  
Current Year Funding Total: \$441,347  
Funding sources: DOD, NE-DHHS

**Investigator:** Yaping Tu, PhD  
**Position Title & Department:** Associate Professor, School of Medicine, Department of Pharmacology  
**Project Title:** Regulator of G-Protein Signaling Proteins: Targets for Treatment of Asthma  
**External Funding:**  
Current Year Funding Total: \$400,000  
Funding sources: American Asthma Foundation, NE-DHHS

**Investigator:** Terry Grandstaff, PhD  
**Position Title & Department:** Assistant Professor, School of Pharmacy and Health Professions, Department of Physical Therapy  
**Project Title:** Changes in Cortical and Spinal Excitability Following Ankle Manual Therapy  
**External Funding:**  
Current Year Funding Total: \$3,000  
Funding sources: Nebraska Foundation for Physical Therapy

**Investigator:** Robert Kizer, MD  
**Position Title & Department:** Assistant Professor, School of Medicine, Department of Medicine  
**Project Title:** Immunomodulation of Mucosal Inflammation in Inflammatory Bowel Disease  
**External Funding:**  
Current Year Funding Total: \$0

**Investigator:** Vithyalaksmi Selvaraj, MD  
**Position Title & Department:** Assistant Professor, School of Medicine, Department of Psychiatry  
**Project Title:** Influence of DRD4 Genotype on Smoking Cessation with Duloxetine  
**External Funding:**  
Current Year Funding Total: \$0

**Investigator:** David Verbik, PhD  
**Position Title & Department:** Assistant Professor, School of Dentistry, Department of General Dentistry  
**Project Title:** Effects of Vitamin D on the Expression of TREM-1 and TREM-2 by Oral Keratinocytes

**External Funding:**

Current Year Funding Total: \$0

**Investigator:** Thomas Murray, PhD

**Position Title & Department:** Associate Vice President for Health Science Research

**Project Title:** Associate Vice President Postdoctoral Support

**External Funding:**

Current Year Funding Total: \$1,699,467

Funding sources: DHHS/NIH/NINDS, DHHS/NIH/NIDA, DHHS/NIH/NIMH, NE-DHHS, Health Future Foundation

**Minority Health Research Grants**

Creighton's core values include the inalienable worth of each individual and appreciation of ethnic and cultural diversity coupled with service to others. As such, the NTSBRDF supports Creighton University's commitment to improving the health of racial and ethnic minorities. In 2011-12, a total of \$122,235 was used to support the Creighton Community through clinical and educational services primarily to the African-American community in Omaha.

**Funded Investigators**

**Investigator:** Sade Kosoko-Lasaki, MD

**Position Title & Department:** Associate Vice President – Health Science Multicultural and Community Affairs

**Expertise:** Center for Promoting Health and Health Equality (CPHHE)

**External Funding:**

Current Year Funding Total: \$50,000

Funding sources: Friends of Congressional Glaucoma Caucus Foundation

**Investigator:** Syed Mohiuddin, MD

**Position Title & Department:** Professor, School of Medicine, Department of Medicine

**Expertise:** Bensen Community Health Center

**External Funding:**

Current Year Funding Total: \$313,901

Funding Sources: DHHS/NIH/NHLBI, NE-DHHS, Pfizer, Health Future Foundation

**BOYS TOWN NATIONAL RESEARCH HOSPITAL**  
**Nebraska Tobacco Settlement Biomedical**  
**Research Development Fund**

Year 11: July 01, 2011 – June 30, 2012  
Progress Report

**Executive Summary**

During the eleventh year of the NTSBRDF program, the Boys Town National Research Hospital (BTNRH) continued to pursue strategic objectives established during the first year to improve the health of Nebraskans through biomedical research, increase NIH funding and enhance collaboration among Nebraska's major biomedical research institutions.

During Year 11, we continued support of new researchers recruited in earlier years and added two new investigators to the list. Dr. Kayla Pope, a pediatric psychiatrist with a law degree, was recruited from NIMH as Director of Neurobehavioral Research. As part of our effort to expand the research program to include behavioral disorders, we plan to recruit additional staff in this area and to purchase a 3T fMRI to be located in a new facility under construction on the Boys Town campus. Dr. Pope is working closely with Dr. Molfese at UNL and Dr. Kratochvil at UNMC to insure system compatibility and efficient use of the new facility to meet research needs at UNMC as well as BTNRH.

Dr. Ryan McCreery, a clinical audiologist who recently received a PhD from UNL, was promoted to a faculty position as a Staff Scientist and as Associate Director of the Center for Audiology and Vestibular Services, with release time for research funded by the NTSBRDF. Dr. McCreery received NIH funding shortly after his promotion and will be submitting a major grant in the spring of 2013.

Dr. Monita Chatterjee, a leading researcher in the area of cochlear implants recruited with NTSBRDF funds during Year 10, has completed moving her laboratory to BTNRH and has developed grant-funded collaborations with Johns Hopkins University and with Taipei Medical University in Taiwan. The addition of Dr. Chatterjee along with Dr. Michelle Hughes, recruited several years earlier, has created one of the largest implant research programs in the country. BTNRH completed its 500<sup>th</sup> implant at the end of Year 11.

