Nebraska Tobacco Settlement Biomedical Research Development Fund

Fiscal Year
2021-2022

Progress Report

University of Nebraska Medical Center
University of Nebraska at Omaha
University of Nebraska at Lincoln
University of Nebraska at Kearney
Creighton University
Boys Town National Research Hospital

Nebraska Tobacco Settlement Biomedical Research Development Fund

Fiscal Year 2021-2022

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Nebraska Tobacco Settlement
Biomedical Research
Development Fund

Section I

Fund Allocation to Each Institution

University of Nebraska Medical Center
University of Nebraska at Omaha
University of Nebraska at Lincoln
University of Nebraska at Kearney
Creighton University
Boys Town National Research Hospital

University of Nebraska Medical Center
Nebraska Tobacco Settlement Biomedical Research Development Fund
FY2021-2022 Allocation

Strategic Faculty Recruitment and Retention		**Allocation**
College of Dentistry	$	57,984
Aimin Peng		
College of Medicine		
Anesthesiology	$	60,810
Alicia Schiller, PhD; Sowmya Yelamanchili		
Biochemistry/Molecular Biology	$	639,787
Surinder Batra, PhD; Mohd Wasim Nasser, PhD; Amar Singh; Rebecca Oberley; Deegan; Armen Petrosyan; Satyanarayana Rachagani; Paul Sorgen; Melissa Teoh-Fitzgerald		
Cellular/Integrative Physiology	$	588,730
Rebekah Gundry, PhD; Merry Lindsey, PhD; Kumar Paras Mishra; Steve Samson		
Genetics, Cell Biology & Anatomy	$	103,982
Chittibabu Guda; Kishor Bhakat; Jordan Rowley		
Internal Medicine	$	497,855
Alfred Fisher, MD; Roslyn Mannon, MD; Derrick Samuelson, PhD; James Lawler, MD; Jill Poole		
Neurological Sciences	$	133,330
Kelly Stuach		
Pathology/Microbiology	$	322,322
Kenneth Bayles, PhD; Kurt Fisher, MD, PhD; Stacey Gilk, PhD; Elizabeth Rucks, PhD		
Pharmacology/Exp Neuroscience	$	62,753
Xinglong Wang		
Obstetrics/Gynecology	$	86,583
So-Youn Kim, PhD,		
Opthamology	$	118,767
Jae Hyuk Yoo		
Surgery	$	407,584
B Timothy Baxter, MD; Iraklis Pipinos, MD; Jason Cook; Michael Moulton, MD; Charity Evans, MD; Keely Buesing, MD		
College of Nursing	$	8,589
Kristin Dickinson, PhD;		
College of Pharmacy	$	249,462
Martin Conda Sheridan, PhD; Paul Trippier, PhD; David Oupicky, PhD; Donald Ronning, PhD; Carrie McAdam Marx, PhD		
College of Public Health	$	257,081
Eric Carnes, PhD; Jesse Bell, PhD; Yin Zhang; David Brett-Major, MD, MPH; Fabiana Silva, PhD		
Eppley Institute	$	878,017
Hamid Band, MD, PhD; Dalia ElGamal, PhD; Michael (Tony) Hollingsworth, PhD; Amarnath Natarajan, PhD; Prakash Radhakrishnan, PhD; Pankaj Singh, PhD, Adam Karpf; Jixin Dong		
Munroe-Meyer Institute	$	160,454
Karoly Mirnics, MD; Jennifer Blackford		
Subtotal	**$**	**4,634,090**
Research Program & Infrastructure Development		
Comparative Medicine Facility Support	$	542,088
IRB & SPAdmin - ITS Service Level Agreements	$	335,088
Research Core Lab Support	$	1,101,013
Clinical Data Research Network Support	$	46,734
DRC Research Resource Support	$	176,602
Institutional Research Resource Support	$	383,108
Center for Agricultural Safety and Health	$	33,775
Great Plains IDeA CTR	$	200,000
Rural Drug Addiction Research CTR (RADAR)	$	24,721
Anesthesiology Support	$	23,417
Chronic HIV Infection and Aging in NeuroAids Center (CHAIN)	$	200,080
COPH Water and Health Program Director	$	71,498
Mentored Scholars for Clinical and Translational Research	$	662
Subtotal	**$**	**3,138,786**
Joint UNMC-UNL-UNO Research Programs		
UNL COBRE Phase II NPOD (Gundry)	$	41,951
UNL SEM (Wellsandt)	$	58,030
UNL COBRE Phase II NPOD (Mishra)	$	20,431
UNL COBRE Phase II NPOD (Deegan)	$	50,000
Subtotal	**$**	**170,412**
Minority Health & Health Disparities Research and Mentor Programs		
Center for Reducing Health Disparities	$	359,705
Health Disparities Award (King)	$	23,771
Health Disparities Award (Guenzel)	$	8,005
Health Disparities Award (Ramos)	$	50,000
Student Success & Engagement	$	46,155
Subtotal	**$**	**487,636**
Total FY 2021-22 Allocation	**$**	**8,430,924**

University of Nebraska Omaha
Nebraska Tobacco Settlement Biomedical Research Development Fund
FY2021-2022 Allocation

		Allocation
Strategic Faculty Recruitment and Retention		
Jonathan Clayton, PhD, Biology	$	19,014
Chun-Hua Tsai, Information Systems and Quantitative Analysis	$	56,446
Spyridon Mastorakis, PhD, Computer Science	$	26,014
Martina Clarke, PhD, Interdisciplinary Informatics	$	11,101
Yury Salkovskiy, PhD, Biomechanics	$	7,586
Joel Elson, PhD, Interdisciplinary Informatics	$	23,291
Ada-Rhoades Short, PhD, Interdisciplinary Informatics	$	8,990
Majid Jadidi, PhD, Biomechanics	$	-
Subtotal	**$**	**152,441**
Research Program & Infrastructure Development		
IACUC IT, EHS, IRB Support	$	13,461
RSpace ELN Software Licenses and User Support	$	10,501
Immunobiology laboratory – Paul Denton	$	21,126
Animal Care and Use Program	$	78,377
Subtotal	**$**	**123,465**
Minority Health Research Grants		
Erik Garcia, PhD, Psychology	$	50,000
Subtotal	**$**	**50,000**
Total FY 2021-2022 Allocation	**$**	**325,906**

University of Nebraska-Lincoln

Nebraska Tobacco Settlement Biomedical Research Development Fund

FY 2021-2022 Allocation

Strategic Faculty Recruitment and Retention		**Allocation**
Eric Weaver, Ph.D., Nebraska Center for Virology		247,165
Yihe Huang, , Ph.D., Biochemistry		205,000
Katie Edwards, Ph.D., Educational Psychology		50,000
	Subtotal	$ 502,165
Research Program and Infrastructure Development		
Glacios Cryo Transmission Electron Microscope - Mark Wilson, Ph.D.		750,000
Center for Brain, Biology and Behavior - Cary Savage, Ph.D.		330,000
NanoAnalyzer Instrumentation - Angie Pannier, Ph.D.		53,500
Attachment Security and the Gut-Brain Axis: A Nationwide Sample - Patty Kuo, Ph.D.		50,000
Milk Exosomes Enhance the Gut-Brain Axis - Janos Zempleni, Ph.D.		38,000
NCV Director Stipend - Eric Weaver, Ph.D.		30,000
Inhibition of miRNA-mediated Gene Repression During Skeletal Muscle Adaptation - Ivan Vechetti, Ph.D.		25,000
Faculty Development in Biomedical Sciences		19,925
	Subtotal	$ 1,296,425
Minority Health Research Grants		
Establishment and Evaluation of an Indigenous-led Center to Prevent Sexual Violence among Indigenous Youth across the U.S. - Katie Edwards, Ph.D.		686,427
Minority Health Disparities Initiative, Rick Bevins, Ph.D.		181,897
	Subtotal	$ 868,324
Joint UNL-UNMC Research Programs		
Multimodal Biosensor for Home Diagnostic Use - Eric Markvicka, Ph.D.		50,000
Analysis of Mitochondrial Dysfunction in HADHA-mutant cardiomyocytes - Sathish Natarajan, Ph.D.		50,000
	Subtotal	$ 100,000
	Total FY 2021-2022 Allocation	$ 2,766,914

University of Nebraska at Kearney
Nebraska Tobacco Settlement Biomedical Research Development Fund
FY 2021-2022 Allocation

Research program and infrastructure development	**Allocation**
Instrumentation Support, (Biochemistry and Molecular Biology)	$42,772.53
Fighting Dementia: Clinical Translational effects of learning a new language, Ladan Ghazi-Saidi, PhD	$13,680.00
Hearing Loss, Mobility, and Fall Risk in Aging Agricultural Workers, Jan Moore, PhD	$12,452.90
Total FY 2021-2022 Allocation	**$68,905.43**

Creighton University
Nebraska Tobacco Settlement Biomedical Research Development Fund
FY 2021-2022 Allocation

Strategic Faculty Recruitment and Retention			**Allocation**
Steyger, Peter	Faculty Start-up	$	89,094
Zuo, Jian	Chair Start-up		100,085
North, Brian	Faculty Start-up		39,287
Hwang, Jee-Yeon	Faculty Start-up		123,424
Kaur, Tejbeer	Faculty Start-up		126,028
Hammond, Kelley	Faculty Start-up		80,412
Magrini, Mitch	Faculty Start-up		77,819
Litao, Tao	Faculty Start-up		112,173
Gragnoli, Claudia	Faculty Start-up		78,154
	Subtotal	**$**	**826,477**
Research Program & Infrastructure Development			
Knezetic, Joseph	Biostatistician Core Facility Support	$	79,024
Knezetic, Joseph	Attending Veterinarian Support		74,465
Knezetic, Joseph	Research Compliance Regulatory Support		56,693
Knezetic, Joseph	UNHCEMS Chemical Inventory System		15,000
Strauss-Soukup, Julie	New Initiative Grant Program Reviewers		7,500
Bartz, Jason	Prion Disease Research Support		75,360
Hansen, Laura	Research Salary Support		58,006
Strauss-Soukup, Julie	Elsevier PURE Master Software Subscription		81,753
Strauss-Soukup, Julie	Research Personnel Salary Support		55,139
Stessman, Holly	KMT5B as a Novel Analgesic Target		75,000
Simeone, Kristina	Tancytes and Seizures		75,000
Snyder, Kailey	Application of the Multiphase Optimization Strategy (MOST): Targeting Pelvic Floor Dysfunctional in Rural Postpartum Mothers		15,797
Grindstaff, Terry	Magnitude and Clinical Impact of Bone Mineral Density		57,930
Knezetic, Joseph	Animal Resource Facility Support		22,912
Swanson, Patrick	Light Chain Contributions to Specificity and Pathogenicity of VH4-34+ B Cells in Lupus		27,182
Roley-Roberts, Michele	Examining the Intersection of Domestic Violence, Eviction, and Racial Disparities in Omaha: Toward Trauma-Informed Systems of Care		26,569
Strauss-Soukup, Julie	Laboratory Freezer		14,913
Strauss-Soukup, Julie	National Institute of Antimicrobial Resistance Research and Education and Education Institutional Membership		2,500
Belshan, Michael	Connections between SARS-CoV-2 evolution, patient comorbidities, and COVID-19 outcome		59,689
Wrubel, Jonathan	National Science Foundation Award Matching Funds		35,823
Strauss-Soukup, Julie	Writing Winning Grant Proposal Seminar 2022		18,788
Gross, Erin	Microfluidics 3D Printer		10,745
Shibata, Annemarie	Laboratory Equipment		22,273
Hansen, Laura	Core Facility Equipment		68,811
Dash, Alekha	School of Pharmacy and Health Professions Lab		31,334
Sanchez, Sonja	School of Dentistry Lab Equipment		29,993
	Subtotal	**$**	**1,098,197**
Minority Health & Health Disparities Research Programs			
Kosoko-Lasaki, Sade	Center for Promoting Health and Health Equality	$	172,220
	Subtotal	**$**	**172,220**
	Total FY 2021-2022 Allocation	**$**	**2,096,895**

