

Great Plains IDeA-CTR 5th Annual Scientific Meeting and 2021 UNMC College of Medicine Campus Research Retreat



October 6-7, 2021

AGENDA IS SUBJECT TO CHANGE

Questions? amanda.fletcher@unmc.edu or jen.brady@unmc.edu

Register now! https://unmc.zoom.us/webinar/register/WN_eBiiB-oWQ_KVeZgEWRO4ew

Highlights

Day 1: Sponsored by the Great Plains IDeA-CTR

12:00 PM – 5:00 PM

Website:

<https://gpctr.unmc.edu/training-education/asm-2021/>

5th Annual Scientific Meeting to feature:

- The GP IDeA-CTR, the Next 5 Years and Impact on Health
- Distinguished speaker presentations on:
 - Statistical Approaches for Studying Early-Life Experiences and Their Impact
 - Data Makes the Difference – the Journey to “Good Data”
 - Leveraging Community Partnerships to Develop Innovative Research Designs
 - Creating Engineering Innovators: Remaking Engineering Education to Prepare Engineering “Stem-Cells”
- CTR Superstar competition

Day 2: Sponsored by the UNMC College of Medicine

Medicine

8:00 AM – 1:00 PM

Website:

https://www.unmc.edu/com/research/COM_Research_Retreat.html

COM Research Retreat to feature:

- UNMC faculty research talks
- Breakout discussions on the topics of:
 - Advanced Applications of Biomechanics Research in Medicine
 - Precision Medicine Applications in Pediatric Medicine
 - Pharmacological Advances in the Treatment and Prevention of HIV and HBV Infections
- Distinguished speaker presentations

Learning Objectives

At the conclusion of this activity, learners should be better able to:

- Identify how innovative statistical approaches can be applied to assess early-life experiences and their impact on future mental health.
- Define the concept of “Good Data,” the broad variety of data in healthcare, the conversion of information to data, native- vs boundary-based data interoperability, approaches of professional societies, drawbacks of registries, and transformation of healthcare toward a “liquid data” state.
- Articulate how to bring people together across disciplines to create new approaches.

Target Audience

Potential attendees include all with interest in the growing field of Clinical and Translational Research (CTR). This includes researchers (spanning basic, translational and clinical work), university of collegiate educators, administrators, healthcare professionals (e.g., physicians, advanced practice providers and nurses), public health experts, government officials, and community members at large or from a variety of organizations including not-for profits, faith-based institutions, employer groups, school systems, and other interested parties.

Accreditation and Credit Designation

In support of improving patient care, University of Nebraska Medical Center is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.



JOINTLY ACCREDITED PROVIDER™
INTERPROFESSIONAL CONTINUING EDUCATION

The University of Nebraska Medical Center designates this live activity for a maximum of 2.75 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Day 1

Wednesday, October 6th | 12:00 PM – 5:00 PM CST (*sponsored by the Great Plains IDeA-CTR*)

12:00-12:15 PM

The GP IDeA-CTR, the Next 5 Years and Impact on Health

Matthew Rizzo, MD, Principal Investigator, Great Plains IDeA-CTR, Chair, Department of Neurological Sciences, College of Medicine, University of Nebraska Medical Center

12:15-1:00 PM

Statistical Approaches for Studying Early-Life Experiences and Their Impact

Hal Stern, PhD, Provost and Executive Vice Chancellor, Chancellor's Professor, Department of Statistics, University of California, Irvine

1:00-1:30 PM

Data Makes the Difference – the Journey to “Good Data”

James Tcheng, MD, Professor of Medicine, Professor of Family Medicine and Community Health (Informatics), Assistant Dean for Appointments, Promotion and Tenure, Duke University Health System

1:30-2:00 PM

Leveraging Community Partnerships to Develop Innovative Research Designs.

Keyonna King, DrPH, MA, Assistant Professor, Department of Health Promotion, Center for Reducing Health Disparities, UNMC College of Public Health, Co-Director, Community Engagement Core, GP IDeA-CTR

2:00-3:00 PM

Creating Engineering Innovators: Remaking Engineering Education to Prepare Engineering “Stem-Cells”

Richard K. Miller, PhD, President Emeritus, Professor of Mechanical Engineering, Olin College of Engineering; Jerome C. Hunsaker Visiting Professor of Aerospace Systems, Massachusetts Institute of Technology

3:00-3:15 PM

Break

3:15-5:00 PM

CTR Superstar: Innovations and Commercializable Inventions to Improve Community Health

Judges:

Alice Ammerman, DrPH, Mildred Kaufman Distinguished Professor, Department of Nutrition, Director, Center for Health Promotion and Disease Prevention, University of North Carolina-Chapel Hill, Gillings School of Global Public Health

Michael Dixon, PhD, President & CEO, UNeMed

Maj. Gen. (Ret.) Rick Evans, Executive Director, National Strategic Research Institute

Michael B. Yanney, Chairman Emeritus, Burlington Capital

Day 2

Thursday, October 7th | 8:00 AM – 1:00 PM CST

Sponsored by the UNMC College of Medicine Research & Development Committee

8:00-8:10 AM

Welcome Announcements

Howard Fox, MD, PhD, *Senior Associate Dean for Research and Development*
Babu Guda, PhD, *Assistant Dean for Research and Development*

8:10-8:40 AM

“*Staphylococcus aureus* Biofilm Infections Induce Immune Dysfunction”

Tammy Kielian, PhD, *Professor, Pathology and Microbiology*

8:45-9:15 AM

“Measurements of Patient-Generated SARS-CoV-2 Aerosols and Surface Contamination at the University of Nebraska Medical Center”

Joshua Santarpia, PhD, *Associate Professor, Pathology and Microbiology*

9:20-9:50 AM

“Engineering Novel Biomaterials for Biomedical Applications”

Jingwei Xie, PhD, *Professor, Surgery*

9:50-10:00 AM

Break (During this time, please enter the [Breakout Discussions Zoom Meeting](#))

10:00-10:45 AM

Breakout Discussions*

*The breakout discussions are in a separate Zoom meeting where you may self-select the room(s) you would like to enter. Details below:

[Join Zoom Meeting](#)
ID: 992 5682 3117
Passcode: 372678

Room 1: “Advanced Applications of Biomechanics Research in Medicine”

Nick Stergiou, PhD, *Assistant Dean and Director of the Division of Biomechanics and Research Development, University of Nebraska at Omaha*

Room 2: “Intuition, Discovery and Insights from a Rare and Obscure Disease” | Bill Rizzo, MD, Professor, Pediatrics

Room 3: “Pharmacological Advances in the Treatment and Prevention of HIV and HBV Infections” | Benson Edagwa, PhD, Associate Professor, PEN

10:45-11:00 AM

Break (During this time, please return to the [Main Zoom Webinar](#))

11:00-12:00 PM

“A Big Idea: The Nebraska Drug Discovery and Development Pipeline”

Ken Bayles, PhD, *Professor, Pathology and Microbiology*

12:00-1:00 PM

“Updates in High-Risk Squamous Cell Carcinoma: A Bedside-to-Bench Approach”

Ashley Wysong, MD, MS, *Chair, Dermatology*

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Distinguished Speakers and Judges

October 6th, 2021



Hal Stern is Provost and Executive Vice Chancellor and Chancellor's Professor in the Department of Statistics at the University of California, Irvine (UCI). Stern previously served UCI as founding chair of the Department of Statistics, Dean of the Donald Bren School of Information and Computer Sciences, and Vice Provost for Academic Planning. He is known for his research on Bayesian statistical methods and for collaborative projects in the life sciences and social sciences. Current areas of interest include applications of statistical methods in psychiatry and human behavior and forensic science



Dr. James E. Tcheng is a Professor of Medicine and a Professor of Family Medicine and Community Health (Informatics) at Duke University, Durham, NC. He is a practicing interventional cardiologist and faculty of the Duke Clinical Research Institute and the Duke Center for Health Informatics. He serves as Chief Medical Information Officer of the Duke Heart Network, Information Technology Director for the Duke Heart Center, Director of Performance Improvement for the Duke Cardiology Division, and Assistant Dean for Appointments, Promotion and Tenure for the Duke School of Medicine. He is a key investigator of the FDA Medical Device Epidemiology Network (MDEpiNet), past chair of the American College of Cardiology Informatics and Information Technology Committee, and advisor to numerous medical innovation companies. His current work focuses on harmonizing the clinical and operational definitions and informatics of cardiovascular clinical data elements across academia, regulatory agencies, the life sciences industry, professional societies, and standards organizations, to improve the capture, communication, interoperability, and analysis of healthcare information.



