



July 1, 2019

Dr. Michael Baumgartner
Executive Director
Coordinating Commission for
Postsecondary Education
140 N. 8th Street, Suite 300
Lincoln, NE 68509

RECEIVED

JUL 1 2019

**Coordinating Commission
for Postsecondary Ed.**

Dear Michael:

Enclosed is a copy of the proposal to create the **Center for Heart and Vascular Research** in the College of Medicine at **UNMC**. The proposal was approved by the Board of Regents at the June 28, 2019 meeting.

Please do not hesitate to contact me if you have any questions.

Sincerely,

A handwritten signature in blue ink that reads "Susan M. Fritz".

Susan M. Fritz
Executive Vice President and Provost

Enclosure

c: Chancellor Jeffrey Gold
Senior Vice Chancellor Dele Davies
Dean Bradley Britigan, College of Medicine
Vice Provost David Jackson

TO: The Board of Regents Addendum IX-A-6
Academic Affairs

MEETING DATE: June 28, 2019

SUBJECT: Establishment of the Center for Heart and Vascular Research in the College of Medicine at the University of Nebraska Medical Center (UNMC)

RECOMMENDED ACTION: Approval is requested to establish the Center for Heart and Vascular Research in the College of Medicine at UNMC

PREVIOUS ACTION: None

EXPLANATION: Cardiovascular disease is the leading cause of death and hospitalization in Nebraska, accounting for one in three deaths and totaling more loss of life than cancer and chronic lung disease combined.

Creation of the Center for Heart and Vascular Research will enhance basic, clinical, and population research leading to discoveries that will improve Nebraskan's cardiovascular health. The center will bring together multi-discipline scientists from University of Nebraska colleges (e.g., Medicine, Nursing, Public Health, Pharmacy, Engineering, Arts and Sciences, Institute of Agriculture and Natural Resources) and departments (e.g., Surgery, Cardiovascular Medicine, Rheumatology, Cellular and Integrative Physiology, Nutrition and Health Sciences) to synergistically facilitate collaborative translational, clinical, and population research that will develop into an innovative and leading heart and vascular research center.

This proposal has been reviewed by the Council of Academic Officers; it also has been reviewed and recommended for approval by the Academic Affairs Committee.

PROGRAM COST: \$625,000 in Year 1; \$8,045,846 over five years

SOURCE OF FUNDS: College of Medicine and extramural research grants

SPONSORS: H. Dele Davies
Senior Vice Chancellor for Academic Affairs

Jeffrey P. Gold, Chancellor
University of Nebraska Medical Center

RECOMMENDED: 
Susan M. Fritz
Executive Vice President and Provost

DATE: May 17, 2019

PROPOSAL FOR THE ESTABLISHMENT OF THE UNMC CENTER FOR HEART AND VASCULAR RESEARCH

1. Purpose and Background

Rationale and Significance: Heart and vascular diseases account for the majority of deaths in Nebraska each year. Organizing research efforts within one Center will amplify our ability to perform research of highest caliber, improve our odds of obtaining extramural funding to lower cardiac related morbidity and mortality, and enhance our national and international reputation for research excellence.

Center Goal: To bring together multidisciplinary scientists from across departments, colleges, and universities within Nebraska to synergistically facilitate collaborative translational and clinical research that develops the team into an innovative and leading heart and vascular research center and improves the cardiovascular health of our communities.

Mission Statement:

Our Center is dedicated to performing cardiac and vascular research that involves:

- Developing multidimensional approaches to examine the mechanisms whereby the heart and vasculature respond to injury or stress;
- Applying the knowledge gained to develop diagnostic tools, test therapeutic strategies, and conduct health services research that prevents, slows, or reverses heart and vascular disease progression;
- Disseminating our results to scientific, medical, and general communities; and
- Educating the next generation of scientists.

Tagline: Cardiovascular Breakthroughs for All of Nebraska and Beyond

Vision: The world follows Nebraska in cardiovascular research excellence.

2. Need and Demand for the Center

In spite of over 4,000 cardiac and vascular related deaths in Nebraska each year, there is currently no center within the University of Nebraska System that focuses on clinical, translational, and basic science research of the cardiovascular system. The Center is needed to address the demand to stimulate and synergize research efforts. Coordinating research efforts in one overarching center will allow us to recruit and retain funded cardiovascular research faculty to obtain and maintain a critical research mass; promote novel and innovative approaches to cardiac research questions; mentor high quality junior investigators; and commit to excellence. Importantly, the Center will provide a translational bridge linking basic science discovery to clinical research to population health, which will benefit the state and region.