Dr. Richard Tempero, who received NTSBRDF support through the end of Year 11 to develop a Lymphatic Biology Laboratory, received funding from the Eye Institute at NIH as well as an excellent score on a second R01. Dr. Marisa Zallocchi, who received NTSBRDF support beginning in Year 9, received support in Year 11 to develop a zebrafish facility at BTNRH. Preliminary data from the facility have already been included in a grant proposal. Dr. Zallocchi is also receiving support from the CoBRE grant based at UNMC.

In the area of Minority Health, we continued to support a program on perception of speech in difficult listening environments in Spanish-English bilinguals and began planning a program to monitor the effects of lead exposure on hearing in North Omaha children.

During Year 11, BTNRH faculty continued teaching courses in the audiology program at UNL, provided stipend and tuition support for UNL graduate students and contributed to efforts to recruit a new director for the Barkley Center. We worked closely with UNMC on resubmission of an application to NIH for a Clinical and Translational Science Award and with Dr. Murray at Creighton on a successful EPSCoR application.

## Strategic Faculty Recruitment & Retention

**Introduction:** Most entries in this category represent multiple-year start-up packages for new investigators. As they obtain external support and become fully independent, they drop off the list making way for new people. New additions to the list for Year 11 include Sophie Ambrose, Ryan McCreery and Kayla Pope. We occasionally support established laboratories to allow them to maintain active research programs despite short-term lapses in funding. Dr. Jesteadt received funding for the first half of the year, for example, until an R01 started. The Current Funding Total reflects the current cycle of all grants where the individual was designated as PI.

**Investigator:** Sophie Ambrose, PhD

**Position Title & Department:** Research Associate, Lied Learning and Technology Center.

**Expertise:** Relation between gesture and language development in children with hearing loss.

**External Funding:**

Pending (R03 to begin in Year 12)

**Investigator:** Ryan McCreery, PhD

**Position Title & Department:** Associate Director, Center for Audiology and Vestibular Services.

**Expertise:** Studies of audibility, perception and cognition in children with hearing loss.

**External Funding:**

Current Funding Total: \$438,000

Funding Sources: NIH/NIDCD

**Investigator:** Kayla Pope, JD, MD

**Position Title & Department:** Director of Neurobehavioral Research.

**Expertise:** Pediatric psychiatry, fMRI imaging of children with behavioral disorders.

**External Funding:**

Pending

**Investigator:** Monita Chatterjee, PhD

**Position Title & Department:** Director of the Auditory Prostheses and Perception Laboratory, Lied Learning and Technology Center.

**Expertise:** Use of behavioral methods to compare the perception of subjects with cochlear implants to the perception of subjects with normal acoustic hearing.

**External Funding:**

Current Funding Total: \$447,216

Funding Sources: NIH/NIDCD

**Investigator:** Kristen Janky, AuD, PhD

**Position Title & Department:** Coordinator, Vestibular Services, Center for Audiology and Vestibular Services.

**Expertise:** Physiological and behavioral assessment of vestibular function.

**External Funding:**

Pending

**Investigator:** Walt Jesteadt, PhD

**Position Title & Department:** Director, Psychoacoustics Laboratory, Center for Hearing Research.

**Expertise:** Use of behavioral methods to study auditory perception.

**External Funding:**

Current Funding Total: \$3,811,385

Funding Sources: NIH/NIDCD

**Investigator:** Barbara Morley, PhD

**Position Title & Department:** Director of the Auditory Neurochemistry Laboratory, Center for Hearing Research.

**Expertise:** Use of molecular methods to study the development of neurotransmitters in the auditory brainstem nuclei.

**External Funding:**

Current Funding Total: \$37,500

Funding Sources: EPSCoR

**Investigator:** Nicholas Smith, PhD

**Position Title & Department:** Director of the Perceptual Development Laboratory, Lied Learning and Technology Center.

**Expertise:** Use of behavioral methods including eye tracking to study the perceptual development of infants; acoustic measures of speech communication patterns between care givers and infants.

**External Funding:**

Current Funding Total: \$435,080

Funding Sources: NIH/NIDCD

**Investigator:** Richard Tempero, MD, PhD

**Position Title & Department:** Director of the Lymphatic Biology Laboratory, Usher Syndrome Center.

**Expertise:** Roles of lymphangiogenesis in inflammation and cancer; regulation of cellular cues that promote or inhibit formation of new lymphatic vessels.

**External Funding:**

Current Funding Total: \$1,840,790

Funding Sources: NIH/NEI/NCRR

**Investigator:** Edward Walsh, PhD

**Position Title & Department:** Director, Developmental Auditory Physiology Laboratory, Center for Hearing Research.

**Expertise:** Physiological measurement of peripheral and central auditory function.

**External Funding:**

Current Funding Total: \$378,173

Funding Sources: EPSCoR/NCRR

**Investigator:** Marisa Zallocchi, PhD

**Position Title & Department:** Director of the Functional Genetics Laboratory, Usher Syndrome Center.

**Expertise:** Biochemical mechanisms of Usher pathobiology in photoreceptors and cochlear hair-cells; use of zebrafish model to study gene expression and function.