Keyonna King has a doctorate in public health with a concentration in preventive care from Loma Linda University, and a Masters in psychology with a clinical emphasis from Pepperdine University. Dr. King is one of the first recipients of the prestigious Bill & Melinda Gates Millennium Scholarship. She has worked closely with one of her mentors, Dr. Susanne Montgomery, on mixed methods research designs and has extensive experience utilizing the Community-Based Participatory Research (CBPR) approach with minority communities. She also has conducted many hours of training and consulting with graduate students, faculty, and community about utilizing the CBPR

approach to conduct research. Dr. King is an Omaha native and spent 11 years in California pursuing her educational and professional goals. She was a senior research associate and project manager at UCLA's Clinical and Translational Science Institute within their Community Engagement and Research Program core, led by Drs. Arleen Brown, Keith Norris, and the late Loretta Jones. The Community Engagement core's leadership mentored her to continue enhancing her skills in community-engaged research.

Currently, Dr. King is an assistant professor at University of Nebraska Medical Center in the College of Public Health, Department of Health Promotion. She practices the CBPR approach to engage community in projects to address health disparities through UNMC's Center for Reducing Health Disparities. Specifically, she partners with the North Omaha community to address priority health needs, typically where disparities exist, such as mental health, chronic disease intervention and prevention, violence, and improving the diversity of the healthcare workforce. Dr. King also teaches the Applications of CBPR to doctoral students in the PhD Health Promotion and Disease Prevention Research. Dr. King focuses her personal research efforts on using CBPR to address health disparities in minority communities. Specifically, she focuses on understanding and addressing depression in African American men as it relates to environmental stressors. She also concentrates on improving mental and physical health outcomes for African Americans and American Indians/Native Americans.

Distinguished Speakers and Judges, continued

October 6th, 2021



Richard K. Miller was appointed President and first employee of Olin College of Engineering in 1999 where he served for 21 years until he stepped down in June 2020 and became President Emeritus and Professor of Mechanical Engineering. He served as the Jerome C. Hunsaker Visiting Professor of Aerospace Systems at MIT during the 2020-2021 academic year. Previously, he served as Dean of Engineering at the University of Iowa, Associate Dean of Engineering at USC in Los Angeles, and assistant professor of engineering at UCSB in Santa Barbara.

Miller is a Fellow of the American Academy of Arts & Sciences, a Fellow of the National Academy of Inventors, and a Member of the National Academy of Engineering (NAE). He received the 2017 Brock International Prize in Education. Together with two Olin colleagues, he received the 2013 Bernard M. Gordon Prize from the NAE for Innovation in Engineering and Technology Education. In 2011, he received the Marlowe Award for creative and distinguished administrative leadership from the American Society for Engineering Education.

Miller has served as Chair of the Board on Higher Education and Workforce of the National Academies of Science, Engineering, and Medicine (NASEM) and as Chair of the Engineering Advisory Committee of the National Science Foundation. He has also served on advisory boards and committees for Harvard University, Stanford University, the NAE, NASEM, and the U.S. Military Academy at West Point as well as others. In addition, he has served as a consultant to the World Bank in the establishment of new universities in developing countries. A frequent speaker on higher education, he received the 2002 Distinguished Engineering Alumnus Award from the University of California at Davis, where he earned his B.S. He earned his S.M. from MIT and Ph.D. from the California Institute of Technology, where he received the 2014 Caltech Distinguished Alumni Award.

CTR Superstar Competition: Meet the Judges



Dr. Alice Ammerman is the Mildred Kaufman Distinguished Professor in the Department of Nutrition, Gillings School of Global Public Health, and Director of the Center for Health Promotion and Disease Prevention (a CDC Prevention Research Center) at the University of North Carolina at Chapel Hill. Her research focuses on the design, testing, implementation, and dissemination of innovative clinical and community-based nutrition and physical activity interventions for health promotion in primarily low-income communities and with people of color. Current projects focus on adaptation of the Mediterranean diet (Med-South) for the southeastern US, behavioral economics, school nutrition, the interface between healthy food access and local food systems, and social entrepreneurship as a sustainable approach to addressing public health concerns.



Dr. Michael Dixon is President and CEO of the UNeMed Corporation, a company that works with faculty, students and staff of the University of Nebraska Medical Center (UNMC), and Nebraska Medicine to help commercialize innovative, new ideas that have the potential to improve public health for Nebraska residents and beyond. Dr. Dixon and the UNeMed staff work to match industry, entrepreneurs and investors with university researchers to foster partnerships for the commercial development of new technology. Dr. Dixon's tenure at UNMC began in 1998 when he joined the Eppley Institute for Research in Cancer and Allied Diseases. Dr. Dixon's research interests at UNMC were focused in the areas of molecular biology, genetics, and biochemistry. In 2003, a move that transitioned him from the bench to the business side of science, Dr. Dixon joined the UNMC technology transfer

