

Executive summary

Regional Neuroscience Research Collaboration: The Alabama Experience

Kevin A. Roth, Robert and Ruth Anderson Professor and Chair, Department of Pathology, University of Alabama at Birmingham

- The Alabama Neuroscience Blueprint Core Center was established in 2006 as one of four Neuroscience Blueprint Interdisciplinary Center Core Grant (P30) Program awardees. The Centers were awarded based on their ability to meet the needs and unique requirements of their local and regional neuroscience research communities.
- The original application included approximately 50 investigators from UAB, Southern Research Institute, Auburn University, University of Alabama, Tulane University, Louisiana State University, and University of South Alabama.
- The P30 program funding our center emphasizes developing effective infrastructure and addressing regional neuroscience needs. The Alabama Neuroscience Center is designed to facilitate interdisciplinary investigation of nervous system function and dysfunction..
- The Alabama Neuroscience Blueprint Core Center rapidly met its original goals and now serves in support of neuroscientists at UAB and participating institutions throughout the Deep South.
- The establishment of this regional neuroscience research center has had a transformative effect on the neuroscience community at UAB and participating institutions and may serve as a model for other regional research efforts. The impact of our award has been felt well beyond the borders of Alabama.

Evolution of Reproductive Sciences at KUMC

Paul Terranova, Vice Chancellor for Research, University of Kansas Medical Center

- The current reproductive research at KUMC emanated from the Department of Obstetrics in 1959 when Kermit Krantz, MD was appointed chairman of the department. Dr. Krantz hired Gilbert Greenwald, Ph.D. who became a world class leader in reproductive biology and led KUMC faculty recruiting to the utmost.
- His involvement in the longest standing (43 years) NIH supported Center (Kansas Intellectual and Developmental Disabilities Research Center) led to the formation of the Center for Reproductive Sciences, Interdisciplinary Center for Male Contraceptive Research and Drug Development, and the Institute for Maternal Fetal Biology.

Collaborations, Scale Invariance, and the Extended Trust

Robert Duncan, Vice Chancellor for Research, University of Missouri

- We collaborate out of our mutual desire to improve our personal performance beyond the level that we can obtain through our efforts in isolation. This is the first and most fundamental criteria for a successful collaboration.
- We look for the collaboration to provide an immediate market for our efforts. We see ourselves as bringing some rare skill or perspective to the larger effort that is valued, and that value will help increase the significance of the entire effort.
- Clearly future collaborations will be required between our major research institutions within the Midwest to build coherently on our strengths in the Animal Health Corridor. As this large-scale collaboration moves more into human health, it will be important for us as a region to develop the infrastructure necessary to become a national powerhouse in translational medicine.
- Business ethics dictates that no one institution will be able to perform their own performance trials that are necessary to bring their own medical products and drugs to market through FDA approval, so this alone will drive a much stronger regional collaboration between our institutions. Great advantages will be realized by those regions of the United States that learn how to collaborate gainfully over a vast range of scales. We look forward to being a critical part of this essential process.

The NBAF is Coming: How did it happen and why Manhattan?

Jerry Jaax, Associate Vice President for Research Compliance and University Veterinarian, Kansas State University

- In January of 2009 the Department of Homeland Security announced that Manhattan Kansas would be the site for the new National Bio and Agrodefense Facility. The winning strategy for the Heartland BioAgro Consortium is a study in planning, cooperation, and regional collaboration. The key element of the winning formula was the quality, breadth and depth of its many active partners.
- An early strategic decision was to create the “NBAF in Kansas Task Force,” a strong coalition committed to promoting the importance of research to protect the American food supply and agriculture economy.
- The Kansas Bioscience Authority was created by the Kansas Economic Growth Act of 2004 with the sole purpose of advancing Kansas’ leadership in bioscience. The KBA has been a driving force in the planning and execution of the successful bid to land the NBAF in the State.
- The Animal Health Corridor, a conglomeration of animal health industries greatly strengthened the case that Manhattan was ideally located for collaboration and exploitation of research products developed by the new federal laboratory.

- The Kansas City Life Sciences Institute provided an essential element in regional and bi-state cooperation and collaboration during the entire proposal process. Their involvement provided leadership and a coordinating presence in putting together the impressive and diverse regional consortium responsible for the winning proposal.
- In the late 1990s, K-State's commitment to build a major agricultural biocontainment facility, and the overwhelming community acceptance of the BRI was perhaps the biggest discriminator for DHS in their deliberation about a site for the NBAF.
- The formation of the Heartland BioAgro Consortium was a key strategic move in the formulation of the winning bid. The depth and breadth of regional collaboration and support is evident in the diverse makeup of the consortium.
- The Heartland BioAgro Consortium believed that co-location with Kansas State University, a major land grant university with a college of veterinary medicine; and strong programs in agriculture would have strong appeal to planners for the new NBAF. This was in fact borne out in DHS decision matrix documents.

The University of Minnesota Biocontainment Laboratory: What It Is and the Emphasis on Regional

George Stewart, McKee Professor of Microbial Pathogenesis and Chair,
Department of Veterinary Pathobiology, University of Missouri

- The RBL network can become a major resource to universities and provide the necessary research environment to advance our knowledge of biothreat and emerging infectious disease agents.
- With the large number of diseases arising naturally in the past twenty years, these facilities will play a vital role in protecting American public health in the years to come.
- To effectively utilize these facilities, researchers must learn to establish research ties with these specialized facilities and the RBL host university must establish effective lines of communication with regional universities and private sector companies to facilitate cooperative research agreements.
- Regional biocontainment laboratories should be truly regional and universities must learn to be less territorial in dealing with their sister institutions. The biocontainment facilities should be a source of new opportunities and if managed correctly, not a fiscal drain on the host university.

