

The IDeA Program In Oklahoma

The IDeA program has been instrumental in building a strong biomedical research competency, scientific statewide networks that serve as a national segment of the population and contribute to competitiveness. Oklahoma has successfully implemented a program to grow strong, multi-institutional initiatives in biomedical research. This was achieved through shared infrastructure, attracting competitive funding, and mentoring innovative programs that take advantage of our communities. Over the past five years, Oklahoma has been awarded over **\$95 million for IDeA** program projects and has leveraged this to receive over **\$150M in additional competitive awards**.



Communities within Oklahoma have significant rural, urban and minority populations that suffer from health disparities. IDeA programs have increased the pipeline for minority and rural students to enter biomedical careers, enhanced Tribal college science and research programs, and focused research efforts on understanding and eliminating health disparities. The IDeA program is strategically positioned to expand the efforts in this area.

The two major components of IDeA are: the **Centers of Biomedical Research Excellence (COBRE)** program; and the **IDeA Networks of Biomedical Research Excellence (INBRE)** program. These two programs are highly complementary and provide a well-balanced and interwoven structure. Moreover, they develop both nationally competitive research centers and statewide multi-institutional networks that link traditionally under-represented groups with medical centers and biomedical research institutions.

Oklahoma COBRE:

The Oklahoma COBRE program has increased the number of well-trained investigators by expanding research facilities, equipping laboratories with the latest research equipment, providing mentoring for promising investigators, and developing research faculty through support of a targeted multi-disciplinary center. Each is led by an established, senior investigator with expertise in the research focus area of the center. The Oklahoma COBRE programs promote basic research by supporting multidisciplinary centers that augment and strengthen institutional biomedical research capacity. Diabetes, lupus and vision research represent areas addressed in Oklahoma's research centers.

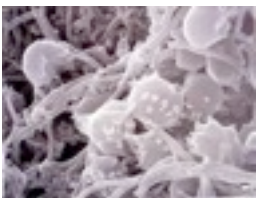
Oklahoma COBRE Programs:

Science in a Culture of Mentoring:



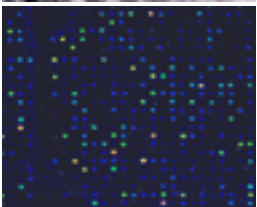
- Operational from 2000-2015, and awarded **\$21.7 million** plus **28.8 million in additional grants** (14 RO1, 9 R21 and R03, 18 non-NIH grants)
- Launched **12 independent research careers**
- Advances immunology research in Oklahoma through recruiting junior scientists. Their research topics include vaccine immunology, autoimmunity, Alzheimer's research, and other complex human diseases.

Biofilm Formation and Metabolism on Dental Surfaces:



- Operational from 2000-2010 and awarded **\$9.7 million**. These junior investigators have received an additional **\$14 million** in grants (9 RO1 and 24 non-NIH grants)
- Recruits investigators to examine microbial formation on teeth in order to translate research knowledge into treatment and prevention of oral disease.

Functional Genomic/Proteomic Analysis of Bacterial/Host Interactions:



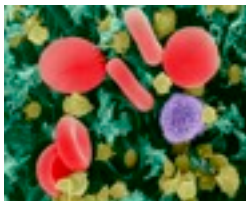
- 2000-2010, awarded **\$20.9 million** and **\$31 million in additional grants** (10 RO1, 7 R21 and R03, and 27 non-NIH grants)
- Supports **8 junior investigators**
- Uses genome-scale and proteomic analysis of bacterial pathogenesis in order to increase our knowledge of bacterial and host interactions.

Mentoring Vision Research in Oklahoma:



- Operational from 2002-2012, awarded **\$23.8 million** and **\$33.5 million in additional grants** (13 RO1, 5 R21 and R03, and 6 non-NIH grants)
- Improves vision research through the mentoring of early career investigators and

develops support for the infrastructure of vision research programs



Post-Translational Modification in Host Defense: Interdisciplinary Research in Vascular Biology:

- Operational from 2003-2015, awarded **\$22.2 million** and **\$11 million in additional grants** (6 RO1 and 25 non-NIH grants)
- Studies the function of diverse protein modifications used in host defense; builds interdisciplinary program in cardiovascular biology.

Molecular Mechanisms and Genetics of Autoimmunity:



- Operational from 2004-2014, awarded **\$24.9 million** and **\$10.7 million in additional grants** (4 RO1, 2 R21 and R03, 13 other grants)
- recruited **8 new faculty members**
- Examines disease processes and potential genetic risk factors in order to understand development and progression of autoimmune disorders

Mentoring Diabetes Research in Oklahoma:



- Operational from 2007-2012
- Supports **5 junior investigators**
- Mentors junior investigators in diabetes research to facilitate translational research toward the development of new treatments and preventive measures for diabetes.

Oklahoma INBRE:

The INBRE program increases the pipeline of outstanding students and enhances the quality of science faculty by research intensive networking at undergraduate institutions. The INBRE program supports research infrastructure and **mentoring of young investigators, and prepares students for graduate and professional schools as well as careers in the biomedical sciences at participating institutions.** The Oklahoma INBRE supports major research projects in the areas of microbiology and immunology, cancer, and developmental biology. Cores and facilities include a Bioinformatics core, supporting the science of understanding the structure and function of genes and proteins through advanced, computer-aided statistical analysis and pattern discovery; an Imaging Core that conducts research using live animal magnetic resonance imaging; and an Outreach Core that will increase the number of undergraduates involved in STEM research programs. Oklahoma INBRE has been awarded **\$46.6 million from 2000 and 2014.** In addition to the INBRE funds, the Oklahoma INBRE participating faculty members have also been awarded: **9 RO1, 5 R21 and RO3s, and 89 non-NIH grant awards totaling \$20.8 million.**

INBRE goals are to: (1) develop a statewide, multi-disciplinary thematic research network of doctoral degree granting/research intensive institutions and undergraduate institutions; (2) build and increase research capacity by supporting faculty, fellows, and students at participating institutions; (3) provide undergraduate faculty and students research support, and serve as a “pipeline” to health research careers; (4) provide outreach to students at undergraduate institutions, community colleges and tribal colleges; and (5) enhance the science and technology knowledge base and the economy statewide.