office and began working with researchers to protect and develop new technology. As President and CEO of UNeMed, Dr. Dixon is responsible for setting UNeMed's strategic path and directing UNeMed's activities; including efforts to protect, market, and license new technology. Under his leadership, UNeMed has more than doubled the number of new inventions and licenses it executes each year. In addition, UNeMed revenues have increased 10-fold. Dr. Dixon is a graduate of Leadership Omaha Class 32 and a 2011 recipient of the Midlands Business Journal "40 under 40" award. An active member of the community, Dr. Dixon serves on several Boards, including Invest Nebraska, a nonprofit venture development organization that advises and invests in companies and early stage business ideas in Nebraska, and Bio Nebraska, a nonprofit trade association dedicated to the development and growth of Nebraska's bioscience industry.

Distinguished Speakers and Judges, continued

October 6th, 2021

CTR Superstar Competition: Meet the Judges



Major General, USAF (Ret.) Richard J. Evans III (Rick) serves as the Executive Director for the National Strategic Research Institute (NSRI), a national security-focused research institute created by the University of Nebraska. In this executive role, he leads and manages Department of Defense (DoD) research opportunities for the University of Nebraska System. NSRI is one of only 14 DoD-designated University Affiliated Research Centers (UARCs) nationally and is sponsored by the United States Strategic Command (USSTRATCOM), headquartered at Offutt Air Force Base, Nebraska. NSRI is the only UARC sponsored by a Combatant Command. NSRI assists USSTRATCOM and other U.S. Government entities by providing critical research and support focused on enabling deterrence of, preparedness for and response to strategic national security threats across multiple domains.

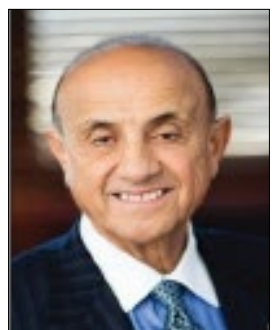
Since its standup in 2012, the Institute has received nearly \$300 million in contracts and federal grants and executed over \$93 million in direct research. More than 350 NU faculty and students in multiple disciplines across the university system have worked on projects funded through or by NSRI. NSRI's base UARC Contract with USSTRATCOM now extends through 2025.

Evans joined the NSRI as Deputy Executive Director on Dec. 1, 2019. He was appointed as the Interim Executive Director on Jan. 1, 2021 and became the permanent Executive Director on Jul. 1, 2021. Before joining NSRI, he served more than 35 years in the U.S. Air Force and Air National Guard, retiring at the rank of Major General in October, 2019.

Prior to his retirement, Evans served at USSTRATCOM from 2012-2019 in several key senior staff positions, including serving as the Acting Deputy Commander for four months in 2016. His last assignment was as Mobilization Assistant to USSTRATCOM Commander and Director of Reserve Forces. He was also the Program Manager for USSTRATCOM's \$1.2 billion Command and Control Facility from 2017-2019, a facility often labeled as the most technologically advanced in all of DoD. Evans has significant command experience, including at the Detachment, Squadron, Group and Wing levels. He is a Master Navigator with more than 4,000 flying hours, primarily in RF-4, KC-135, RC-135, E-4 and E-6 aircraft. He completed a number of combat assignments, including leading air mobility operations for NATO Operation Unified Protector (Libya) in 2011. He received numerous awards, decorations and other recognition during his long military career.

Evans received a bachelor's degree from the University of Nebraska at Omaha (UNO) in 1984 and was named a Distinguished Alumni of the UNO College of Business Administration in 2018. He currently serves as the Chair of the UNO Chancellor's Military and Veterans Affairs Advisory Cabinet. He is also a graduate of numerous military schools and courses, including the U.S. Air Force Air War College and the Program in National and International Security at Harvard University's John F. Kennedy School of Government.

Evans and his wife, Joy, are the parents of two sons, John and Jeff. He resides in Lincoln, Nebraska.



Michael B. Yanney founded the Burlington Capital, formerly America First Companies L.L.C. in 1984 and currently serves as Chairman Emeritus. Mr. Yanney has over 58 years of business and investment experience. From 1977 until the organization of America First in 1984, Mr. Yanney was principally engaged in the ownership and management of commercial banks. From 1961 to 1977, Mr. Yanney was employed by Omaha National Bank and Omaha National Corporation (now part of US Bank), where he held various positions, including Executive Vice President and Treasurer of the holding company. Mr. Yanney has significant experience in the development and operation of agribusiness projects in Russia and other countries of the former Soviet Union, having been involved in a total of more than 40 agricultural related projects in the former Soviet Union over the last 30 years. Mr. Yanney was formerly a director of Burlington Northern Santa Fe Corporation, Level 3 Communications, Inc., Freddie Mac Advisory Board, Durham Resources, Inc., Freedom Communications, Inc., Forest Oil Corporation, MFS Communications, Inc., PKS Information Services, Inc., Omaha Steaks, Tetrad, Lozier and America First Apartment Investors. Mr. Yanney is a graduate of the University of Nebraska at Kearney and the Wisconsin University School of Banking. Mr. Yanney is the husband of Dr. Gail Walling Yanney and the father of Lisa Y. Roskens, Chairman & CEO of Burlington Capital.