Boys Town National Research Hospital
Nebraska Tobacco Settlement Biomedical Research Development Fund
FY2021-2022 Allocation

		Allocation
Strategic Faculty Recruitment and Retention		
Barbara Morley, PhD, Center for Hearing Research	$	14,304.88
Krystal Werfel, Ph.D., Center for Childhood Deafness	$	24,902.43
Yunxia Lundberg, PhD, Center for Sensory Neuroscience	$	126,963.35
Zhao Ellen Peng, PhD, Center for Hearing Research	$	11,409.77
Monita Chatterjee, PhD, Aud Prostheses & Perception Lab	$	8,116.22
Karla McGregor, PhD, Center for Childhood Deafness	$	184.23
Katie Gordon, PhD, Center for Childhood Deafness	$	63,875.98
Kristen Janky, PhD, Center for Hearing Research	$	985.00
Christopher Conway, PhD, Center for Hearing Research	$	6,169.48
Stuart White, PhD, Decision-Making Research	$	2,272.99
fNIRS, Anastasia Kerr-German, Center for Childhood Deafness	$	92,010.88
Hope S. Lancaster, PhD, Center of Childhood Deafness	$	5,241.14
Gaelle Doucet, PhD, Institute for Human Neuroscience	$	2,370.18
Max Kurz, PhD, Instituite for Human Neuroscience	$	151,054.54
Aryn Kamerer, PhD, Center for Hearing Research	$	5,826.83
Elizabeth Heinrichs-Graham, PhD, Institute for Human Neuroscience	$	300.00
Subtotal	**$**	**515,987.90**
Research Program and Infrastructure Development		
Animal Care Facility Core, Barbara Morley, PhD	$	30,693.14
Center for Sensory Neuroscience Core Support, Dominic Cosgrove, PhD	$	37,822.42
Hearing Research Center Core Support, Lori Leibold, PhD	$	78,041.00
Childhood Deafness Center Core Support, Karla McGregor, PhD	$	126,911.80
New Projects Fund, Lori Leibold, PhD	$	29,730.79
Recruitment Fund, Ryan McCreery, PhD	$	3,567.73
Postdoctoral Training, Douglas Keefe, PhD	$	18,023.22
Anechoic Chamber, G. Chris Stecker, PhD	$	826.42
Subtotal	**$**	**325,616.52**
Minority Health Research Grants		
Minority Recruitment, Karla McGregor, PhD	$	45,182.37
Spanish-English Bilinguals, Lori Leibold, PhD	$	47,540.82
Tyler/Gordon DEI Project: Overcoming Adversity	$	590.80
Subtotal	**$**	**93,313.99**
Total FY 2021-2022 Allocation	**$**	**934,918.41**

Nebraska Tobacco Settlement
Biomedical Research
Development Fund

Section II

Project Progress Descriptions

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

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

Year 21: July 1, 2021 – June 30, 2022
Progress Report

Executive Summary

UNMC invests NTSBRDF dollars in four areas:

- Recruitment and retention of excellent scientists
- Research infrastructure and program development
- Research & education programs focused on improving health and reducing health disparities
- Joint research projects between UNMC and the other NU System campuses

During 2021-22, UNMC received $8,430,924 in Nebraska Tobacco Settlement Funds and invested it as follows:

- $4,634,090 in strategic recruitment or retention of new or meritorious research faculty, including $1,619,243 for the recruitment/retention of women or under-represented minorities.
- $3,138,786 in program and other infrastructure development, such as capital equipment, new core development, and Centers.
- $487,636 in research focused on reducing health care disparities and the mentorship and development of trainees and faculty from under-represented minorities or other disadvantaged backgrounds.
- $170,412 for joint research projects between UNMC, University of Nebraska–Lincoln, and University of Nebraska at Omaha

Overall, 25% of the total 2021-22 award focused on health disparities research or on the recruitment/retention of under-represented minority faculty.

Since the activation of the NTSBRDF program at the beginning of fiscal year 2001-02, these funds have been critical to the recruitment and retention of many world-class scientists who contribute to a growing research funding portfolio. Last year, UNMC's total sponsored awards increased 10% to $251.9M, which is a new record. These external funds support UNMC activities that include sub-categories of research, education, and public service. Total research-only sponsored awards were valued at $169.7M, marking the second highest annual research award total at UNMC.

Since the availability of the NTSBRDF, UNMC's total extramural research funding has quadrupled ($40.0M in 2000 to $169.7M in 2022). The growth of extramural research has a direct and positive impact on the economy of the State of Nebraska because these grants support salaries for faculty and staff and indirectly by providing funds to support purchases, and the scientists they support bring new grants, new trials that patients travel to our state to participate in, and serve as a magnet for potential students, industries, and other visitors that want to collaborate or attend conferences they organize.

Since 2001, when NTSBRDF support began, UNMC has invested approximately $86.4M in the

strategic recruitment or retention of 250 researchers, who, in turn, have attracted a total of over $1.39B in extramural research support after they received NTSBRDF funding. To date, this calculates to a return on investment of approximately 16.1 to 1.

Strategic Faculty Recruitment & Retention

In 2021-22, UNMC invested the majority of its allocation, $4,634,090 (55%), in strategic recruitment and retention of faculty. These supported faculty members have a combined portfolio of $194.1M in extramurally funded research that was active during the reporting period. The funding of these investigators came predominantly from the National Institutes of Health (NIH), including: National Cancer Institute (NCI), National Heart, Lung, Blood Institute (NHLBI), National Institute on Aging (NIA), National Institute of Alcohol Abuse and Alcoholism (NIAAA), National Institute of Allergy & Infectious Diseases (NIAID), National Institute on Drug Abuse (NIDA), National Institute of Diabetes & Digestive & Kidney Diseases (NIDDK), National Institute of General Medical Sciences (NIGMS), National Institute of Mental Health (NIMH), and the National Institute of Nursing Research (NINR). Other federal funding sources included the United States Army (US Army), the National Science Foundation (NSF), the National Oceanic & Atmospheric Administration (NOAA), and The U.S. Department of Veterans Affairs (VA).

Investigators with first time NTSBRDF support during 2021-2022

Investigator: Jenni Blackford, PhD
Position, Unit, Department: Professor, Munroe Meyer Institute,
Expertise: Neurobiology of Anxiety, PTSD, and Alcohol Use
External Funding:
Current Funding Total: $1,700,518
Funding sources: DHHS/NIH/NIAAA, DHHS/NIH/NIMH, University of Wisconsin – Madison

Investigator: David Brett-Major, MD, MPH
Position, Unit, Department: Professor, College of Medicine, Epidemiology
Expertise: Infectious Disease & Health Emergency Risk Management
External Funding:
Current Funding Total: $897,124
Funding sources: DHHS/CDC, U.S. Agency for International Development

Investigator: Jason Cook, MD, PhD
Position, Unit, Department: Assistant Professor, College of Medicine, Surgery – Vascular Surgery
Expertise: Bone Metastases, Tumor Immunology and Innate Immunology

Investigator: Satya Rachagani, PhD
Position, Unit, Department: Assistant Professor, College of Medicine, Biochemistry & Molecular Biology
Expertise: Pancreatic Cancer & Inflammatory Bowel Disease
External Funding:
Current Funding Total: $1,495,261
Funding sources: DHHS/NIH/NCI

Investigator: Paul Sorgen, PhD
Position, Unit, Department: Professor, College of Medicine, Biochemistry & Molecular Biology
Expertise: Gap Junction Regulation in Heart Disease
External Funding:
Current Funding Total: $26,632,275
Funding sources: DHHS/NIH/NIGMS

Investigator: Kelly Stauch, PhD
Position, Unit, Department: Assistant Professor, College of Medicine, Neurological Sciences
Expertise: Energy Metabolism in Neurodegenerative Diseases
External Funding:
Current Funding Total: $2,692,316
Funding sources: DHHS/NIH/NIA, Michael J. Fox Foundation, NE. Bankers Association, U.S. Army/USAMRAA/CDMRP

Investigator: Xinglong Wang, PhD
Position, Unit, Department: Professor, College of Medicine, Pharmacology & Experimental Neuroscience
Expertise: Cell Death in Neurodegenerative Diseases
External Funding:
Current Funding Total: $7,280,713
Funding sources: Alzheimer's Association, DHHS/NIH/NIA, DHHS/NIH/NINDS

Investigator: Jae Hyuk Yoo, PhD
Position, Unit, Department: Assistant Professor, College of Medicine, Ophthalmology and Visual Sciences
Expertise: Cellular Mechanisms in Melanoma of the Eyes
External Funding:
Current Funding Total: $494,430
Funding sources: DHHS/NIH/NCI

Investigator: Ying Zhang, PhD
Position, Unit, Department: Professor, College of Public Health, Biostatistics
Expertise: Biostatistics and Data Analysis Methodology
External Funding:
Current Funding Total: $287,752
Funding sources: DHHS/NIH/NICHD, V.A. Medical Center - Indianapolis, V.A. Medical Center – Omaha

Mentors & Mentored Faculty, New Recruits, and Bridge Funding

Investigator: B. Timothy Baxter, MD
Position, Unit, Department: Professor, College of Medicine, Surgery – Vascular
Expertise: Aortic Aneurysms, Causes and Treatments for Aneurysms, Surgical Interventions

Investigator: Jixin Dong, PhD
Position, Unit, Department: Associate Professor, Eppley Institute for Research in Cancer and Allied Diseases
Expertise: Cancer Cell Growth

Investigator: Carrie Marx, PhD
Position, Unit, Department: Professor, College of Pharmacy, Pharmacy Practice and Science
Expertise: Pharmacotherapy Health Services and Outcomes Research

Investigator: Paras Kumar Mishra, PhD
Position, Unit, Department: Associate Professor, College of Medicine, Cellular & Integrative Physiology
Expertise: Mitochondrial Damage, Cell Death, and Cardiac Dysfunction in Diabetes

Investigator: Michael Moulton, MD
Position, Unit, Department: Professor, College of Medicine, Surgery – Cardiothoracic
Expertise: Surgical Interventions in Cardiovascular Disease, Atrial Fibrillation, Left Ventricular Assist Devices

Investigator: Melissa Teoh, PhD
Position, Unit, Department: Associate Professor, College of Medicine, Biochemistry & Molecular Biology
Expertise: Oxidative Tumor Microenvironments