Roles of a Center and Institute in Promoting Regional Research Collaborations

Peter Smith, Director, Kansas Intellectual and Developmental Disabilities
Research Center, University of Kansas Medical Center

- The role of collaboration in research has become more dominant with the passage of time, as it has become difficult to find individuals whose breadth of technical skills could address the full range of emerging medical questions.
- Logistical issues to be overcome in order to successfully develop collaborative research are as follows: Identifying target areas of research, growing the investigator base, creating group cohesion and a common cause, and thinking regionally.
- A significant challenge in promoting translational research programs is developing communication among individuals with convergent interests. Weekly Translational Discovery Forums (TDFs) provide a vehicle that brings together established scientists and trainees, clinicians and basic researchers, to share interests and ideas in a setting that encourages interactions.
- Partnerships with existing programs have become increasingly important over the past decade. An economy of scale can be beneficial. Typically, independent programs have common interests and needs, and there is little advantage in duplicating existing resources that may already have the capacity to serve additional purposes.

Contract Staffing Partnerships

Kerry Taylor, Assistant Vice President for Research (Animal Care), Kansas State
University

- The recruitment and selection of a highly trained and motivated staff is perhaps one of the most difficult tasks facing animal-based research programs today.
- Only those institutes that can successfully optimize the mix of in-house, contract and outsourced individuals into a collective of talented and trusted employees will be able to survive and thrive.
- One key ingredient to building an effective research team is the adoption of a counter-intuitive approach to selection of human resources.
- The most successful programs will ensure that staff possess baseline technical abilities and have the interpersonal skills which are critical for meeting the analytical challenges and productivity requirements of laboratory facilities nationwide.

Forming Successful Unconventional Collaborations

Annie Sobel, Assistant to the Provost and the Vice President, University of Missouri

- Forming and sustaining unconventional collaborations is an opportunity to advance knowledge in unanticipated and sometimes surprising ways.
- The exploration of relationships, ideas, cultures, and the range of scientific disciplines define the edges of innovation and entrepreneurship.
- Navigating the landscape to promote successful collaboration is often challenging. Collaboration requires continued nurturing through resources and institutional support to retain sustainability.
- Many collaborations converge on a challenging set of problems and issues characterized as multi-dimensional or inter-disciplinary, and may be catalyzed by emergencies.

Using Analytical Chemistry to Unravel Disease State Mechanisms: Application to Huntington's Disease

Michael Johnson, Assistant Professor of Chemistry, University of Kansas

- In today's research environment, productive collaborations are essential for maximizing the impact of research efforts. This is especially true in neuroscience, one of the most rapidly advancing scientific fields. Productive collaborations have been a positive force in enhancing our ability to address important problems in neuroscience.
- Provided as an example of a collaborative effort are our studies on Huntington's disease, a fatal, genetic neurological disorder. The mission of our laboratory is to develop and apply analytical methods for the study of biological systems.
- Our mission has been enhanced by several important collaborations. These include a collaboration with a research group in Germany to obtain transgenic Huntington's disease rats, and collaborations at the University of Kansas which have strengthened our experimental approaches by expanding our repertoire of capabilities to collect neurochemical and behavioral measurements separately.
- These types of complementary efforts are expected to become increasingly important for neuroscience research as newer, more specialized techniques are developed.

The Nebraska Center for Molecular Biology of Neurosensory Systems: A Collaborative COBRE Project

Shelley Smith, Professor of Pediatrics, University of Nebraska Medical Center

- The Center for Neurosensory Systems has helped build an interactive group of researchers from 3 independent institutions, providing critical core facilities and bringing them together to produce the critical mass that supports discussion and growth of knowledge.
- The funding of research projects and provision of a mentoring program has resulted in independent funding for junior faculty who previously had not had that level of funding, helping our institutions “grow our own”.
- Through additional support from other funding sources such as the INBRE or the University of Nebraska, the core facilities enhance the research infrastructure benefiting researchers at all 3 institutions.
- By networking with regional and national COBRE, INBRE, and SEPA researchers, the investment of the NCRN in IDeA states is leveraged further, so that the level of research quality is increased across the region.

Expanding the Reach of KU Research Through Regional Collaborations

Steve Warren, Vice Provost for Research & Graduate Studies, University of Kansas

- Collaboration brings different knowledge sets and skills together to solve complex problems. However, it is often difficult and comes at a price. It requires social interaction, trust, and must offer advantages for all involved parties. People collaborate because it is necessary to solve an important problem.
- Local collaborations will continue to be the dominant form as measured by sheer numbers of participants. But if there is a good reason to collaborate with someone across the country or on the other side of the world, it is feasible due to email, Skype, secure websites, relatively cheap and frequent air travel. This has become so common that we think little of it.
- Given the relative ease of communicating and collaborating with great talent anywhere in the world, why limit ourselves to “regional collaborations? Here are three scenarios in which regional collaborations may be exactly the right approach: 1) uniquely regional research problems; 2) the development and maintenance of certain types of expensive research infrastructure; and 3) some regional economic development initiatives.