Nebraska Medicine also has a growing footprint in the care of heart and vascular disease, with a large heart failure and heart transplant program as well as vascular disease assessment and treatment. There is a strong desire to link research to the clinical care and outreach to strengthen the overall program and become a national and international leader in heart and vascular disease. Our goal is to eventually merge the research center into the Heart and Vascular Institute that includes the clinical, research, and education missions.

3. Resources

The College of Medicine has pledged \$2.5M in support for the establishment of this Center over the next 5 years. New grants, core service fees, and philanthropy will be acquired to replace this start-up support to continue to sustainably grow the Center by the end of this period.

Physical Facilities. The administrative structure will be physically located within the College of Medicine on the 5th floor of the Durham Research Center (DRC), University of Nebraska Medical Center. The Center will be virtual, as members will be encouraged from all UNMC Colleges and Institutes, as well as from other NU campuses. Research, education and outreach will also occur in laboratories at UNMC, UNMC's small animal bioimaging center, UNMC's new research MRI for human studies, UNMC's cardiovascular clinic, UNMC's Clinical Research Center and community settings.

Instructional Equipment and Informational Resources. The development of a Center lecture series will provide members as well as graduate students, postdoctoral fellows, and junior and senior faculty members an opportunity to listen to and comment on the latest research that will help develop new ideas and develop critical thinking skills. To reach other campuses and institutions, we will use Zoom and modern webinar technology, already in place.

4. Budget Projection and Plan for Sustainability

Initial funding support will come from the UNMC College of Medicine Dean's Office. The current commitment for Center funding is for five years. The Center aims to eventually be self-sustaining by processes that enhance financial support to our activities through its increased success. This could be through a benchmark tied to costs resulting from new and renewed grants garnered by Center investigators.

To achieve long-term sustainability and growth, we will be applying for a variety of national grant support, including a National Institute of General Medical Sciences (NIGMS) funded Phase I Center for Biomedical Research Excellence grant to be submitted in January 2020 that will provide funding for administrative support, faculty and mentor stipends and pilot grant awards for this program. Additionally, other large grant programs, like program project grants, institutional training grants, and individual R01 awards will expand the reach of this Center. Please see attached budget details.

5. Director Qualifications

Merry Lindsey, Ph.D. will commit at least 55% of her effort to heart and vascular research, including her effort as Director. Dr. Lindsey was recruited to UNMC to become Chair of the Department of Cellular and Integrative Physiology and founding Director of this Center. She was trained in cardiovascular sciences at Baylor College of Medicine and Harvard Medical School. She has over 20 years of experience with all aspects of inflammatory and fibrotic components of cardiac remodeling following myocardial infarction in several animal models (mouse, dog, rabbit, and pig,) and in humans. She has over 200 publications and is a leading expert on myocardial infarction, matrix metalloproteinase biology, extracellular matrix remodeling, and cardiac aging research. Dr. Lindsey brings expertise with in vitro and in vivo cardiac inflammatory and wound healing processes. She has served as PI on multiple funded projects totaling over \$25M and has trained >60 trainees who have gone on to successful careers. In summary, Dr. Lindsey has the research, leadership, and mentoring experience necessary to successfully lead this Center.

6. Organizational Structure and Administration

The Center Director will report to the Dean of the College of Medicine or his/her designate.

The Center Director will form a Steering Committee that will regularly advise on Center management. An External Advisory Committee (EAC) comprised of an outside panel of experts will conduct site visits every two years to review Center activities and progress, or as required by NIH funding to the Center, as well as making recommendations for future growth and development. The Center Director will receive advice from a number of UNMC stakeholders, including from an Internal Advisory Committee (IAC) of UNMC members to provide annual review. As the Center develops, we envision including IAC members from across the UN campuses. Please see the attached organizational chart.

The **Table** below lists members of the Steering Committee, IAC, and other stakeholders. Other stakeholders include faculty and leadership from the College of Medicine, the Graduate College, Nebraska Medicine, Children's Hospital & Medical Center, Children's Specialty Physicians, Child Health Research Institute, and the Nebraska Western Iowa Veterans Administration.