Investigators receiving continuing NTSBRDF support during 2021-2022

Investigator: Hamid Band, MD, PhD
Position, Unit, Department: Professor, Eppley Institute for Research in Cancer and Allied Diseases
Expertise: Breast Cancer & Cancer Cell Signaling
External Funding:
Current Funding Total: $3,354,672
Funding sources: U.S. Army/USAMRAA/CDMRP

Investigator: Surinder Batra, PhD
Position, Unit, Department: Chairperson, College of Medicine, Biochemistry & Molecular Biology
Expertise: Pancreatic Cancer, Development of Diagnostic/Prognostic Markers for Cancer
External Funding:
Current Funding Total: $20,903,093
Funding sources: DHHS/NIH/NCI, U.S. Army/USAMRAA/CDMRP, V.A. Medical Center – Omaha

Investigator: Ken Bayles, PhD
Position, Unit, Department: Professor, College of Medicine, Pathology & Microbiology
Expertise: Antibiotic Development for Resistant Staphylcoccal Disease
External Funding:
Current Funding Total: $35,784,579
Funding sources: Central Intelligence Agency, DHHS/NIH/NIAID, National Strategic Research Institute

Investigator: Jesse Bell, PhD
Position, Unit, Department: Associate Professor, College of Public Health, Environmental, Agriculture & Occupational Health
Expertise: Role of Climate on Human Health
External Funding:
Current Funding Total: $1,722,591
Funding sources: NASA, National Oceanic and Atmospheric Administration, U.S. Department of Commerce

Investigator: Kishor Bhakat, PhD
Position, Unit, Department: Associate Professor, College of Medicine, Genetics, Cell Biology, and Anatomy
Expertise: Epigenetic Diagnostic/Prognostic Biomarkers for Cancer
External Funding:
Current Funding Total: $210,710
Funding sources: DHHS/NIH/NCI, Nebraska DHHS

Investigator: Fabiana Brito, PhD
Position, Unit, Department: Assistant Professor, College of Public Health, Health Promotion
Expertise: Weight Loss and Health Management Research
External Funding:
Current Funding Total: $689,190
Funding sources: DHHS/NIH/NIGMS

Investigator: Keely Buesing, MD
Position, Unit, Department: Associate Professor, College of Medicine, Surgery – Acute Care
Expertise: Delivery of Oxygenated Microbubbles to Improve Oxygenation in Lung Injury and Disease
External Funding:
Current Funding Total: $1,620,702
Funding sources: DHHS/NIH/NHLBI, U.S. Department of Defense

Investigator: Eric Carnes, PhD
Position, Unit, Department: Associate Professor, College of Public Health, Environmental, Agriculture & Occupational Health
Expertise: Nanomaterials, Biosensors, Targeted Delivery of Cancer Therapeutics
External Funding:
Current Funding Total: $1,270,465
Funding sources: National Strategic Research Institute, U.S. Department of Defense

Investigator: Martin Conda Sheridan, PhD
Position, Unit, Department: Associate Professor, College of Pharmacy, Pharmaceutical Science
Expertise: Design and Delivery of Nanodrugs for the Treatment of Cancer and Infectious Diseases
External Funding:
Current Funding Total: $339,014
Funding sources: NSF

Investigator: Becky Deegan, PhD
Position, Unit, Department: Professor, College of Medicine, Biochemistry and Molecular Biology
Expertise: Antioxidant & Free Radical Protection during Radiation Therapy
External Funding:
Current Funding Total: $2,208,658
Funding sources: DHHS/NIH/NCI

Investigator: Kristin Dickinson, PhD
Position, Unit, Department: Assistant Professor, College of Nursing, Omaha Division
Expertise: Targeted Therapies in Leukemias
External Funding:
Current Funding Total: $745,801
Funding sources: DHHS/NIH/NINR

Investigator: Dalia ElGamal, PhD
Position, Unit, Department: Assistant Professor, Eppley Institute for Research in Cancer and Allied Diseases
Expertise: Targeted Therapies in Leukemias
External Funding:
Current Funding Total: $747,000
Funding sources: DHHS/NIH/NCI

Investigator: Charity Evans, MD
Position, Unit, Department: Associate Professor, College of Medicine, Surgery – Acute Care
Expertise: Acute Care Surgery, Trauma Care, Violence Prevention
External Funding:
Current Funding Total: $845,994
Funding sources: City of Omaha, U.S. Department of Justice

Investigator: Alfred Fisher, MD, PhD
Position, Unit, Department: Professor, College of Medicine, Internal Medicine – Geriatrics & Palliative Medicine
Expertise: Biology of Aging, Frailty, and Other Factors that Influence Aging
External Funding:
Current Funding Total: $646,662
Funding sources: DHHS/NIH/NIA

Investigator: Kurt Fisher, MD, PhD
Position, Unit, Department: Assistant Professor, College of Medicine, Pathology & Microbiology
Expertise: GI and Lung Cancers
External Funding:
Current Funding Total: $1,187,910
Funding sources: DHHS/NIH/NCI

Investigator: Stacey Gilk, PhD
Position, Unit, Department: Associate Professor, College of Medicine, Pathology & Microbiology
Expertise: Role of Intracellular Pathogens in Host Cell Lipids and Lipid Metabolism
External Funding:
Current Funding Total: $1,587,915
Funding sources: DHHS/NIH/NIAID

Investigator: Babu Guda, PhD
Position, Unit, Department: Professor, College of Medicine, Genetics, Cell Biology, and Anatomy
Expertise: Bioinformatics and Systems Biology
External Funding:
Current Funding Total: $711,923
Funding sources: DHHS/NIH/NIA

Investigator: Rebekah Gundry, PhD
Position, Unit, Department: Professor, College of Medicine, Cellular & Integrative Physiology
Expertise: Glycoproteomics and Glycomics to Understand Cardiac Biology and Disease
External Funding:
Current Funding Total: $2,889,568
Funding sources: American Heart Association - National, DHHS/NIH/NEI, DHHS/NIH/NHLBI, Juvenile Diabetes Research Foundation International, Medical College of Wisconsin

Investigator: Tony Hollingsworth, PhD
Position, Unit, Department: Professor, Eppley Institute for Research in Cancer and Allied Diseases
Expertise: Pancreatic Cancer
External Funding:
Current Funding Total: $9,677,663
Funding sources: DHHS/NIH/NCI

Investigator: Adam Karpf, PhD
Position, Unit, Department: Professor, Eppley Institute for Research in Cancer and Allied Diseases
Expertise: DNA Methylation Changes in Ovarian Cancer
External Funding:
Current Funding Total: $202,500
Funding sources: DHHS/NIH/NCI, Nebraska DHHS

Investigator: So-Youn Kim, PhD
Position, Unit, Department: Assistant Professor, College of Medicine, Obstetrics & Gynecology
Expertise: Fertility Preservation in Anticancer Therapies
External Funding:
Current Funding Total: $1,283,288
Funding sources: DHHS/NIH/NICHD

Investigator: James Lawler, MD, MPH
Position, Unit, Department: Professor, College of Medicine, Internal Medicine – Infectious Diseases
Expertise: Infectious Disease, Biocontainment & Medical Evacuation Training
External Funding:
Current Funding Total: $1,093,015
Funding sources: DHHS/ASPR, International Medical Corps, NE DHHS

Investigator: Merry Lindsey, PhD
Position, Unit, Department: Professor, College of Medicine, Cellular & Integrative Physiology
Expertise: Cardiovascular Disease
External Funding:
Current Funding Total: $1,806,494
Funding sources: DHHS/NIH/NHLBI, V.A. Medical Center – Omaha

Investigator: Roslyn Mannon, MD
Position, Unit, Department: Professor, College of Medicine, Internal Medicine – Nephrology
Expertise: Kidney Transplantation
External Funding:
Current Funding Total: $1,804,179
Funding sources: DHHS/NIH/NIAID, DHHS/NIH/NIDDK, V.A. Medical Center – Omaha

Investigator: Karoly Mirnics, MD
Position, Unit, Department: Director, Munroe Meyer Institute,
Expertise: Molecular Neurobiology of Brain Diseases
External Funding:
Current Funding Total: $4,689,775
Funding sources: DHHS/HRSA, DHHS/NIH/NIMH

Investigator: Wasim Nasser, PhD
Position, Unit, Department: Associate Professor, College of Medicine, Biochemistry and Molecular Biology
Expertise: Brain Metastasis, Breast Cancer, and Lung Cancer
External Funding:
Current Funding Total: $3,507,274
Funding sources: DHHS/NIH/NCI

Investigator: Amar Natarajan, PhD
Position, Unit, Department: Professor, Eppley Institute for Research in Cancer and Allied Diseases
Expertise: Small Molecule Probes, Cancer Therapeutics
External Funding:
Current Funding Total: $3,104,335
Funding sources: DHHS/NIH/NCI, DHHS/NIH/NIAID, Nebraska DHHS

Investigator: David Oupicky, PhD
Position, Unit, Department: Professor, College of Pharmacy, Pharmaceutical Science
Expertise: Polymers & Nanoparticles for Delivery of Drugs & Genes
External Funding:
Current Funding Total: $9,285,190
Funding sources: DHHS/NIH/NCI, DHHS/NIH/NIAAA, DHHS/NIH/NIDDK, DHHS/NIH/NIGMS

Investigator: Aimin Peng, PhD
Position, Unit, Department: Professor, College of Dentistry, Oral Biology
Expertise: Cell Cycle Regulation & DNA Damage Response in Human Cancers
External Funding:
Current Funding Total: $1,461,457
Funding sources: DHHS/NIH/NCI, DHHS/NIH/NIDCR

Investigator: Armen Petrosyan, MD, PhD
Position, Unit, Department: Associate Professor, College of Medicine, Biochemistry & Molecular Biology
Expertise: Prostate Cancer
External Funding:
Current Funding Total: $1,372,500
Funding sources: DHHS/NIH/NIAAA

Investigator: Iraklis Pipinos, MD, PhD
Position, Unit, Department: Professor, College of Medicine, Surgery – Acute Care
Expertise: Regenerative Medicine, Peripheral Arterial Disease, Repair of Skeletal Muscle Tissue in the Extremities
External Funding:
Current Funding Total: $3,155,515
Funding sources: DHHS/NIH/NHLBI, DHHS/NIH/NIA, DHHS/NIH/NICHD

Investigator: Jill Poole, MD
Position, Unit, Department: Professor, College of Medicine, Internal Medicine – Allergy and Immunology
Expertise: Inflammatory Airway Disease in Environmental Dust Exposure
External Funding:
Current Funding Total: $7,151,799
Funding sources: DHHS/CDC/NIOSH, DHHS/NIH/NIEHS, U.S. Army/USAMRAA/CDMRP

Investigator: Prakash Radhakrishnan, PhD
Position, Unit, Department: Associate Professor, Eppley Institute for Research in Cancer and Allied Diseases
Expertise: Glycobiology, Cell Signaling, and Therapeutics in Pancreatic Cancer
External Funding:
Current Funding Total: $1,692,802
Funding sources: DHHS/NIH/NCI

