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

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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**

#### Strategic Faculty Recruitment and Retention

<table>
<thead>
<tr>
<th>College of Medicine</th>
<th>FY 2011-2012 Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biochemistry/Molecular Biology</td>
<td>$337,910</td>
</tr>
<tr>
<td>Surinder Batra, PhD</td>
<td></td>
</tr>
<tr>
<td>Cellular &amp; Integrative Physiology</td>
<td>$235,805</td>
</tr>
<tr>
<td>Lie Gao, MD, PhD; George Rozanski, PhD; Steven Sansom, PhD; Matthew Zimmerman, PhD</td>
<td></td>
</tr>
<tr>
<td>Genetics, Cell, Biology &amp; Anatomy</td>
<td>$570,385</td>
</tr>
<tr>
<td>Vinmila Band, PhD; Chittibabu Guda, PhD; Runqing Lu, PhD; Shantaram S. Joshi, PhD; J. Graham Sharp, PhD</td>
<td></td>
</tr>
<tr>
<td>Emergency Medicine</td>
<td>$7,057</td>
</tr>
<tr>
<td>Yulong Li, MD, PhD</td>
<td></td>
</tr>
<tr>
<td>Internal Medicine</td>
<td>$330,600</td>
</tr>
<tr>
<td>Stephen J. Bonasera, MD, PhD; Duygu Dee Harrison-Findik, DVM, PhD; Phylis A. Nsiah Kumi, MD; Jennifer L. Larsen, MD; Stephen Rennard, MD (H. Basma)</td>
<td></td>
</tr>
<tr>
<td>Pathology/Microbiology</td>
<td>$709,555</td>
</tr>
<tr>
<td>Kenneth Bayles, PhD; Wing Chan, MD; Kai Fu, MD, PhD; Steven Hinrichs, MD; Tammy Kielian, PhD; Zhixin Zhang, PhD</td>
<td></td>
</tr>
<tr>
<td>Pharmacology/Exp Neuroscience</td>
<td>$800,055</td>
</tr>
<tr>
<td>Shilpa Buch, PhD; Howard Fox, MD, PhD, Howard Gendelman, MD; James Haorah, PhD; Jialin Zheng, MD</td>
<td></td>
</tr>
<tr>
<td>Radiology</td>
<td>$101,000</td>
</tr>
<tr>
<td>Michael Boska, PhD</td>
<td></td>
</tr>
<tr>
<td>School of Allied Health Professions</td>
<td>$104,285</td>
</tr>
<tr>
<td>Corrine K. Hanson, PhD, RD, LMNT; Jack E. Turman Jr, PhD</td>
<td></td>
</tr>
<tr>
<td>Surgery</td>
<td>$293,880</td>
</tr>
<tr>
<td>B. Timothy Baxter, MD; Dmitry Oleynikov, MD; Nora Sarvetnick, PhD</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>College of Dentistry</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Keith R. Johnson, PhD; Ali Nawshad, PhD; Gregory Oakley, PhD; Aimin Peng, PhD</td>
<td>$307,890</td>
</tr>
<tr>
<td>Michele C. Balas, PhD; Marlene Cohen, PhD; Polly A. Hulme PhD; Michael Rice, PhD; Barbara A. Swore Fletcher, PhD; Sarah Thompson, PhD</td>
<td></td>
</tr>
<tr>
<td>College of Pharmacy</td>
<td>$370,920</td>
</tr>
<tr>
<td>Courtney Fletcher, PharmD; Jereed Garrison, PhD; Yuri Lyubchenko, PhD</td>
<td></td>
</tr>
<tr>
<td>College of Public Health</td>
<td>$218,455</td>
</tr>
<tr>
<td>Panigrahi Pinaki, MD; Risto Rautiainen, PhD; James P. Stimpson, PhD; Ka-Chun Siu, PhD; Sandra Wells Paine, PhD</td>
<td></td>
</tr>
<tr>
<td>Episcopal Institute</td>
<td>$944,615</td>
</tr>
<tr>
<td>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. Rizino, PhD; Ming-Ying Tsai, PhD</td>
<td></td>
</tr>
<tr>
<td>Munroe Meyer Institute</td>
<td>$189,520</td>
</tr>
<tr>
<td>Anna Dunaevsky-Hutt, PhD; Shelly D. Smith, PhD</td>
<td></td>
</tr>
</tbody>
</table>

