



Kentucky's Biomedical Research Centers



NIH provided **\$16.2 million** in FY15-16 to Kentucky's medical researchers through Institutional Development Awards (IDeA) in the fields of: Oral Health, Spinal Cord Injury, Disease Prevention, Cancer Treatment, Obesity & Cardiovascular Disease, Diabetes & Obesity, Bioinformatics, and Hepatobiology & Toxicology. Collectively, the **total federal funding provided by NIH-IDeA Awards to KY comes to over \$215 million from 2000-2016.**

Centers of Biomedical Research Excellence (COBRE)

Eight of KY's IDeA awards are for the establishment of Centers of Biomedical Research Excellence (COBRE)'s. These awards are located at the University of Louisville and the University of Kentucky, the state's two largest Research institutions with full fledged medical centers. The COBRE's have a twofold purpose:

- ❖ to train junior medical investigators and assist them on their path to independent federal funding, and
- ❖ to build top notch research facilities.

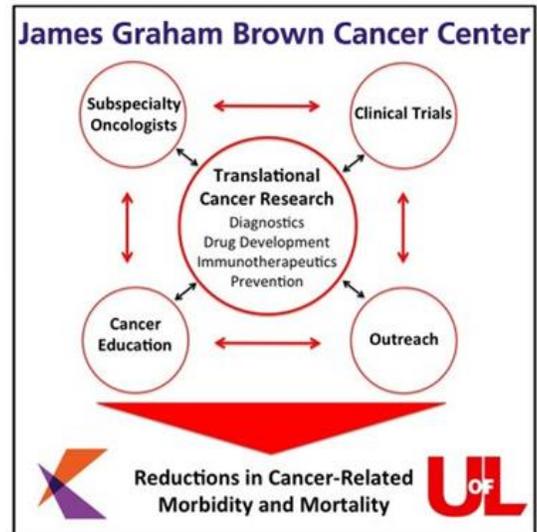
Below is a list of KY's current and previously funded COBRE's:

Centers at the University of Louisville:

Research Focus *	Award Total	Yrs in Operation
Spinal Cord Injury	\$24.9 Million	2000 - 2016
Cancer Targets	\$26.3 Million	2003 - 2018
Birth Defects	\$16.5 Million	2002 - 2014
Diabetes & Obesity	\$ 18.9 Million	2008 - 2018
Alcohol Toxicology	\$ 2.6 Million	2016 - 2021

Centers at the University of Kentucky:

Research Focus *	Award Total	Yrs in Operation
Oral Health	\$23.7 Million	2004 - 2019
Human Disease	\$21.8 Million	2004 - 2019
Women's Health	\$21.1 Million	2000 - 2011
Obesity & Heart Disease	\$15.2 Million	2008 - 2018



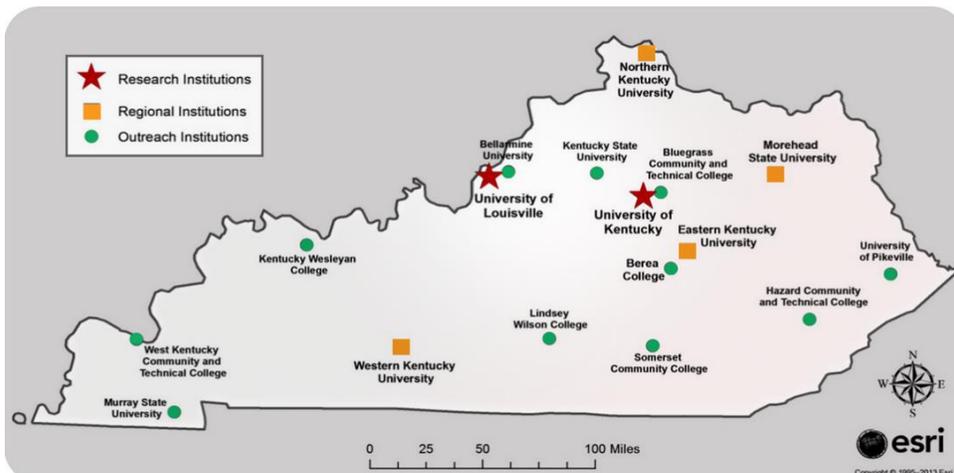
The diagram above shows the multi-pronged approach UofL's Brown Cancer Center takes in the fight against cancer. Note that research (through the IDeA funded COBRE for Cancer targets) takes the most prominent role in the center, tying the effort together.