Investigator: Don Ronning, PhD
Position, Unit, Department: Professor, College of Pharmacy, Pharmaceutical Science
Expertise: Tuberculosis, Development of Anti-Infective Compounds
External Funding:
Current Funding Total: $1,930,522
Funding sources: DHHS/NIH/NIAID

Investigator: Jordan Rowley, PhD
Position, Unit, Department: Assistant Professor, College of Medicine, Genetics Cell Biology and Anatomy
Expertise: Mechanisms Behind the 3D Organization of DNA
External Funding:
Current Funding Total: $747,000
Funding sources: DHHS/NIH/NIGMS

Investigator: Lisa Rucks, PhD
Position, Unit, Department: Associate Professor, College of Medicine, Pathology & Microbiology
Expertise: Growth & Development of Chlamydia
External Funding:
Current Funding Total: $3,300,927
Funding sources: DHHS/NIH/NIAID

Investigator: Derrick Samuelson, PhD
Position, Unit, Department: Assistant Professor, College of Medicine, Internal Medicine – Pulmonary
Expertise: Role of Microbiome in Defense Against Respiratory Pathogens
External Funding:
Current Funding Total: $1,546,447
Funding sources: DHHS/NIH/NIAAA, DHHS/NIH/NIDDK

Investigator: Steven Sansom, PhD
Position, Unit, Department: Professor, College of Medicine, Cellular & Integrative Physiology
Expertise: Protein Regulation in Diabetes & Hypertension
External Funding:
Current Funding Total: $99,125
Funding sources: DHHS/NIH/NIDDK

Investigator: Alicia Schiller, PhD
Position, Unit, Department: Assistant Professor, College of Medicine, Anesthesiology
Expertise: Human Physiology, Combat Casualty Medicine
External Funding:
Current Funding Total: $317,214
Funding sources: US Army-Tripler Army Medical Center

Investigator: Amar Singh, PhD
Position, Unit, Department: Professor, College of Medicine, Biochemistry and Molecular Biology
Expertise: Molecular Mechanisms of Inflammatory Bowel Disease and Colon Cancer, Renal Pathobiology
External Funding:
Current Funding Total: $1,634,253
Funding sources: DHHS/NIH/NIDDK, South Dakota State University, V.A. Medical Center – Omaha

Investigator: Pankaj Singh, PhD
Position, Unit, Department: Associate Professor, Eppley Institute for Research in Cancer and Allied Diseases
Expertise: Systems Biology and Cancer Metabolism
External Funding:
Current Funding Total: $9,061,045
Funding sources: DHHS/NIH/NCI

Investigator: Paul Trippier, PhD
Position, Unit, Department: Associate Professor, College of Pharmacy, Pharmaceutical Science
Expertise: Small Molecule Drug Discovery for Cancer & Neurodegenerative Diseases
External Funding:
Current Funding Total: $3,347,900
Funding sources: DHHS/NIH/NCI, DHHS/NIH/NIA, DHHS/NIH/NICHD, DHHS/NIH/NINDS, Glebe Medical Research Foundation

Investigator: Sowmya Yelamanchili, PhD
Position, Unit, Department: Associate Professor, College of Medicine, Anesthesiology
Expertise: Extracellular Vesicles, Drug Delivery, Nicotine Abuse
External Funding:
Current Funding Total: $3,651,942
Funding sources: DHHS/NIH/NIDA, Nebraska DHHS

Research Program and Infrastructure Development

A total of $3,138,786 (37.2%) was invested in research program and infrastructure development in 2021-22. Additionally, $170,412 was spent on pilot grants to spur joint research programs between University of Nebraska–Lincoln, University of Nebraska at Omaha, and University of Nebraska Medical Center faculty. Infrastructure support included animal facilities support, research core laboratories, grant management, and educational, training and compliance programs for NIH-funded scientists. This investment in infrastructure directly supports the work of UNMC's nationally recognized scientists.

Examples of infrastructure supported by these funds include support of the Comparative Medicine department for animal facility equipment and program development. Additional investments were made for translational core facilities such as the development of a Biosafety Level Three facility that supports infectious disease research, and expanded access to biomedical informatics resources—an increasingly critical component of science and discovery. Core facilities are

essential for the success of our NIH funded Centers such as the Nebraska Center for Nanomedicine, the Center for Heart & Vascular Research, and the Fred & Pamela Buffett Cancer Center. They also provide services to investigators across the region.

NTSBRDF supports new software development and implementation to facilitate access of our scientists to management, educational, and other software applications to increase research efficiency and decrease the risk of non-compliance.

Joint programs between other NU System campuses and UNMC included funding for the following project areas:

Nebraska Center for the Prevention of Obesity Diseases (NPOD)

- Rebekah Gundry - Glycan Signatures as mechanistic markers of beta cell injury in diabetes
- Paras Kumar Mishra - Nebraska Center for the Prevention of Obesity Diseases through Dietary Molecules
- Rebecca Deegan - Understanding the mechanism of obesity-induced radiation damage

Science Engineering & Medicine (SEM)

- Elizabeth Wellsandt - Mobile, Biosensor Technology for Measuring Joint-Level Human Motion

Minority Health and Health Disparities Research and Mentor Programs

In 2021-22, UNMC invested $487,636 in minority health and health disparities by supporting UNMC's Center for Reducing Health Disparities (CRHD), investing in pilot projects for health disparities research, and mentoring through student success engagement and the recruitment of diversity students for the Summer Undergraduate Research Program (SURP) from disadvantaged backgrounds.

The Center for Reducing Health Disparities (CRHD) at the UNMC College of Public Health is focused on maintaining close partnerships with underserved communities—especially low-income, minority communities—and other stakeholders throughout Nebraska to identify, prioritize, and then develop and implement evidence-based health promotion programs and to conduct health disparities research. The Center works with faculty from across UNMC and other University of Nebraska campuses to develop research protocols that are community, cultural, and linguistically competent. The Center assists as a primary partner with faculty and departments in the development stage of research proposals. NTSBRDF supported in part faculty and staff at the center who worked on 26 research projects, received 7 new grants, authored 47 peer-reviewed publications, and hosted two health fairs serving over 200 local residents. Center members offered two graduate level courses and provided 18 educational presentations and guest lectures. The CRHD Annual Report gives more details about the research and activities of the Center (https://go.unmc.edu/7p8w).

An investment of $81,776 was made in health disparities research pilot projects which this year focused on the following:

> **Project Title:** Optimizing Community Efforts to Improve Physical Activity in Aging Hispanic/Latino Adults
> **Principal Investigator:** Athena Ramos, PhD, Assistant Professor, College of Public Health

Project Title: Changing Health for African American Men with New and Great Experiences (CHANGE)
Principal Investigator: Keyonna King, DrPH, Assistant Professor, College of Public Health

Project Title: Peer Recovery Coaches to Help Native Americans Recovering from Addiction
Principal Investigator: Nicholas Guenzel, PhD, RN, APRN-NP, Assistant Professor, College of Nursing

Student success and engagement focuses on programs to identify and encourage undergraduate students from disadvantaged backgrounds interested in health professions or health research graduate education to pursue their goals and consider attending programs at UNMC. Participating students conduct research with mentors for two summers. Students become members of actively funded UNMC research teams for 10 weeks each summer during which they develop technical laboratory skills, expand their scientific knowledge base, analyze data, document results, participate in team meetings, attend research weekly seminars, and then present their work at the end of summer research poster session with all the other summer undergraduate students. They learn about career paths, interviewing skills, balancing the stresses of graduate training and personal life, and visit with successful role models. The Summer Undergraduate Research Program (SURP) annually selects undergraduate students to participate in enrichment seminars and experiential learning to expand their scientific knowledge and gain an understanding of health care research options. A total of $46,155 was invested in these programs.

Faculty from diverse backgrounds also bring diverse perspectives to their science and research and help create a welcoming environment for students considering health professions and graduate training in our programs.

UNIVERSITY OF NEBRASKA AT OMAHA
Nebraska Tobacco Settlement Biomedical Research Development Fund (NTSBRDF)

Year 21: July 1, 2021–June 30, 2022
Progress Report

Executive Summary

This is the second year the University of Nebraska at Omaha (UNO) received Nebraska Tobacco Settlement Biomedical Research Development (NTSBRDF) funding, and we expect it will continue to boost our biomedical research portfolio. The UNO investment of NTSBRDF dollars is concentrated in these areas:

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

During 2021-22, UNO allocated $247,529.08 in NTSBRDF funds as follows:

- $202,441.23 in strategic recruitment of new research faculty or retention of ten meritorious researchers.
- $123,464.84 in program and other infrastructure development, such as essential laboratory equipment and core development support.

The NTSBRDF funding received during FY22 was critical to the recruitment and retention of ten outstanding scientists who conduct biomedical research. Overall, 47.5% of the total FY22 funds, $117,547.30, were used for the recruitment or retention of a faculty member who is an under-represented minority. In addition, the funds were used to enhance vital infrastructure necessary to support biomedical research at UNO.

Strategic Faculty Recruitment & Retention

With the NTSBRDF funding, UNO was able to supplement start-up packages for ten faculty members with a total of $202,441.23 in funding. Although the NTSBRDF investment in new faculty recruits was relatively modest, these funds were strategically invested in researchers who are seeking funding from the NIH, NSF, and other external funding agencies. Given that UNO has only recently had access to the NTSBRDF, we are at the very early stages of developing a strategy to leverage these funds to enhance our biomedical research portfolio. We are developing a strategic communication plan to advertise and encourage applications for NTSBRDF funds going forward. The impact of these investments remains to be determined.

Investigators with first time NTSBRDF support during 2021 – 2022

Investigator: Ada-Rhodes Short, PhD
Position Title & Department: Assistant Professor in the School of Interdisciplinary Informatics, Information Technology and Innovation (ITIN), College of Information Science & Technology
Expertise: My research uses computational cognition to model decision-making in complex

systems facing risk. Currently, my emphasis is on command and control decisions in planetary exploration rovers and the automation of high density vertical farming to improve space exploration and combat food deserts terrestrially.
External Funding:

Current Funding Total: $132,000
Proposals Pending: Currently preparing a $150,000 NASA Human Research Program Omnibus Opportunity proposal
Funding Sources: NASA Nebraska, National Strategic Research Institute Independent Research and Development

Investigator: Martina Clarke, PhD
Position Title & Department: Assistant Professor, School of Interdisciplinary Informatics
Expertise: Health Informatics
External Funding:

Current Funding Total: $141,189
Funding Sources: Union Pacific

Investigator: Chun-Hua Tsai, PhD
Position Title & Department: Assistant Professor in the Department of Information Systems and Quantitative Analysis (ISQA), College of Information Science & Technology, University of Nebraska at Omaha
Expertise: The intersection of Human-Computer Interaction (HCI), Intelligent User Interface (IUI), and Artificial Intelligence (AI). His work seeks to develop fair, trustworthy, transparent AI using the data-driven and human-centered computing (HCC) approaches, particularly for recommender systems, healthcare systems, and social media.
External Funding:

Current Funding Total: $181,787
Proposals Pending: $750,000
Funding Sources: NSF, Nebraska University (NU) Collaboration Initiative

Investigator: Jonathan Clayton, DVM, PhD
Position Title & Department: Assistant Professor, Biology
Expertise: Microbiology and Microbial Ecology, host-microbiome interactions in humans and nonhuman primates, food science and technology
External Funding:

Current Funding Total: $646,359
Proposals Pending: $342,048
Funding Sources: NIH

Investigator: Joel Elson, PhD
Position Title & Department: Assistant Professor of IT Innovation, School of Interdisciplinary Informatics, College of IS&T
Expertise: Human trust in computer mediated interactions, Eye-tracking and neurophysiological measures, Psychometric Assessment
External Funding:

Proposals Pending: $1.25 Million (500k & 750k)
Funding Sources: Two NIH proposals in development.