**Subtotal** $5,610,487

#### Research Program & Infrastructure Development

| Biosciences Research Training Program (BRTP) | $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/ACUC Accreditation Consultant | $10,400 |
| IRB & SPAdmin - ITS Svc Level Agreements | $186,720 |
| Library - Scopus Subscription | $24,000 |
| UNMC Institutional Official Support | $50,000 |

**Subtotal** $973,295

#### Research in Health and Health Disparities

| 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 |

**Subtotal** $622,525

#### Joint UNMC-UNL Research Projects

| Magnetic Resonance Elastography of Traumatic Brain Injury [Kelso] | $2,500 |
| Surgery Engineering for Medicine Seed Award [Pipinos] | $36,820 |

**Subtotal** $39,320

**Total FY 2011-12 Allocation** $7,245,627
## University of Nebraska-Lincoln
### Nebraska Tobacco Settlement Biomedical Research Development Fund
#### FY2012 Allocations

<table>
<thead>
<tr>
<th><strong>Strategic Faculty Recruitment and Retention</strong></th>
<th><strong>FY2012 Allocation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Gary Pickard, Ph.D., Veterinary Medicine and Biomedical Sciences</td>
<td>40,000</td>
</tr>
<tr>
<td>Heriberto Cerutti, Ph.D., Center for Plant Science Innovation</td>
<td>40,000</td>
</tr>
<tr>
<td>Dennis Molfese, Ph.D., Psychology</td>
<td>171,569</td>
</tr>
<tr>
<td>Jiri Adamec, Ph.D., Biochemistry</td>
<td>217,000</td>
</tr>
<tr>
<td>Sherri Jones, Ph.D., Special Education &amp; Communication Disorders</td>
<td>106,167</td>
</tr>
<tr>
<td>Shi-hua, Xiang, Nebraska Center for Virology</td>
<td>293,376</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>868,112</strong></td>
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<table>
<thead>
<tr>
<th><strong>Research Program and Infrastructure Development</strong></th>
<th><strong>FY2012 Allocation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty Development in Biomedical Sciences</td>
<td>96,145</td>
</tr>
<tr>
<td>Nebraska Center for Virology Director (Charles Wood, Ph.D.)</td>
<td>20,000</td>
</tr>
<tr>
<td>Fatty Acid Analogs as Novel Therapeutic Agents for Pathogenic Mycobacteria (Patrick Dussault, Ph.D.; Chemistry)</td>
<td>100,000</td>
</tr>
<tr>
<td>Analysis of Signal Transducing Proteins Toward Biomedical Application (Etsuko Moriyama, Ph.D.; Biological Sciences)</td>
<td>100,000</td>
</tr>
<tr>
<td>Corticosterone Rhythms in Aged Mice (Gary Pickard, Ph.D. and Patricia Sollars, Ph.D.; Veterinary Medicine and Biomedical Sciences)</td>
<td>52,081</td>
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<tr>
<td>Center for Brain, Biology and Behavior Database (Dennis Molfese, Ph.D.; Psychology)</td>
<td>70,000</td>
</tr>
<tr>
<td>Rennovation of Laboratory for Functional MRI Research (Dennis Molfese, Ph.D.; Psychology)</td>
<td>1,500,000</td>
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<tr>
<td><strong>Subtotal</strong></td>
<td><strong>1,938,226</strong></td>
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<table>
<thead>
<tr>
<th><strong>Minority Health Research Grants</strong></th>
<th><strong>FY2012 Allocation</strong></th>
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</thead>
<tbody>
<tr>
<td>Race Differences in Biological and Social Markers of Acute and Chronic Stress Among Low Income Mothers and Children (Bridget Goosby, Ph.D.; Sociology)</td>
<td>59,038</td>
</tr>
<tr>
<td>Minority Health Disparities Initiative Center (Rick Bevins, Ph.D.; Psychology)</td>
<td>152,192</td>
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<tr>
<td><strong>Subtotal</strong></td>
<td><strong>211,230</strong></td>
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</table>