**External Funding:**

Current Funding Total: \$160,600

Funding Sources: NIH/ NCRR

## Research Program & Infrastructure Development

**Introduction:** Some entries in this category are identical to those for the preceding year. We have provided updates in the descriptions of the projects.

**Project Title:** Animal Care Facility Core

**Principal Investigator:** JoAnn McGee, PhD

**Amount of Funding:** \$28,000

**Description of Goals and Accomplishments:** Core support is necessary to maintain adequate staffing levels and uniform *per deim* charges in the Animal Care Facility in spite of fluctuating levels in the use of the facility.

**Project Title:** Usher Syndrome Center Core Support

**Principal Investigator:** Dominic Cosgrove, PhD

**Amount of Funding:** \$60,142

**Description of Goals and Accomplishments:** Funds were allocated for supplemental support of programs and core functions in the Center for the Study and Treatment of Usher Syndrome, including the Vestibular Neurogenetics, Cell Signaling and Gene Marker Laboratories and the Genotyping Core.

**Project Title:** Core Center for Communication Disorders Supplement

**Principal Investigator:** Walt Jesteadt, PhD

**Amount of Funding:** \$40,000

**Description of Goals and Accomplishments:** Funds were allocated to supplement a P30 Core Center funded by NIDCD so that core center functions could be extended to those without current NIH funding. The Core Center provides limited support for researchers at Creighton, UNL and UNMC as well as at BTNRH.

**Project Title:** New Projects Fund

**Principal Investigator:** Michael Gorga, PhD

**Amount of Funding:** \$5,000

**Description of Goals and Accomplishments:** A central fund was continued in Year 11 to provide startup funds for pilot projects proposed by current members of the BTNRH research and clinical staff. This money was used to provide honoraria for research subjects and to cover minimal supply costs.

**Project Title:** Recruitment Fund

**Principal Investigator:** Walt Jesteadt, PhD

**Amount of Funding:** \$22,000

**Description of Goals and Accomplishments:** A recruitment fund allows us to separate the costs of advertising, moving and interviewing candidates from the costs of individual recruitment packages. The initial costs of recruitment occur well in advance of the start date for a position. Moving costs vary and are generally handled separately from start-up funds.

**Project Title:** Postdoctoral Training

**Principal Investigator:** Walt Jesteadt, PhD

**Amount of Funding:** \$20,400

**Description of Goals and Accomplishments:** The longest running NIH grant at BTNRH provides support for a postdoctoral training program. The postdoctoral fellows contribute in many ways to the success of the research program as a whole. The grant does not support the cost of recruiting postdoctoral fellows and provides minimal support for travel to national meetings. It is sometimes necessary to supplement stipends to make competitive offers. We have therefore created a fund to support those costs.

**Project Title:** BPPV Pilot Project

**Principal Investigator:** Yesha Lundberg, PhD

**Amount of Funding:** \$86,098

**Description of Goals and Accomplishments:** Funds were allocated to a project to explore the molecular etiology of benign paroxysmal positional vertigo (BPPV), the most common form of dizziness. This is a translational extension of Dr. Lundberg's R01-funded work with animal models. An analysis of 1131 patients seen at BTNRH since 1999 showed significant effects of age and gender. 227 completed a survey suggesting the importance of hormonal changes. Blood work on 18 showed altered serum electrolytes and higher levels of total alkaline phosphate.

## Minority Health Research Grants

**Introduction.** In Year 11 we have continued two projects reported in previous years. The first is key to all of our efforts to expand research in areas related to minority health. The second is a study of the problems associated with learning a second language.

**Project Title:** Minority Recruitment

**Investigator:** Michael Gorga, PhD

**Amount of Funding:** \$19,186

**Description of Goals and Accomplishments:** The Minority Recruitment project begun in Year 5 has continued to be successful in greatly increasing the representation of minority subjects in our NIH-funded research studies. The funds have been used to provide support for translation of consent forms and other documents, interpreters to aid in the consent process, and consultants in the minority communities. The value of this effort was increased by the presence of an NIH-funded Human Subjects Research Core at BTNRH that facilitates recruitment of subjects for all NIH-funded clinical studies. By attaching the Minority Recruitment effort to the existing core function, we have been able to spread the benefit of a proactive minority recruitment program across many laboratories. Typical minority participation in our research studies is well above the representation of minorities in our community.

**Project Title:** Spanish-English Bilinguals

**Investigator:** Kanae Nishi, PhD

**Amount of Funding:** \$47,712

**Description of Goals and Accomplishments:** The previous phase of the project found that Spanish learners of English (L2) relied heavily on contextual information to process speech presented in noise and that their reliance on context varied widely among individuals even for listeners with similar English proficiency. We have expanded the project to include children as well as adults and to focus on hearing-aid issues. Processing of acoustic cues requires preservation of those cues in the hearing-aid output. This is particularly important for children learning the second language.