Investigator: Majid Jadidi, PhD
Position Title & Department: Assistant Professor, Department of Biomechanics
Expertise: Cardiovascular Biomechanics

External Funding:

Current Funding Total: $39,841 (Nebraska Research Foundation) $8,920 (AngioDynamics, industry funding)

Proposals Pending: $197,960 (NSF), $86,500 (NIH)

Funding Sources: Nebraska Research Foundation, AngioDynamics, industry funding, NSF, NIH

Investigators receiving continuing NTSBRDF support during 2021-2022

Investigator: Spyridon Mastorakis, PhD
Position Title & Department: Assistant Professor, Computer Science
Expertise: Edge computing, computer networks, cybersecurity, Internet of Things
External Funding:

Current Funding Total: $629,653
Proposals Pending: $1,830,129
Funding Sources: NSF, NIH

Investigator: Yury Salkovskiy, PhD
Position Title & Department: Assistant Professor, Department of Biomechanics
Expertise: nanomaterials, biomechanics
External Funding:

Current Funding Total: $41,703
Proposals Pending: $199,472
Funding Sources: NSF

Investigator: Erik J. Garcia, PhD
Position Title & Department: Assistant Professor, Psychology Department, Neuroscience and Behavior
Expertise: Neuropsychopharmacology of Substance Use Disorders, preclinical models of substance use, behavioral economics, and animal behavior
External Funding:

Current Funding Total: $25,000
Proposals Pending: $2,013,335
Funding Sources: University of Nebraska-Lincoln RDAR, NIH

Research Program and Infrastructure Development

In FY22, a total of $123,464.84 in NTSBRDF funds were invested in research program and infrastructure development to support UNO faculty in their competitiveness for external funding for biomedical research, maintain certifications, and continue essential support to campus research operations, such as IACUC IT, EHS, and IRB Support. $21,126.02 was used to contribute to the purchase of an essential machine, to maintain accreditations and continue important research activities in Dr. Paul Denton's laboratory. Paul Denton, PhD, is an Assistant Professor in the Depart of Biology. His research interests include the incorporation of immunotherapies into oncology treatments. His research group focus on improving immunotherapies to treat malignancies. With the NTSBRDF, UNO contributed to the purchase of a machine, critical to the continuation of these important research activities in the Immunobiology laboratory. In 2021-2022, a total of $78,376.99 is directed at the Animal Care and Use Program (ACUP) that oversee our research animal program. Recently established, UNO would like to continue maintaining a state-of-the-art facility to conduct animal research. In conjunction with other funding provided by the University of Nebraska, we are using NTSBRDF

to cover a portion of the overall equipment, renovations, construction, and design of the space needed.

Minority Health and Health Disparities Research and Mentor Programs

In 2021-2022, $50,000 was used for research that addresses the health needs of underserved racial and ethnic minorities in Nebraska and across the U.S. This project supports research conducted by the Minority Health Disparities Initiative, which focuses on advancing scientific research, data integration, policy, practice, and training related to health issues experienced by minority populations in Nebraska and the nation. These efforts address the goal to identify and eventually eliminate race- and ethnicity-based health disparities in Nebraska and throughout the U.S.

Project Title: Mitigating substance use disorders
Principal Investigator: Erik Garcia, PhD
Description: This research aims to understand individual-level predictors that govern the transition to compulsive drug use and identify the traits that contribute to the development of substance use disorders. It employs preclinical models and the principles of operant and Pavlovian conditioning to model human substance use to reveal the neurobiological mechanisms that drive the development of substance use. For example, recent research has focused on opioid use disorder and novel medication development within a behavioral economic framework to rapidly characterize therapeutic candidates. This work aims to bridge the gap between preclinical discoveries and meaningful clinical outcomes in the effort to aid people in their path toward substance use recovery.

UNIVERSITY OF NEBRASKA-LINCOLN
Nebraska Tobacco Settlement Biomedical Research Development Fund (NTSBRDF)

Year 21: July 1, 2021–June 30, 2022
Progress Report

Executive Summary

UNL's goal for the NTSBRDF program is to leverage this investment to increase the university's biomedical research capacity in terms of human resources, cutting-edge research equipment and external research funding. In the 21 years of NTSBRDF funding, UNL's biomedical research capacity has grown continuously to address the needs of the state of Nebraska and the nation. This fund has enabled UNL researchers to contribute knowledge and technical advancements required to prevent, diagnose and treat disease, ultimately leading to the improved health of Nebraskans and stimulating economic development and employment opportunities in the state.

UNL has invested NTSBRDF funds in four main areas:

- **Strategic Faculty Recruitment and Retention:** UNL has recruited and/or retained a group of faculty members whose research aligns closely with the university's strategic priorities in disease prevention and treatment. These faculty either transfer strong externally funded research programs to UNL or have a high potential for achieving rapid research success as evidenced by the acquisition of new funding. This investment in human resources is a highly effective means of increasing biomedical research capacity and often provides the most immediate return.
- **Research Program and Infrastructure Development:** UNL has employed NTSBRDF funds to strengthen existing research programs and increase their competitiveness for external awards that support major interdisciplinary research programs aligned with UNL's research priorities in biomedicine.
- **Minority Health Research Grants:** These research investments specifically address issues of importance to the health of Nebraska's minority populations.
- **Joint Research Programs:** These programs bring together UNL and other NU System faculty to collaboratively address complex biomedical research problems. Each institutional partner contributes unique expertise to find solutions in ways that would not be possible if each entity were working alone.

In 2021-2022, UNL invested a total of $2,766,914 from the NTSBRDF, including an allocation of $502,165 for two faculty hires and one faculty retention; $1,296,425 to support research programs and infrastructure development; $868,324 for grants to researchers addressing minority health disparities in Nebraska; and $100,000 for two joint UNL/UNMC research projects.

As has been the case in previous years, these investments have made a great impact on UNL's research climate and productivity and leveraged a total of $42,871,566 in external funding in 2021-2022 – an impressive return on investment that speaks to the value of the investment UNL has made in building biomedical research excellence.

Strategic Faculty Recruitment and Retention

Introduction: In 2021-2022, UNL invested $502,165 of NTSBRDF funds to expand faculty expertise into new areas of biomedical research that have a strong likelihood of increasing the university's base of externally funded research programs of interest to the National Institutes of Health, other federal agencies (e.g., Centers for Disease Control and Prevention and National Science Foundation) and private agencies (e.g., American Heart Association and American Cancer Society). These funds also made it possible to hire or retain three faculty members at the assistant and associate professor levels. Their research will focus on improving human health and well-being. As an example, one faculty member uses advanced immunological and biochemical techniques to develop more effective and safer vaccines. Another faculty member will examine factors affecting interpersonal violence and sexual assault as well as their consequences. The investments in new faculty hires and the retention of current faculty resulted in the transfer or acquisition of new research awards totaling $29,166,131 in 2021-2022.

Investigator: Eric Weaver, Ph.D.
Position Title & Department: Associate Professor, School of Biological Sciences
Expertise: In his research program, Dr. Weaver uses bioinformatics, immunology and molecular biology to ultimately create improved vaccines against microbial diseases. His work exploits systems biology approaches to improve the breadth and efficacy of vaccine antigens; it also explores the use of alternative viral vectors for the development of safer, more effective viral vaccine platforms.
External Funding:
Active: $2,366,538
Proposals Pending: $6,957,714
Funding Source: NIH

Investigator: Katie Edwards, Ph.D.
Position Title & Department: Associate Professor, Department of Educational Psychology
Expertise: Dr. Edwards' research focuses broadly on better understanding the causes and consequences of interpersonal violence, primarily intimate partner violence, and sexual assault among adolescents and emerging adults. Her current program of study explores factors that facilitate or hinder bystander action in situations of intimate partner violence and sexual assault using an approach based in participatory action principles, researcher-practitioner collaborations and student engagement.
External Funding:
Active: $3,243,060
Proposals Pending: $7,629,230
Funding Sources: NIH, Department of Justice

Investigator: Yihe Huang, Ph.D.
Position Title & Department: Assistant Professor, Department of Biochemistry
Expertise: Dr. Haung uses electron cryo-microscopy, pharmacology and preclinical animal models to examine the structural mechanisms of transmembrane signaling and therapeutic molecules targeted at neurogenesis and regeneration of cells. The long-term goal of this research is to understand the specificity and selectivity of the signals that govern development and regeneration with a view toward treating developmental and degenerative diseases.
External Funding:
Active: $0
Proposals Pending: $302,387
Funding Sources: NIH

Research Program and Infrastructure Development

Introduction: In 2021-2022, a total of $1,296,425 in NTSBRDF funds were invested in research program and infrastructure development to support UNL faculty competitiveness for external funding for biomedical research. These investments leveraged $28,776,886 in new external funding for biomedical research in 2021-2022. Areas of investment include the development and support of novel research programs with the potential to improve human health and enhance UNL infrastructure to conduct biomedical research. The projects are broadly focused on brain, biology, behavior and cognition; structural biology of large proteins to understand integrated biomolecular communication; immunology, virology and better vaccine development; understanding gut-brain axis, early attachment and later psychosocial development; importance of exosomes in mother's milk for healthy development; muscle development and the role of microRNA. Some projects are collaborations with investigators at other NU System institutions, confirming UNL's commitment to leverage human and other Nebraska resources in conducting innovative biomedical research that requires highly skilled interdisciplinary teams.

Project Title: Glacios Cryo Transmission Electron Microscope
Principal Investigator: Mark Wilson, Ph.D.
Description: UNL purchased and renovated a space to house a Glacios 200 keV cryo-transmission electron microscope (cryo-TEM), which will establish a new cryo-TEM core facility in Nebraska upon instrument delivery in winter 2022. The new microscope will include a Selectris energy filter, Falcon 4i direct detector and micro-electron diffraction stage with Ceta-D detector. Establishment of this new research capability and facility is a significant step forward in support of structural and systems biology research in the NU system and has the potential to help make NU a regional leader and hub in this area. The new instrumentation is particularly tied to and will help support efforts in the Nebraska Center for Integrated Biomolecular Communication, a National Institutes of Health-funded Center of Biomedical Research Excellence (CoBRE).

Project Title: Center for Brain, Biology and Behavior Neuroimaging and Salivary Bioscience Research
Principal Investigator: Cary Savage, Ph.D.
Description: The Center for Brain, Biology and Behavior (CB3) is an interdisciplinary research center established to investigate the social, biological, behavioral, engineering and neurological issues related to human performance and development. Investments were made to support center leadership to further research in these areas.