**Total FY2012 Allocation** | **3,017,568**
**Creighton University**  
**Nebraska Tobacco Settlement Biomedical Research Development Fund**  
**FY2012 Allocation**

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

<table>
<thead>
<tr>
<th><strong>Minority Health Research Grants</strong></th>
<th><strong>FY 2011-2012 Allocation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Center for Promoting Health and Health Equality</td>
<td>$109,035</td>
</tr>
<tr>
<td>Benson Community Health Center</td>
<td>$13,200</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>$122,235</td>
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</table>

**Total FY 2011-12 Allocation $1,944,785**
### Strategic Faculty Recruitment and Retention

<table>
<thead>
<tr>
<th>Name</th>
<th>Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sophie Ambrose, PhD, Lied Learning and Technology Center</td>
<td>36,600</td>
</tr>
<tr>
<td>Ryan McCreery, PhD, Audiology and Vestibular Services</td>
<td>45,936</td>
</tr>
<tr>
<td>Kayla Pope, MD, JD, Neurobehavioral Disorders</td>
<td>147,794</td>
</tr>
<tr>
<td>Monita Chatterjee, Ph.D, Lied Learning and Technology Center</td>
<td>72,840</td>
</tr>
<tr>
<td>Kristen Janky, PhD, Audiology and Vestibular Services</td>
<td>69,106</td>
</tr>
<tr>
<td>Walt Jesteadt, PhD, Hearing Research</td>
<td>44,338</td>
</tr>
<tr>
<td>Barbara Morley, PhD, Hearing Research</td>
<td>21,721</td>
</tr>
<tr>
<td>Nicholas Smith, PhD, Lied Learning and Technology Center</td>
<td>68,436</td>
</tr>
<tr>
<td>Richard Tempero, MD, PhD, Otolaryngology</td>
<td>213,043</td>
</tr>
<tr>
<td>Edward Walsh, PhD, Hearing Research</td>
<td>94,950</td>
</tr>
<tr>
<td>Marisa Zallocchi, PhD, Usher Syndrome Center</td>
<td>101,765</td>
</tr>
</tbody>
</table>

**Subtotal** $916,529

### Research Program and Infrastructure Development

<table>
<thead>
<tr>
<th>Name</th>
<th>Allocation</th>
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</thead>
<tbody>
<tr>
<td>Animal Care Facility Core, JoAnn McGee, PhD</td>
<td>28,000</td>
</tr>
<tr>
<td>Usher Syndrome Center Core Support, Dominic Cosgrove, PhD</td>
<td>60,142</td>
</tr>
<tr>
<td>Core Center for Communication Disorders Supplement, Walt Jesteadt, PhD</td>
<td>40,000</td>
</tr>
<tr>
<td>New Projects Fund, Michael Gorga, PhD</td>
<td>5,000</td>
</tr>
<tr>
<td>Recruitment Fund, Walt Jesteadt, PhD</td>
<td>22,000</td>
</tr>
<tr>
<td>Postdoctoral Training, Walt Jesteadt, PhD</td>
<td>20,400</td>
</tr>
<tr>
<td>BPPV Pilot Project, Yesha Lundberg, PhD</td>
<td>86,098</td>
</tr>
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</table>

**Subtotal** $261,640

### Minority Health Research Grants

<table>
<thead>
<tr>
<th>Name</th>
<th>Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minority Recruitment, Michael Gorga, PhD</td>
<td>19,186</td>
</tr>
<tr>
<td>Spanish-English Bilinguals, Kanae Nishi, PhD</td>
<td>47,712</td>
</tr>
</tbody>
</table>

**Subtotal** $66,898

**Total FY2012 Allocation** $1,245,067
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
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.
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 ft² 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 ft² of laboratory space for researchers associated
with the Center for Brain, Biology and Behavior (CB³). 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 CB³ 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 Bevins, 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.
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
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 500th 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 caregivers 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 diem* 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.

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**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.