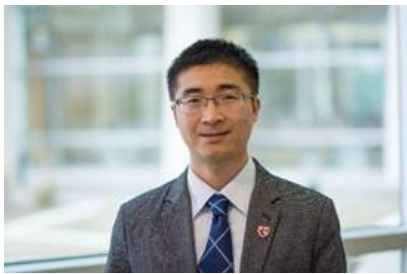
CTR Superstar Competition Contenders

October 6th, 2021



Dr. Amanda Brinkworth is a broadly trained molecular microbiologist, and her research career has focused on identifying and dissecting survival mechanisms employed by bacterial pathogens. She received her Ph.D. from University of Louisville School of Medicine in KY from 2006-2011 under the instruction of Dr. Rey Carabeo, where she identified interactions of the type III secretion system required for efficient invasion of human epithelial cells by the pathogen *Chlamydia trachomatis*. During her postdoctoral work at University of Montana with Dr. D. Scott Samuels from 2011-2013, she became fascinated with the specialized transcriptional regulation mechanisms of the Lyme

Disease pathogen, *Borrelia burgdorferi*, that enable it to transition through its enzootic cycle between the drastically different environments of mammalian and arthropod hosts. Here she gained training in both tick and mouse models of infection and contributed to multiple projects defining borrelial factors involved in transmission. Continued postdoctoral training at the NIH/NIAID Rocky Mountain Laboratory in Hamilton, MT under Dr. Frank DeLeo's guidance strengthened her molecular toolkit as she characterized the protein character of the highly antibiotic-resistant nosocomial ST258 *Klebsiella pneumoniae* strain. She returned to working on *Chlamydia trachomatis* in 2015 as an NRSA Postdoctoral Trainee and then as a Research Assistant Professor in 2018 at Washington State University. She joined the Department of Pathology and Microbiology at UNMC as an Assistant Professor, where she continues to study *Chlamydia trachomatis* host-pathogen interactions in the genital tract. She is also beginning an exciting project on *Borrelia burgdorferi* transmission by Ixodes ticks, which she will speak to you about today.



Dr. Duan is an Associate Professor in the Holland Regenerative Medicine Program and Internal Medicine. He received his Ph.D. at the University of Hong Kong, and his postdoc training at Cornell University. He joined UNMC in November 2015. Dr. Duan's lab is interested in developing novel biomaterials and biofabrication techniques for various biomedical applications. The research goal of Dr. Duan's lab is to create multi-scale complexity within engineered tissues to understand the fundamentals of cell-material interactions and mimic the native tissues for biomedical applications with a specific emphasis on tissue disease and tissue regeneration.



Dr. Andrew Hamann is a Research Assistant Professor at UNL within the Biological Systems Engineering Department. His research focuses on both understanding biological mechanisms of gene delivery as well as applying this knowledge towards engineering materials and systems for novel therapeutic approaches. Specifically, his research has focused on nonviral gene delivery to modify mesenchymal stem cells and engineering extracellular vesicles for loading and targeted delivery of potential biotherapeutics, such as microRNAs. His long-term goal is to grow a research program developing innovative biomedical technologies focused on gene and cell therapies while collaborating with disease experts to translate research into products that can impact patients and improve human health.



Dr. Amanda Rodriguez is an Assistant Professor and the Director of the Concussion and Vestibular Evaluation Laboratory at the University of Nebraska-Lincoln. She is also a Resident Faculty member in the Center of Brain, Biology and Behavior. She received her Au.D. and Ph.D. in Audiology and Vestibular Function-Assessment from Texas Tech University Health Sciences Center. Following, she completed a T32 post-doc fellowship at Boys Town National Research Hospital. Her research interests include examining the effects of sport's concussion on the vestibular system and the relations between vestibular loss and other modifiable health factors. In addition, Dr. Rodriguez is a practicing

vestibular audiologist and provides diagnostic vestibular and balance services for the Barkley Speech, Language, and Hearing Clinic and Nebraska Athletics.