Project Title: NanoAnalyzer Instrumentation
Principal Investigator: Angie Pannier, Ph.D.
Description: The NanoAnalyzer instrument produced by NanoFCM Inc is a flow cytometry instrument designed specifically for natural and synthetic nanoparticles that are too small to analyze using conventional flow cytometry instruments. Using light-scattering and fluorescence detection, the NanoAnalyzer can acquire high-resolution distributions of particle size and other biochemical properties simultaneously with run-times of only 1-2 minutes. Therefore, the NanoAnalyzer can be an important tool to characterize synthetic polymer- and lipid-based nanomedicines, viruses, bacteria and extracellular vesicles. The NanoAnalyzer will be an important new tool for many UNL researchers studying and engineering nanoparticles, particularly in the quickly growing field of extracellular vesicles.

Project Title: Attachment Security and the Gut-Brain Axis: A Nationwide Sample
Principal Investigator: Patty Kuo, Ph.D.
Description: This project will fill a critical scientific gap in the parental attachment field. There is a need to identify the developmental consequences of attachment security to multiple parents in early childhood, along with the link between the gut-brain axis, early attachment security and later psychosocial development.

Project Title: Milk Exosomes Enhance the Gut-Brain Axis
Principal Investigator: Janos Zempleni, Ph.D.
Description: Exosomes in mother's milk are believed to select for gut bacteria and contribute biomaterials conducive to optimal brain function in infants. To better understand the role of milk exosomes and their molecular cargo for infant health, this project will assess the relationship among milk exosomes, the gut microbiome and brain function in a host organism.

Project Title: Nebraska Center for Virology
Principal Investigator: Eric Weaver, Ph.D.
Description: This project provides support for the director of the Nebraska Center for Virology. The director leads activities to build interdisciplinary research teams, enhance research collaborations and augment competitiveness of NCV faculty for extramural funding related to important animal, human or plant viruses.

Project Title: Inhibition of miRNA-mediated Gene Repression During Skeletal Muscle Adaptation **Principal Investigator:** Ivan Vechetti, Ph.D.
Description: This project will fill a notable gap in the adult skeletal muscle field by developing and validating a mouse model to assess the role of muscle-specific microRNAs in contributing to muscle mass. In doing so, the molecular pathways associated with the inhibition of miRNA function can be studied in a manner that informs strategies related to maintaining muscle mass and function.

Project Title: Faculty Development in Biomedical Sciences
Description: This program allows the university to host faculty workshops led by nationally recognized grant-writing consultants, enhancing UNL's competitiveness for federal funding.

Minority Health Research Grants

Introduction: A total of $868,324 was invested in projects to address the health needs of underserved racial and ethnic minorities in Nebraska, the Great Plains, and across the U.S. These projects support research conducted by the Minority Health Disparities Initiative and the to-be-established Sexual Violence Prevention Center (SPVC). Through integrative community-based approaches, these projects advance scientific research, policy, practice and training related to health issues experienced by minority populations in Nebraska and the region. These efforts address the goal to identify, understand and eventually eliminate race- and ethnicity-based behavioral health disparities in Nebraska and throughout the U.S.

Project Title: Establishment and Evaluation of an Indigenous-led Center to Prevent Sexual Violence among Indigenous Youth across the U.S.
Principal Investigator: Katie Edwards, Ph.D.
Description: The ultimate objective of this project is to eradicate sexual violence among and against Native Americans. To this end, this project will establish a Sexual Violence Prevention Center (SPVC). Specific objectives of the project include: 1) Establish the SVPC and implement IMpower (i.e., a validated sexual violence prevention program) on the Pine Ridge Indian Reservation. 2) Document the establishment of the center and program implementation via a participatory action, youth-led documentary that highlights the strengths and resilience of Native peoples. 3) Culturally adapt and implement regionally IMpower on two other Indian reservations and in three urban areas. 4) Conduct a rigorous, mixed methodological outcome and process evaluation of the initiative to document impact. 5) Widely disseminate project findings to diverse audiences including researchers, practitioners and policymakers, as well as facilitate national trainings and webinars. 6) Secure diverse funding sources to sustain and expand the SVPC.

Project Title: Minority Health Disparities Initiative
Principal Investigators: Rick Bevins, Ph.D. & Arthur (Trey) Andrews III, Ph.D.
Description: The MHDI sponsors a number of mission-specific functions, including visiting speakers (selected and hosted by faculty affiliates [virtual this year]), a conversation series led by faculty affiliates and community members, an annual conference co-sponsored with NE DHHS Office of Health Disparities and Health Equity, work with a community board on strategic planning, a summer National Science Foundation-funded Research Experiences for Undergraduates program (research mentored by affiliated faculty), and undergraduate research assistant support for MHDI faculty. It also provides community outreach and project management for research and evaluation projects by MHDI-affiliated faculty. In the last fiscal year, MHDI-affiliated faculty assisted in preparing and submitting grant proposals totaling approximately $60 million in direct costs.

Joint Research Projects

Introduction: UNL and UNMC faculty often offer complementary research expertise to address biomedical problems that cannot be solved alone by individual investigators from either institution. To facilitate team building and preliminary data acquisition across the two institutions, a total of $100,000 in NTSBRDF funds were used to support two projects from teams that include UNL and other NU System researchers.

Project Title: Multimodal Biosensor for Home Diagnostic Use
Principal Investigator: Eric Markvicka, Ph.D.
Description: The primary objective of this project is to rigorously test the usability of a wearable device developed by this multidisciplinary team for remote monitoring the health status of individuals living in rural communities, which have higher percentages of underserved populations. The project will evaluate the reliability over months and develop support materials that allow nearly unsupervised ‘at-home’ use to help these individuals with limited access to the healthcare system.

Project Title: Analysis of Mitochondrial Dysfunction in HADHA-mutant Cardiomyocytes
Principal Investigator: Sathish Natarajan, Ph.D.
Description: Some children are born with an inability to digest fats or fatty acids as an energy source, resulting in severe heart disease and poor performance during physical activity because they are unable to convert fats to energy in the heart. This research team will study a preclinical animal model that permits a closer examination of a key defective enzyme that contributes to this heart disease and may also cause problems in the liver and brain. Specifically, this team will measure cardiolipin (a heart-enriched lipid) and mitochondrial (energy-producing organelle) function to determine the impact the defective enzyme has on them.

UNIVERSITY OF NEBRASKA AT KEARNEY
Nebraska Tobacco Settlement Biomedical Research Development Fund (NTSBRDF)

Year 21: July 1, 2021 – June 30, 2022
Progress Report

Executive Summary

This year marks the second year for UNK to directly receive a share of state funding from NTSBRDF. UNK's goal for the NTSBRDF program for the 2021-2022 FY was to increase the number of NIH grant submissions at the R15 level or higher from its faculty through a combination of direct support for grant writers and through leveraging funds from the program with other core funding to enhance the capital research infrastructure at UNK. One primary goal was to repeat the grant-writing workshop funding as was done the previous fiscal year; however, holding the workshop was not possible due to prior commitments from the lead presenter. All the funding for FY 2022 was allocated within the Research Program and Infrastructure Development area. **In 2021-2022, UNK invested a total of $68,905** from the program with about 38% of the funding for direct support of faculty biomedical research and the remainder to capital equipment purchase and maintenance. Grant submissions from the FY 2021 grant-writing group have resulted in $655,952 in grant funding to UNK comprised of $394,781 in NIH awards direct to UNK and $261,171 in subawards to UNK from a UNMC R01 grant.

Research Program and Infrastructure Development

A total of $68,905 was invested in research program and infrastructure development in 2021-2022. Of that amount $26,133 was invested to support biomedical research pilot projects investigating the effects of learning new languages on dementia and on assessing health and hearing loss in aging agricultural workers.

Funds totaling $42,773, were invested in capital equipment and repairs in the biochemistry and molecular biology areas in the Chemistry and Biology Departments at UNK, respectively.

Name	Dept	Title
Ghazi- Saidi, Ladan, PhD	Communication Disorders	Research Support: "Fighting Dementia: Clinical Translational effects of learning a new language" ($13,680)
Moore, Jan, PhD	Communication Disorders	Research Support: "Hearing Loss, Mobility, and Fall Risk in Aging Agricultural Workers" ($12,452.90)

Moxley, Michael, PhD	Chemistry	Capital Equipment: Hybrid Multi-mode Plate Reader ($26,955)
Sui, Yipeng, PhD	Biology	Capital Equipment: Eppendorf 5804R Refrigerated Benchtop Centrifuge ($9444.60)
Kim Carlson, PhD	Biology	Centrifuge Service ($970.46); Inverted Microscopy Repair and Training ($5402.47)

From the FY2021 allocation, we funded a grant writing workshop for 10 participants. Six of the ten have submitted grant requests to NIH or other biomedical research funding agencies. One NIH R15 grant in the amount of $394,781 was award to Dr. Allen Thomas and one subaward of $246,171 from a UNMC R01 grant (PIs Jana Broadhurst and Russell James McCulloh) was awarded to Dr. Michelle Warren as Co-Investigator. Both grants are related to the work developed during the grant workshop. In addition, Dr. Michael Moxley was awarded funds from FY 2022 for the purchase of a plate reader. He is a co-Investigator on the R15 grant to Dr. Thomas detailed above.

In just two years of allocations from the Nebraska Tobacco Settlement Biomedical Research Development Fund, UNK has seen a return on investment of 2.7:1 which rises to 4.5:1 if the subaward is included.

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

Year 21: July 1, 2021-June 30, 2022
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 & Health Disparities Research Programs

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 2021-2022, the collective efforts of the research investigators at Creighton University produced significant results. Creighton University received nearly $32 million in extramural research awards and sponsored projects. Investigators were awarded federal grants from the Department of Defense, National Institutes of Health, and Office of Naval Research, 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 and Retention

A total of $826,477 was invested in strategic recruitment and retention of faculty at Creighton University. The NTSBRDF provided us the opportunity to expand on existing centers of excellence and develop new avenues of biomedical research. The new faculty have already contributed to the Creighton University research portfolio by obtaining new extramural awards totaling $6,698,336 during this reporting period. These new awards are from agencies such as the National Institutes of Health, Department of Defense, Office of Naval Research, and the Cystic Fibrosis Foundation.