Table. Governance Membership.			
Name	Role	Affiliation	email
Merry L. Lindsey, PhD	Director, Steering Committee Chair	Cell Int Physiology	merry.lindsey@unmc.edu
Daniel R. Anderson, MD PhD	Steering Committee	Int Med, Cardiovascular Medicine	danderso@unmc.edu
B. Timothy Baxter, MD	Steering Committee	Surgery, Vascular	btbaxter@unmc.edu
Paul Estabrooks, PhD	Steering Committee	College of Public Health	paul.estabrooks@unmc.edu
Howard Fox, MD	Steering Committee	Senior Associate Dean for Research	hfox@unmc.edu
Michael Moulton, MD	Steering Committee	Surgery, Cardiothoracic	michael.moulton@unmc.edu
Bunny Pozehl, RN, PhD	Steering Committee	College of Nursing	bpozehl@unmc.edu
Bradley Britigan, MD	Internal Advisory Committee	Dean, College of Medicine	bradley.britigan@unmc.edu
H. Dele Davies, MD	Internal Advisory Committee	Sr Vice Chancellor, Academic Affairs	dele.davies@unmc.edu
Jennifer Larsen, MD	Internal Advisory Committee	Vice Chancellor for Research	jlarsen@unmc.edu
David W. Mercer, MD	Internal Advisory Committee	Chair, Department of Surgery	dwmerc@unmc.edu
Debra Romberger, MD	Internal Advisory Committee Chair	Chair, Department of Internal Medicine	dromberg@unmc.edu
Jeffrey Gold, MD	Stakeholder	Chancellor	jeffrey.gold@unmc.edu
Michael McGlade	Stakeholder	Senior Associate Dean for Business & Finance	mmcglade@unmc.edu
John Sparks, MD	Stakeholder	Cardiovascular leader of the UNMC Child Health Research Institute	jsparks@unmc.edu

7. Participating Faculty and Partnerships

The academic administrative home of the Center will be located in the College of Medicine at UNMC. The Center will welcome members of all Colleges within UNMC, UNO, UNK, and UNL that have applicability to heart and vascular research, including but not limited to UNMC Colleges of Nursing, Public Health, Allied Health, Pharmacy, and Medicine, including Departments of Cellular and Integrative Physiology, Surgery (Divisions of Vascular and Cardiothoracic Surgery), Internal Medicine (Divisions of Cardiology; Rheumatology; Diabetes, Endocrine and Metabolism; Geriatrics; and Pulmonary and Critical Care), Pediatrics/Child Health Research Institute (Division of Cardiology), and Anesthesiology; UNL Colleges of Engineering, Education and Health Sciences (Nutrition and Health Sciences), IANR (Food and Nutrition) and School of Biologic Sciences. Additionally, UNMC faculty that VA Medical Center

members will also be a part of this Center. We will engage Center members by hosting a number of programs (see Strategic Plan below for details). We plan to issue request for applications that involve cross-campus and basic-clinical projects, to foster interactions and collaborations that otherwise would be challenging. Cindy Norton will serve as the administrator for the Center, and we will leverage the existing research administration expertise from the Departments of Internal Medicine and Surgery with regular meetings to compare best practices.

Collaborations with Higher Education Institutions External to the University. We will include faculty from other University of Nebraska entities, including UNO, UNL, and UNK.

Partnership with Business. As the Center expands, we anticipate partnerships with many commercial partners to support basic science and clinical/nutritional research as well as sponsored clinical trials, and hope that the work may result in start-up companies, as well.

Constituencies Served. Our Center will be a benefit to our students who will learn about and with the resources developed; the faculty who are focused on heart and vascular disease, whether from a clinical, research or educational perspective; the community who may benefit from clinical trials or the research results that will be implemented, including health care providers who will learn about new approaches to improve the health of Nebraska.

Relationship of the CHVR to the Mission of the University of Nebraska. The Center is fully aligned with the mission of UNMC: *“our mission is to lead the world in transforming lives to create a healthy future for all individuals and communities through premier educational programs, innovative research and extraordinary patient care, and this program intends to support all of those outcomes”*.

8. Promoting Coordinating Commission for Postsecondary Education Statewide Plans.

The plans that the Center will promote include increasing the number skilled graduates (Section 2-14), expand a workforce prepared to work in this important area (Section 3-1), and expand Research and Tech Transfer (Section 3-5).