IDeA Networks of Biomedical Research Excellence (INBRE)

In addition to the COBRE's, the University of Louisville has received a longstanding INBRE award, initially called KBRIN (KY Biomedical Research Infrastructure Network), the goal of which is to expand biomedical research activities across the state, with a strong focus on undergraduate research.



- Biomedical Research Network (**\$53.2 Million**, 2001 - 2019, UofL)



KBRIN's impacts for the state include:

- 37 junior faculty awarded NIH R15 (AREA) grants
- 3 postdoctoral investigators promoted to assistant professor positions
- 3 junior faculty received NSF/NIH Career awards
- 1 faculty received a NIH PECASE (Presidential Early Career Award for Scientists & Engineers)
- 186 out of 476 undergraduates (39%) entered graduate/professional degree programs
- 289 peer-reviewed journal articles

The map above identifies partners and outreach institutions in KBRIN's statewide biomedical research network.

COBRE Program Highlights

KY Statewide EPSCoR Program www.kyepscor.org 2016



Center for - Spinal Cord Injury

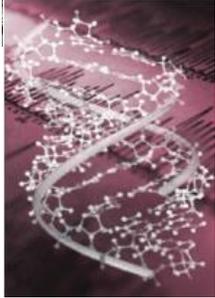
The mission at UofL's Kentucky Spinal Cord Injury Research Center (KSCIRC) is to find successful spinal cord repair strategies in the laboratory that can be taken to the clinic in a timely and responsible fashion.

- The Center is **1 of only 12** of its kind in the United States
- **12 PIs** have received **independent R01 funding** from NIH
- **10 Ph.D students** and **3 Master's students** have graduated from the center

Center for - Molecular Targets for Cancer

With support from UofL's Brown Cancer Center, this COBRE funds research to identify new molecular 'targets' for cancer.

- **1 anticancer drug** in phase III clinical development and **3 anticancer drugs** licensed and in pre-clinical testing (**without COBRE funding, this would not have been possible**).
- Started a **summer research internship program** for high school & undergraduate students
- **5 PI's have independent NIH funding**
- COBRE spawned the **creation of a biotech company**, Advanced Cancer Therapeutics (ACT) specifically to aid the center's drug development capabilities.



Center for - Birth Defects

UofL's Birth Defects Center is a collaborative effort of more than **40 researchers and physicians** from multiple departments in the Schools of Medicine, Dentistry, Nursing and Arts and Sciences. The COBRE's mission is to improve the diagnosis, treatment and prevention of biological abnormalities associated with the development of the human embryo.

- **9 faculty positions have been created** at the Birth Defects Center
- **The center stopped receiving IDEa funding in 2014, however, continues on as a vital and independently funded research center at UofL.**



Center for - Oral Health

Awarded to UK's College of Dentistry, this COBRE investigates how oral diseases affects other health problems including HIV, atherosclerosis, gestational diabetes, dementia, and viral/bacterial interactions in chronic disease.

- **4 junior investigators have received independent funding from NIH (R01, R21, R41)**
- The Center hosts a **monthly seminar series** and has provided research training opportunities for
- **10 pre-doctoral dental students, 3 graduate students** and **1 PhD student**.
- COBRE funding also provided for the **expansion of the clinical research facility**

Center for - Molecular Basis of Human Disease

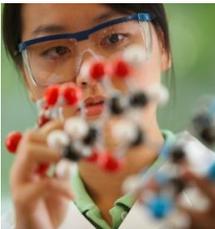
Awarded to UK's Department of Molecular and Cellular Biochemistry, the COBRE investigates prevention and treatment modalities for diseases including degenerative muscular affliction in the elderly, diabetes, lung cancer, leukemia, and Huntington's disease.

- Received both **NSF EPSCoR RII** and **COBRE awards** underscoring the department's success
- **23 junior faculty** from **9 different departments** at UK indicating a **broad outreach**
- **17 have received independent research funding (R01) from NIH**



Center for - Women's Health

This COBRE funded the creation of UK's Center for Women's Health Research for studying the unique role of gender and female reproductive hormones in the manifestation of health and disease.



Center for - Obesity and Cardiovascular Disease

This UK research center was created to identify mechanisms linking the epidemic of obesity to the high incidence of cardiovascular diseases in Kentucky's population.

Center for - Diabetes and Obesity Research

This UofL Center's mission is to investigate cardiovascular causes and consequences of diabetes & obesity.

- **Kentucky has one of the highest rates of diabetes and obesity in the country** (40% of KY adults are pre-diabetic and 65% are overweight)
- Diabetes increases cardiovascular risk 2-15 fold
- Heart disease accounts for 60-70% of all type 2 diabetic deaths