Investigator: Peter Steyger, PhD
Position Title & Department: Professor and Director, Translational Hearing Center, School of Medicine, Department of Biomedical Sciences
Project Title: Mechanism and Clinical Risk of Drug-Induced Hearing Loss

External Funding:
Current Year Funding Total: $3,437,336
Funding Sources: NE-DHHS, NIH, Cystic Fibrosis Foundation

Investigator: Jian Zuo, PhD
Position Title & Department: Professor & Chair, School of Medicine, Department of Biomedical Sciences
Project Title: Neurodegeneration, Function, Regeneration and Protection of Sensory Hair Cells in the Inner Ear
External Funding:
Current Year Funding Total: $1,289,927
Funding Sources: NE-DHHS, NIH, DOD, ONR

Investigator: Brian North, PhD
Position Title & Department: Assistant Professor, School of Medicine, Department of Biomedical Sciences
Project Title: Role of Protein Homeostasis Factors in Regulating the Interrelationship Between Aging and Cancer
External Funding:
Current Year Funding Total: $679,525
Funding Sources: NE-DHHS, NIH

Investigator: Jee-Yeon Hwang, PhD
Position Title & Department: Assistant Professor, School of Medicine, Department of Pharmacology & Neuroscience
Project Title: Profiling of Altered Genes Examining their Role in Neurodegeneration
External Funding:
Current Year Funding Total: $199,482
Funding Sources: NE-DHHS, NIH

Investigator: Tejbeer Kaur, PhD
Position Title & Department: Assistant Professor, School of Medicine, Department of Biomedical Sciences
Project Title: Biological Mechanisms of Neurodegeneration and Endogenous Repair
External Funding:
Current Year Funding Total: $638,224
Funding Sources: NE-DHHS, NIH

Investigator: Kelley Hammond, PhD
Position Title & Department: Assistant Professor, College of Arts & Sciences, Department of Exercise Science & Pre-Health Professions
Project Title: Muscle Physiology Research
External Funding:
Current Year Funding Total: $85,805
Funding Sources: NE-DHHS

Investigator: Mitch Magrini, PhD
Position Title & Department: Assistant Professor, College of Arts & Sciences, Department of Exercise Science & Pre-Health Professions
Project Title: Non-Invasive Assessment of Neuromuscular Function
External Funding:
Current Year Funding Total: $83,037
Funding Sources: NE-DHHS

Investigator: Litao Tao, PhD
Position Title & Department: Assistant Professor, School of Medicine, Department of Biomedical Sciences
Project Title: Inner Ear and Transcription Manipulation for Deafness Treatment
External Funding:
Current Year Funding Total: $105,000
Funding Sources: NE-DHHS

Investigator: Claudia Gragnoli, MD, PhD
Position Title & Department: Professor, School of Medicine, Department of Medicine
Project Title: Polycystic Ovarian Syndrome (PCOS) and PCOS-Traits: Heavy Metal Contribution and Genomic Mediation
External Funding:
Current Year Funding Total: $180,000
Funding Sources: NE-DHHS

Research Program and Infrastructure Development

A total of $1,098,197 was invested in research program and infrastructure development in 2021-2022 in a wide variety of topics, including 1) Prion Disease Research, 2) Connections between SARS-CoV-2 evolution, patient comorbidities, and COVID-19 outcome, 3) Research on the Tancytes and Seizures and 4) Light Chain Contributions to Specificity and Pathogenicity of VH4-34+B Cells in Lupus. Moreover, the Research Program and Infrastructure Development portion of the NTSBRDF supported biomedical research by providing support for research equipment, and core facility support for research faculty.

Investigator: Joseph Knezetic, PhD
Position Title & Department: Director, Research Compliance & Professor, School of Medicine, Department of Pathology
Project Title: Biostatistician Core Facility Support
External Funding:
Current Year Funding Total: $262,380
Funding Sources: NE-DHHS

Investigator: Joseph Knezetic, PhD
Position Title & Department: Director, Research Compliance & Professor, School of Medicine, Department of Pathology

Project Title: Attending Veterinarian Support
External Funding:
Current Year Funding Total: $262,380
Funding Sources: NE-DHHS

Investigator: Joseph Knezetic, PhD
Position Title & Department: Director, Research Compliance & Professor, School of Medicine, Department of Pathology
Project Title: Research Compliance Regulatory Support
External Funding:
Current Year Funding Total: $262,380
Funding Sources: NE-DHHS

Investigator: Joseph Knezetic, PhD
Position Title & Department: Director, Research Compliance & Professor, School of Medicine, Department of Pathology
Project Title: UNHCEMS Chemical Inventory System
External Funding:
Current Year Funding Total: $262,380
Funding Sources: NE-DHHS

Investigator: Julie Strauss-Soukup, PhD
Position Title & Department: Associate Vice Provost for Research & Scholarship & Professor, College of Arts & Sciences, Department of Chemistry & Biochemistry
Project Title: New Initiative Program Grant Reviewers
External Funding:
Current Year Funding Total: $880,589
Funding Sources: NE-DHHS,NIH

Investigator: Jason Bartz, PhD
Position Title & Department: Associate Dean for Faculty Affairs & Chair & Professor, School of Medicine, Department of Medical Microbiology and Immunology
Project Title: Prion Disease Research Support
External Funding:
Current Year Funding Total: $1,815,353
Funding Sources: NE-DHHS, NIH, State of Michigan

Investigator: Laura Hansen, PhD
Position Title & Department: Associate Dean for Research and Professor, School of Medicine, Department of Biomedical Sciences
Project Title: Research Salary Support
External Funding:
Current Year Funding Total: $906,970
Funding Sources: NE-DHHS, NIH

Investigator: Julie Strauss-Soukup, PhD
Position Title & Department: Associate Vice Provost for Research & Scholarship & Professor, College of Arts & Sciences, Department of Chemistry & Biochemistry
Project Title: Elsevier PURE Master Software Subscription
External Funding:
Current Year Funding Total: $880,589
Funding Sources: NE-DHHS, NIH

Investigator: Julie Strauss-Soukup, PhD
Position Title & Department: Associate Vice Provost for Research & Scholarship & Professor, College of Arts & Sciences, Department of Chemistry & Biochemistry
Project Title: Research Salary Support
External Funding:
Current Year Funding Total: $880,589
Funding Sources: NE-DHHS, NIH

Investigator: Holly Stessman, PhD
Position Title & Department: Assistant Professor, School of Medicine, Department of Pharmacology & Neuroscience
Project Title: KMT5B as a Novel Analgesic Target
External Funding:
Current Year Funding Total: $498,622
Funding Sources: NE-DHHS, PCORI, Simons Foundation

Investigator: Kristina Simeone, PhD
Position Title & Department: Associate Professor, School of Medicine, Department of Pharmacology & Neuroscience
Project Title: Tanycytes and Seizures
External Funding:
Current Year Funding Total: $434,375
Funding Sources: NE-DHHS, NIH

Investigator: Kailey Snyder, PhD
Position Title & Department: Assistant Professor, School of Pharmacy & Health Professions, Department of Physical Therapy
Project Title: Application of the Multiphase Optimization Strategy (MOST): Targeting Pelvic Floor Dysfunctional in Rural Postpartum Mothers
External Funding:
Current Year Funding Total: $25,000
Funding Sources: NE-DHHS

Investigator: Terry Grindstaff, PhD
Position Title & Department: Associate Professor, School of Pharmacy & Health Professions, Department of Physical Therapy
Project Title: Magnitude and Clinical Impact of Bone Mineral Density

External Funding:
Current Year Funding Total: $73,266
Funding Sources: NE-DHHS

Investigator: Joseph Knezetic, PhD
Position Title & Department: Director, Research Compliance & Professor, School of Medicine, Department of Pathology
Project Title: Animal Resource Facility Support
External Funding:
Current Year Funding Total: $262,380
Funding Sources: NE-DHHS

Investigator: Patrick Swanson, PhD
Position Title & Department: Professor, School of Medicine, Department of Medical Microbiology and Immunology
Project Title: Light Chain Contributions to Specificity and Pathogenicity of VH4-34+B Cells in Lupus
External Funding:
Current Year Funding Total: $509,781
Funding Sources: NE-DHHS, NIH

Investigator: Michele Roley-Roberts, PhD
Position Title & Department: Assistant Professor, School of Medicine, Department of Psychiatry
Project Title: Examining the Intersection of Domestic Violence, Eviction, and Racial Disparities in Omaha: Toward Trauma-Informed Systems of Care
External Funding:
Current Year Funding Total: $25,000
Funding Sources: NE-DHHS

Investigator: Julie Strauss-Soukup, PhD
Position Title & Department: Associate Vice Provost for Research & Scholarship & Professor, College of Arts & Sciences, Department of Chemistry & Biochemistry
Project Title: Laboratory Freezer
External Funding:
Current Year Funding Total: $880,589
Funding Sources: NE-DHHS, NIH

Investigator: Julie Strauss-Soukup, PhD
Position Title & Department: Associate Vice Provost for Research & Scholarship & Professor, College of Arts & Sciences, Department of Chemistry & Biochemistry
Project Title: National Institute of Antimicrobial Resistance Research and Education Institutional Membership
External Funding:
Current Year Funding Total: $880,589
Funding Sources: NE-DHHS, NIH

Investigator: Michael Belshan, PhD
Position Title & Department: Professor, School of Medicine, Department of Medical Microbiology & Immunology
Project Title: Connections between SARS-CoV-2 Evolution, Patient Comorbidities, and COVID-19 outcome
External Funding:
Current Year Funding Total: $520,154
Funding Sources: NE-DHHS, NIH

Investigator: Jonathan Wrubel, PhD
Position Title & Department: Associate Professor, College of Arts & Sciences, Department of Physics
Project Title: National Science Foundation Award Matching Funds
External Funding:
Current Year Funding Total: $247,139
Funding Sources: NE-DHHS, NSF

Investigator: Julie Strauss-Soukup, PhD
Position Title & Department: Associate Vice Provost for Research & Scholarship & Professor, College of Arts & Sciences, Department of Chemistry & Biochemistry
Project Title: Writing Winning Grant Proposal Seminar 2022
External Funding:
Current Year Funding Total: $880,589
Funding Sources: NE-DHHS, NIH

Investigator: Erin Gross, PhD
Position Title & Department: Professor, College of Arts & Sciences, Department of Chemistry & Biochemistry
Project Title: Microfluidics 3D Printer
External Funding:
Current Year Funding Total: $63,623
Funding Sources: NE-DHHS, NIH

Investigator: Annemarie Shibata, PhD
Position Title & Department: Professor, College of Arts & Sciences, Department of Biology
Project Title: Laboratory Equipment
External Funding:
Current Year Funding Total: $170,714
Funding Sources: NE-DHHS, NIH, NASA

Investigator: Laura Hansen, PhD
Position Title & Department: Associate Dean for Research and Professor, School of Medicine, Department of Biomedical Sciences
Project Title: Core Facility Equipment
External Funding:

Current Year Funding Total: $906,970
Funding Sources: NE-DHHS, NIH

Investigator: Alekha Dash, PhD
Position Title & Department: Associate Dean for Research and Professor, School of Pharmacy & Health Professions, Department of Pharmacy Sciences
Project Title: School of Pharmacy & Health Professions Laboratory Equipment
External Funding:
Current Year Funding Total: $87,300
Funding Sources: NE-DHHS

Investigator: Sonia Sanchez, PhD
Position Title & Department: Associate Dean for Research and Professor, School of Dentistry, Department of Oral Biology
Project Title: School of Dentistry Laboratory Equipment
External Funding:
Current Year Funding Total: $222,320
Funding Sources: NE-DHHS, DOD

Minority Health Research Grants

Introduction: 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, continues to support Creighton University's Center for Promoting Health and Health Equality and its commitment to improving the health of racial and ethnic minorities. A total of $172,220 was awarded in 2021-2022 for minority health research.