9. Strategic Plan

Our five year strategic plan encapsulates 3 goals: 1) build Center infrastructure, 2) develop teams and increase research success, and 3) promote reputation for and culture of research excellence in heart and vascular disease. Note that this strategic plan will be updated as needed.

Goal 1: Build Center infrastructure

A. Establish governance. The Steering Committee and the Internal Advisory Board have been established. The External Advisory Board will be set up in the first year and a visit will be scheduled by the beginning of year 2. Membership on the Steering Committee and Advisory Boards will be reviewed annually and adjustments made as needed.

B. Initiate Research Navigation Core. The goal of this Core is to enhance conditions that accelerate pace and amplitude of research productivity to increase faculty competitiveness for extramural funding.

Support will be provided to set up research plans (ideas generation and refinement), following through to timely approval of regulatory paperwork (Institutional Review Board (IRB), Institutional Animal Care and Use Committee (IACUC), safety), and access to databases and samples. IRB and IACUC templates will be developed for a variety of study types (human-registry data, social and behavioral, biological material, biomedical reverse clinical trials, and animal). Instruction guides and checklists will be developed for running a research study,

analyzing data, and presenting results. Templates for facilities and resources will be written and updated annually. We will coordinate with the Research Support Offices to combine efforts to provide grant writing resources, in particular tagging in with the writing support and resource library. We will work with the Great Plains IDeA Clinical and Translational Research Network to share resources and expertise.

We will incorporate the Heart and Vascular Data Center database to link the existing biobank in Cardiovascular Medicine to patient data. We will leverage existing activities to capitalize on this resource and expand clinical research capabilities. Enhancing clinical research output is critical for Center success.

We will provide Center investigators with information on the availability of cores facilities, best practices for sample collection, and how to work with cores to maximize usefulness. Technical support and core resources will be organized to streamline data collection. Statistics and bioinformatics support will be provided for data management, including access to work stations with analysis software and templates for common procedures.

This Core will incentivize team collaboration by providing pilot funds for projects spearheaded by two or more Center investigators.

C. Create Career Concierge Core. The goal is to provide 360° mentoring for all Center investigators. Included is a unique Peer*2*Peer mentoring system where junior investigators are paired with 2-4 other investigators to ensure weekly-to-monthly mutual progress.

Support will be provided to train Center members on data interpretation and dissemination, presentation skills, and manuscript writing. Grant writing teams and submission support provided include templates for facilities and resources, and example budgets and justifications.

We will work with the Interprofessional Academy of Educators, the Office of Faculty Development, and the Writing Center at UNMC to form writing teams and increase measurable research productivity units. We will develop a fluid and flexible communication system that links mentoring teams to each project for near real-time feedback and troubleshooting. We will also partner with the Great Plains IDeA Clinical and Translational Research Network to share resources and expertise.

D. Apply for grants to improve infrastructure. We will work closely with the Vice Chancellor for Research Office at UNMC to make sure that we do not duplicate what is already available.

1. Center of Biomedical Research Excellence (COBRE)- approved to submit for NIGMS Phase I COBRE national funding in Jan 2020.

2. Clinical Trials Support- <https://grants.nih.gov/grants/guide/rfa-files/RFA-HL-19-009.html> or similar- develop collaborations with successful teams at other institutions.

3. Biobanking support for Nebraska Cardiovascular BioBank.

Goal 2: Develop teams and increase research output

A. Research teams. We will establish 3-5 teams composed of 3-5 researchers focused on integrated topics to meet weekly to plan research, share results, provide peer mentoring, and write manuscripts and grants.

B. Grant seekers. We will provide review and mentorship for faculty trying to improve their grant funding success. Will meet once monthly or as needed. Each session will be 2 hour review of aims page and experimental design. As an example, we will invite Ted Mikuls, Lynn Klassen as moderators/ experts.

C. Writing retreats. Writing skills can be improved. Up to ten faculty will be invited to attend 3 day retreats (scheduled for January and May) for intensive grant or manuscript writing

sessions (modeled after

http://www.docs.hss.ed.ac.uk/iad/Researchers/Research_staff/Writing_facilitators%20guide_web.pdf). We currently have faculty skilled in teaching scientific writing skills for graduate students that can be expanded to this purpose. Include current COM on campus resources for grant writing assistance (<https://www.unmc.edu/com/research/hanover-research.html>)

D. Grant navigator. Grant opportunities will be distributed to interested Center members.

E. Training grants. One goal of the Center is to successfully submit an Institutional Training Grant (T32) within 3-5 years.

