



## The IDeA Program in Kentucky

NIH provided **\$21 million** in FY10 to Kentucky medical researchers through nine (9) Institutional Development Awards (IDeA) in the fields of: Women’s Health, Oral Health, Spinal Cord Injury, Birth Defects, Disease Prevention, Cancer treatment, Obesity & Cardiovascular Disease, Diabetes & Obesity and Bioinformatics. Collectively, the **total federal funding provided by NIH-IDEA Awards to KY comes to \$170 million from 2000-2014**. We are second only to Louisiana in the amount of IDeA funding received by state. Since 2001, KY’s IDeA Awards have **employed 916 people** including 515 students, 135 junior investigators, 140 faculty & postdocs, and 126 staff & technicians. IDeA funding has brought **\$2.7 million of scientific research equipment** to KY facilities, from which recipients have produced **1,679 publications**, made **1,192 presentations** to local, national & international audiences, and secured an additional **\$280 million** through **500 new extramural research grants**.

### 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 1 institutions with full fledged medical centers. The COBRE’s have a twofold purpose: **1)** to train junior medical investigators and assist them on their path to independent federal funding and **2)** to build top notch research facilities. (See back page for highlights of each of the Centers listed below)

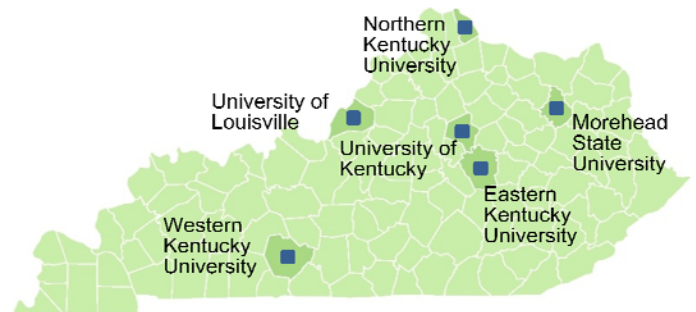
#### Centers at the **University of Louisville:**

<u>Research Focus</u>	<u>Award Total</u>	<u>Yrs in Operation</u>
• Spinal Cord Injury	<b>\$18.5 Million</b>	2000 – 2010
• Cancer Targets	<b>\$21.0 Million</b>	2003 – 2013
• Birth Defects	<b>\$11.6 Million</b>	2002 – 2013
• Diabetes & Obesity	<b>\$ 8.1 Million</b>	2008 – 2013

#### Centers at the **University of Kentucky:**

<u>Research Focus</u>	<u>Award Total</u>	<u>Yrs in Operation</u>
• Oral Health	<b>\$23.4 Million</b>	2004 – 2014
• Human Disease	<b>\$21.8 Million</b>	2004 – 2014
• Women’s Health	<b>\$21.1 Million</b>	2000 – 2011
• Obesity & Heart Disease	<b>\$ 6.5 Million</b>	2008 – 2013

#### Kentucky Institutions with IDeA Awards



### IDeA Networks of Biomedical Research Excellence (INBRE)

The goal of KY’s INBRE program is to expand biomedical research activities across the state. Through increased student training and career development in the primarily undergraduate universities (PUI)s, INBRE funding develops KY’s next generation of biomedical researchers. Currently, the institutions in the network include: Morehead State University, Northern Kentucky University, Western Kentucky University, Eastern Kentucky University, the University of Louisville and the University of Kentucky. In addition to scientific workforce development, the INBRE award also builds critically important bioinformatics infrastructure which helps researchers to quantify large volumes of data produced through genomic techniques.

INBRE impacts for the state include:

- ❖ **\$41.6 million awarded to KY from 2001-2014**
- ❖ **37 junior faculty** awarded **R15 (AREA)grant** awards from NIH
- ❖ **3** postdoctoral level investigators promoted to **assistant professor positions**
- ❖ **3 junior faculty** received **Career awards from NSF/NIH**
- ❖ **First faculty in KY** to receive **NIH PECASE** (Presidential Early Career Award for Scientists & Engineers)
- ❖ **186** out of **476 undergraduate students (39%)** have entered graduate or professional degree programs
- ❖ **289 articles** published in peer-reviewed journals
- ❖ WKU graduate student completes the DNA sequencing of a virus genome (41,538 base pairs ) for inclusion in **Genbank, NIH’s genetic sequence database**



# COBRE Program Highlights

## 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.
- An **unexpected research outcome**: Inhibitors developed by COBRE scientists may have **applications in treating macular degeneration**, an area with few effective drugs

## Center for - Birth Defects

UofL's Birth Defects Center is a collaborative effort of more than **30 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.

- **6 junior faculty** have received **independent investigator status with ROI or K02 funding**
- **9 new faculty positions** have been created at the Birth Defects Center

## 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.

- **Ranked in the top 20 biochemistry departments** at US public medical schools by NIH funding
- 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**
- Received **2 NIH Shared Instrumentation Grants** to enhance the UK proteomics core
- 2 faculty received NIH's **2008 and 2010 Maciag Award** which recognizes research excellence and innovation and commitment to mentoring new scientists.

## 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.

- Faculty have produced **694 publications**, including **350 peer-reviewed journal articles**
- Received **141 additional grants** totaling **\$118 million** in subsequent research funding.

## 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.

- **8 junior faculty** have received **independent investigator status with ROI or R21 funding**
- Faculty at the center have competitively won an additional \$9 million in research funding

## Center for - Diabetes and Obesity Research

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

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