Investigator: Sade Kosoko-Lasaki, MD
Position Title & Department: Associate Vice Provost – Health Science Multicultural and Community Affairs & Professor, School of Medicine, Department of Surgery
Expertise: Center for Promoting Health and Health Equality (CPHHE)
External Funding:
Current Year Funding Total: $1,411,824
Funding Sources: NE-DHHS, HRSA

BOYS TOWN NATIONAL RESEARCH HOSPITAL
Nebraska Tobacco Settlement Biomedical Research Development Fund (NTSBRDF)

Year 21: July 1, 2021 – June 30, 2022
Progress Report

Executive Summary

This report is modeled on the annual reports we have provided for the last twenty-one years. Annual reports have divided Development Fund activities into three categories: 1) Strategic Faculty Recruitment & Retention; 2) Research Program & Infrastructure Development; and 3) Minority Health Research Grants. We will continue to use those categories so that these periodic reports tie to the subsequent annual report. We have modified the format for the first category to provide additional information regarding expenditures. The allocation numbers here are cumulative and rounded to the nearest dollar.

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 move off the list making way for new investigators. We also support established laboratories to allow them to maintain active research programs and to obtain pilot data for future grant applications.

Investigator: Barbara Morley, PhD
Position Title & Department: Director of the Auditory Neurochemistry Laboratory, Center for Sensory Neuroscience.
Expertise: Dr. Morley studies the use of molecular methods to study the development of neurotransmitters in the auditory brainstem nuclei.
Allocation: $ 14,305
Description of Goals and Accomplishments: Funds are being used to support collection of preliminary data for an NIH grant application by a long-term faculty member.

Investigator: Krystal Werfel, PhD
Position Title & Department: Director of the Written Language Laboratory
Expertise: Dr. Werfel studies language and literacy development in children with hearing loss.
Allocation: $ 24,902
Description of Goals and Accomplishments: Funds are being used to provide start-up to assist with establishing Dr. Werfel's laboratory at Boys Town.

Investigator: Yunxia Lundberg, PhD
Position Title & Department: Coordinator of the Vestibular Neurogenetics Laboratory, Center for Sensory Neuroscience.
Expertise: Expression of genes and characterization of proteins in the vestibular sense organ, genetics of benign paroxysmal positional vertigo (BPPV).
Allocation: $ 126,963

Description of Goals and Accomplishments: Funds are being used to supplement support for an NIH grant proposal to develop a research program in human genetics by a long-term faculty member.

Investigator: Zhao Ellen Peng, PhD
Position Title & Department: Director of the Functional Hearing Laboratory
Expertise: Spatial hearing and localization of sound in children with hearing loss who use hearing aids or cochlear implants.
Allocation: $ 11,410
Description of Goals and Accomplishments: Funds are being used to establish Dr. Peng's laboratory at Boys Town.

Investigator: Monita Chatterjee, PhD
Position Title & Department: Director of the Auditory Prosthesis and Perception Laboratory
Expertise: Auditory perception for children and adults who use cochlear implants.
Allocation: $ 8,116
Description of Goals and Accomplishments: Funds are being used to supplement a pilot project for a new NIH grant proposal that would study voice-emotion recognition in listeners with cochlear implants.

Investigator: Karla McGregor, PhD
Position Title & Department: Director of the Word Learning Laboratory, Center for Childhood Deafness, Learning and Language.
Expertise: Improving outcomes for children and adolescents with developmental language disorders.
Allocation: $184
Description of Goals and Accomplishments: Dr. McGregor is the Director for the Center for Childhood Deafness, Learning, and Language. Start-up package funds are being used to support collection of preliminary data for an NIH grant application on developmental language disorders.

Investigator: Katherine Gordon, PhD
Position Title & Department: Director of the Language and Memory Laboratory, Center for Childhood Deafness, Learning and Language.
Expertise: Cognitive and linguistic mechanisms that support the process of word learning and language development in children who are typically developing.
Allocation: $ 63,876
Description of Goals and Accomplishments: Dr. Gordon was recruited for the BTNRH Center for Biomedical Research Excellence (COBRE) grant program. Start-up package funds are being used to support collection of preliminary data for an NIH grant application.

Investigator: Kristen Janky, PhD
Position Title & Department: Director of the Balance and Vestibular Research Laboratory, Center for Audiology
Expertise: Vestibular function and developmental outcomes in children and adults with hearing loss.
Allocation: $ 985
Description of Goals and Accomplishments: These funds were designated for a pilot project for Dr. Janky to collect measures of balance function, hearing, cognition, and language to serve as preliminary data for an NIH grant application.

Investigator: Chris Conway, PhD
Position Title & Department: Director of the Brain, Learning, and Language Laboratory, Center for Childhood Deafness, Learning, and Language.
Expertise: Statistical learning in children who are deaf and hard of hearing.
Allocation: $ 6,169
Description of Goals and Accomplishments: Start-up package funds are being used to support purchase of laboratory equipment and collection of preliminary data for an NIH grant application.

Investigator: Stuart White, PhD
Position Title & Department: Director of the Decision-Making Laboratory, Center for Neurobehavioral Research
Expertise: Hormonal effects on decision-making and psychopathology.
Allocation: $ 2,273
Description of Goals and Accomplishments: Supplementary funding is being provided to support equipment needed for an NIH K Award and upcoming grant submission.

Investigator: Anastasia Kerr-German, PhD
Position Title & Department: Director of the Brain, Executive Function, and Attention Research Laboratory
Expertise: Functional near-infrared spectroscopy (fNIRS), development of executive function
Allocation: $ 92,011
Description of Goals and Accomplishments: Funds are being provided to supplement post-doctoral funding and transition Dr. Kerr-German from a post-doctoral position to an independent laboratory head.

Investigator: Hope S. Lancaster, PhD
Position Title & Department: Director of the Etiologies of Language and Literacy Laboratory
Expertise: Developmental language disorder, dyslexia, and language and reading in children with cleft palate.
Allocation: $ 5,241.14
Description of Goals and Accomplishments: Dr. Lancaster is an early-career scientist who is establishing a laboratory to study diagnosis of and intervention for language and reading problems in children with cleft palate. The funds are being allocated to support start-up funds for her laboratory.

Investigator: Gaelle Doucet, PhD
Position Title & Department: Director of the Brain Architecture, Imaging, and Cognition Laboratory
Expertise: Structural and functional Magnetic Resonance Imaging (MRI) and relations to behavior.
Allocation: $ 2,370
Description of Goals and Accomplishments: Funds are being provided to establish a new laboratory focused on neuroimaging and behavioral neurosciences across the lifespan for an early-career scientist.

Investigator: Max Kurz, PhD
Position Title & Department: Director of the Physiology of Walking & Engineering Rehabilitation (PoWER) Laboratory
Expertise: Neuroscience of motor and sensory processes using MRI and magnetoencephalography
Allocation: $ 151,055
Description of Goals and Accomplishments: Funds are being provided to transition Dr. Kurz's laboratory to the Institute for Human Neuroscience at Boys Town. Funding provides support for the acquisition of a robotic exoskeleton to help people with movement disorders.

Investigator: Aryn Kamerer, PhD
Position Title & Department: Director of the Hearing Health Laboratory
Expertise: Diagnosis and management of hearing loss due to noise exposure and aging.
Allocation: $ 5,827
Description of Goals and Accomplishments: Funds are being provided to supplement Dr. Kamerer's transition from a post-doctoral fellow to an independent scientist role.

Investigator: Elizabeth Heinrichs-Graham, PhD
Position Title & Department: Director of the Cognitive and Sensory Imaging Laboratory
Expertise: Neuroscience of auditory development and effects of hearing loss
Allocation: $ 300
Description of Goals and Accomplishments: Funds are being provided to supplement the establishment of Dr. Heinrichs-Graham's laboratory at Boys Town.

Research Program & Infrastructure Development

Project Title: Animal Care Facility Core
Principal Investigator: Barbara Morley, PhD
Amount of Funding: $ 30,693
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: Sensory Neuroscience Center Core Support
Principal Investigator: Dominic Cosgrove, PhD
Amount of Funding: $ 37,822
Description of Goals and Accomplishments: Funds were allocated for supplemental support of programs and core functions in the Center for Sensory Neuroscience, including the Vestibular Neurogenetics, Cell Signaling and Gene Marker Laboratories and the Genotyping Core.

Project Title: Hearing Research Center Core Support
Principal Investigator: Lori Leibold, PhD
Amount of Funding: $ 78,041
Description of Goals and Accomplishments: Funds are being allocated to provide general support for hearing researchers who do behavioral studies of auditory perception in children and adults in the Center for Hearing Research.

Project Title: Childhood Deafness Center Core Support
Principal Investigator: Karla McGregor, PhD
Amount of Funding: $ 126,912
Description of Goals and Accomplishments: Funds are budgeted for supplemental support of programs and core functions in the Center for Childhood Deafness, Learning, and Language. The money is being used to fund laboratory facilities improvements and support remote data acquisition.

Project Title: New Projects Fund
Principal Investigator: Lori Leibold, PhD
Amount of Funding: $ 29,731
Description of Goals and Accomplishments: Funds for novel, highly innovative projects that will generate pilot data for future grant proposals are allocated to investigators who apply for these funds.

Project Title: Recruitment Fund
Principal Investigator: Ryan McCreery, PhD
Amount of Funding: $ 3,568
Description of Goals and Accomplishments: A recruitment fund allows us to separate the costs ofadvertising, 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: Douglas Keefe, PhD
Amount of Funding: $ 18,023
Description of Goals and Accomplishments: Supplemental funding is provided to the BTNRH post-doctoral training program to assist with training and recruitment costs for post-doctoral fellows.

Project Title: Anechoic Chamber
Principal Investigator: Chris Stecker, PhD
Amount of Funding: $ 826
Description of Goals and Accomplishments: Boys Town recently constructed a state-of-the-art anechoic chamber facility for studying spatial hearing and hearing aid processing. The funds are being used to provide equipment and computing support for the chamber.

Minority Health Research Grants

Introduction. We have two initiatives to increase representation of under-served populations in our research. 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 testing people in English and Spanish. We also have launched a diversity pilot grant program to fund small research projects that examine health disparities or help to promote health and well-being in under-represented communities.

Project Title: Minority Recruitment
Investigator: Karla McGregor, PhD
Amount of Funding: $ 45,182

Description of Goals and Accomplishments: The Minority Recruitment project 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: Lori Leibold, PhD
Amount of Funding: $ 47,541
Description of Goals and Accomplishments: The goal of this project has shifted to development of an efficient test of speech perception that will allow audiologists to assess functional auditory skills in children who speak English, Spanish or both languages. Speech perception testing is a critically important tool for assessing children's hearing, determining candidacy for sensory devices and guiding language intervention. Over 15% of children in the US are raised in Spanish-speaking homes, but speech perception testing is typically performed in English or omitted altogether, due to a lack of test materials and a shortage of Spanish-speaking audiologists. NTSBRDF funds are providing partial support for Karen Duarte, a research assistant who is a Spanish-English bilingual. Ms. Duarte helps to recruit bilingual and monolingual Spanish-speaking participants for research studies.

Project Title: Diversity Pilot Grants
Investigator: Patrick Tyler, Chanelle Gordon
Amount of Funding: $591
Description of Goals and Accomplishments: Three diversity grants were awarded to Boys Town investigators who prepared applications to promote health in under-served populations to provide preliminary data for extramural grant applications. One of the diversity pilot grants started in June and will examine the effects of Attention-Deficit Hyperactivity Disorder in racial and ethnic minority students to help examine gaps in service provision.