Goal 3: Promote reputation for and culture of research excellence

Below, we provide examples of programs that will be used to instill a culture of high quality research. To obtain buy in from the faculty and increase success probability, we will survey and rank the programs of greatest interest. The Steering Committee, along with the Internal and External Advisory Boards, will decide annually which programs to promote that year.

A. Career development symposium series: How to Turn What We Do Every Day into Scholarly Output. The goal is to increase research productivity efficiency. General themes- how to: come up with ideas, obtain grant funding (tricks and tips), best do the research, quickly and efficiently write it up. Specific discussion panels- how to: mine databases (speaker panel: Chris Maloney, John Makari; how to identify and develop new intellectual property (speaker panel: Donny Suh, Jason Nickla)

B. Chalk talks. One faculty member each month (3rd Thursdays 5:30-7:30 pm) will present their work using only a white board, no slides. Only faculty can attend and notes will be taken and given to the faculty member for later reflection.

C. Journal club. Once monthly (e.g., 1st Mondays) 5-6:30 pm, we will have theme based journal clubs, with a research team covering 5-10 T0 to T4 translational research articles in the 90 minutes. The plan is that the journal club will serve as a preliminary literature search that will yield a review article for the research team presenting.

D. Seminars, Science Café, and Mini Medical School. Join with existing seminar programs for research presentations and to bring in national speakers. Connect with the UNMC Science Café and Mini Medical School to cover heart and vascular research topics, including hypertension, heart failure, myocardial infarction, diabetes, and stroke.

E. Promote attendance at national and international conferences on heart and vascular research. The goal is to build national and international recognition of the Center. As an example, the American Society for Matrix Biology (ASMB) Fibroblast meeting in June (<https://www.asmb.net/fibroblast-workshop>) - Sponsor Center faculty and trainee attendance by providing up to \$1000 each for 20 attendees

10. Expected Outcomes. Our Center will:

- Grow extramurally funded heart and vascular research and manuscripts.
- Create and expand teams of basic science, clinical, and population health researchers focused on heart and vascular disease.
- Support and mentor Center members, including trainees.
- Provide the research leadership structure for a new Heart and Vascular Institute that incorporates clinical, education, and research missions.

11. Metrics of Success.

The metrics of success and outcome measurements include:

A. Success in research. This will be evaluated by number of publications, grants submitted, grants funded, and collaborative projects with publications with 2 or more team investigators; total dollars per year, and research impact (publication quality- number citations, journal impact factor and quantity) annually.

B. Increase the number of health care providers actively engaged in heart and vascular research, including physicians, nurses, allied health professions, and pharmacists. This will be assessed by annual satisfaction surveys and comparing the number of investigators who stay in Nebraska or are recruited to Nebraska from before and after the Center was established.

C. Identify research opportunities to improve health outcomes. Health providers will identify areas that would directly impact health outcomes pertinent to the region and state or have national implications.

Director
Merry L. Lindsey, PhD

Steering Committee

Merry L. Lindsey, PhD
Daniel R. Anderson, MD, PhD
B. Timothy Baxter, MD
Paul Estabrooks, PhD
Howard Fox, MD
Michael Moulton, MD
Bunny Pozehl, RN, PhD

Administration Core

Administrator II (Cindy Norton)

External Advisory Board:

to be named

Internal Advisory Board:

Bradley Britigan, MD
H. Dele Davies, MD
Jennifer Larsen, MD
David W. Mercer, MD
Debra Romberger, MD

Other Cores

Research
Navigation
Core

Career
Concierge
Core

**TABLE 1: PROJECTED EXPENSES
UNMC Center for Heart and Vascular Research**

Personnel	(FY2019-20) Year 1		(FY2020-21) Year 2		(FY2021-22) Year 3		(FY2022-23) Year 4		(FY2023-24) Year 5		Total Cost
	FTE	Cost	FTE	Cost	FTE	Cost	FTE	Cost	FTE	Cost	
Director ¹		\$125,000		\$125,000		\$125,000		\$125,000		\$125,000	\$625,000
Faculty (see operating line below)											
Non-teaching staff: Professional											
Graduate Assistants ²											
Non-teaching staff: Support	1.6	\$155,000	1.6	\$159,650	1.6	\$164,438	1.6	\$169,369	1.6	\$174,449	\$822,906
Subtotal	1.6	\$280,000	1.6	\$284,650	1.6	\$428,463	1.6	\$434,649	1.6	\$440,984	\$1,868,746
Operating											
General Operating ³		\$21,000		\$15,000		\$21,000		\$15,000		\$21,000	\$93,000
Equipment for Center		\$75,000		\$75,000		\$75,000		\$75,000		\$75,000	\$375,000
Core Development and Expansion ⁴		\$125,000		\$125,000		\$125,000		\$125,000		\$125,000	\$625,000
Grant Writing Meetings/ Retreats ⁵		\$11,700		\$11,700		\$11,700		\$11,700		\$11,700	\$58,500
Clinical Studies and Trials Support ⁶		\$10,000		\$10,000		\$10,000		\$10,000		\$10,000	\$50,000
Pilot Grants - Establish Research Navigation Core ⁷		\$50,000		\$50,000		\$50,000		\$50,000		\$50,000	\$250,000
Symposium Series, Journal Club and Chalk Talks ⁸		\$5,400		\$5,400		\$5,400		\$5,400		\$5,400	\$27,000
National Meeting participation ⁹		\$25,000		\$25,000		\$25,000		\$25,000		\$25,000	\$125,000
New Faculty Recruitment and Development ¹⁰						\$1,500,000		\$1,500,000		\$1,500,000	\$4,500,000
Other ¹¹		\$21,900		\$23,250		\$12,462		\$13,531		\$2,451	\$73,594
Subtotal		\$345,000		\$340,350		\$1,835,562		\$1,830,631		\$1,825,551	\$6,177,094
Total Expenses		\$625,000		\$625,000		\$2,264,025		\$2,265,280		\$2,266,535	\$8,045,840

¹ Funds for this position are provided by the College of Medicine as part of Dr. Lindsey's Administrative Director stipend for the Center.

² Contingent on obtaining an Institutional Training Grant.

³ Funds for website design and maintenance and computers.

⁴ Establish and maintain tissue bank for CHVR investigators. expand the proteomics and clinical research cores, develop new tools to expand capabilities, establish career concierge core - goal is to provide 360° mentoring for all center investigators.

⁵ Grant writing/Manuscript writing support meetings and retreat (modeled after http://www.docs.hss.ed.ac.uk/iad/Researchers/Research_staff/Writing_facilitators%20guide_web.pdf). Center covers 50%.

⁶ Clinical Trials - apply for grant on improving infrastructure (<https://grants.nih.gov/grants/guide/ffa-files/RFA-HL-19-009.html>) or similar.

⁷ Two pilot grants @\$25,000 each.

⁸ Symposium Series, Chalk Talks and Journal Club for CHVR members.

⁹ Budget: \$25,000 to sponsor CHVR faculty and trainee attendance at national meeting.

¹⁰ Contingent on obtaining COBRE funding.

¹¹ Other Expenses - publishing fees, registration fees, membership to societies, office supplies and to support administrative projects.

**TABLE 2: PROJECTED REVENUES
UNMC Center for Heart and Vascular Research**

	(FY2019-20) Year 1	(FY2020-21) Year 2	(FY2021-22) Year 3	(FY2022-23) Year 4	(FY2023-24) Year 5	Total
Existing Funds/College of Medicine ¹	\$625,000	\$625,000	\$625,000	\$625,000	\$625,000	\$3,125,000
Required New Public Funds						
1. State Funds						
2. Local Funds						
Tuition and Fees						
Grant Funding						
COBRE Funds for new faculty recruitment and development ²			\$1,500,000	\$1,500,000	\$1,500,000	\$4,500,000
Institutional Training Grant ³			\$139,025	\$140,280	\$141,535	\$420,840
Total Revenue	\$625,000	\$625,000	\$2,264,025	\$2,265,280	\$2,266,535	\$8,045,840

¹ The College of Medicine (COM) will provide these funds. Funding originates from the Nebraska Medicine Academic Program Funding Agreement and the COM Department of Cellular and Integrative Physiology.

² The source of these funds will be contingent on receiving NIH COBRE funding.

³ The source of these funds will be contingent on receiving an NIH Institutional Training Grant.