

# Kentucky Biomedical Research Infrastructure Network



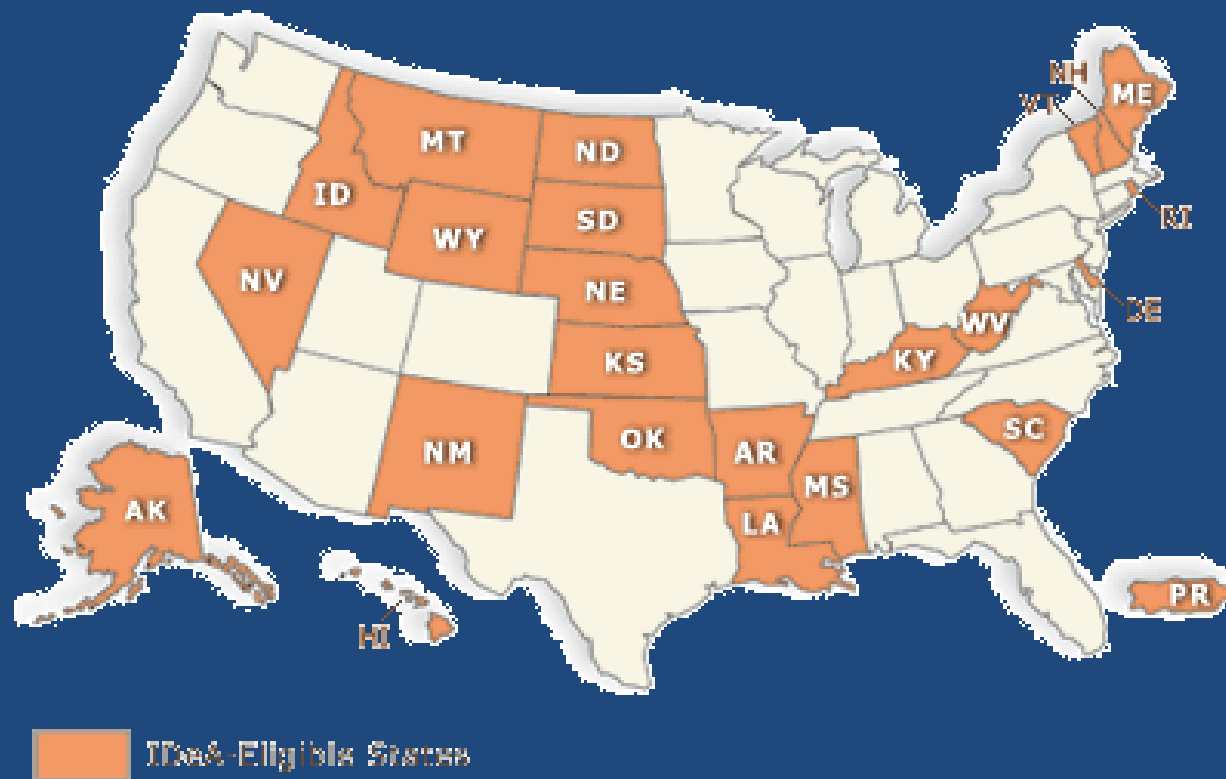
Program Coordinator: Bruce Mattingly, Ph.D., Morehead State University

WKU Visit  
April, 2014

# Kentucky Biomedical Research Infrastructure Network



- A Kentucky BRIN- Award was received in 2001 as part of the NIH Institutional Development Award (IDeA) Program.
- The IDeA Program contains 2 types of award (COBREs and INBREs) funded by National Institute of General Medical Sciences
- KBRIN is currently funded through the INBRE program until 2014
- A new 5 year (2014 – 2019) renewal application is pending.
- Program Director: Nigel Cooper, Ph.D., University of Louisville School of Medicine



**IDeA Networks of Biomedical Research Excellence (INBRE)** enhance biomedical research capacity, expand and strengthen the research capabilities of biomedical faculty, and provide access to biomedical resources for promising undergraduate students throughout the eligible states. INBRE supports a statewide system of institutions with a multidisciplinary, thematic scientific focus.

**Centers of Biomedical Research Excellence (COBRE)** augment and strengthen institutional biomedical research capabilities by expanding and developing biomedical faculty research capability through support of a multidisciplinary center, led by a peer-reviewed, NIH-funded investigator with expertise central to the theme of the grant proposal.

## **FY2012: Top 5 States/Territories Receiving NIH Awards**

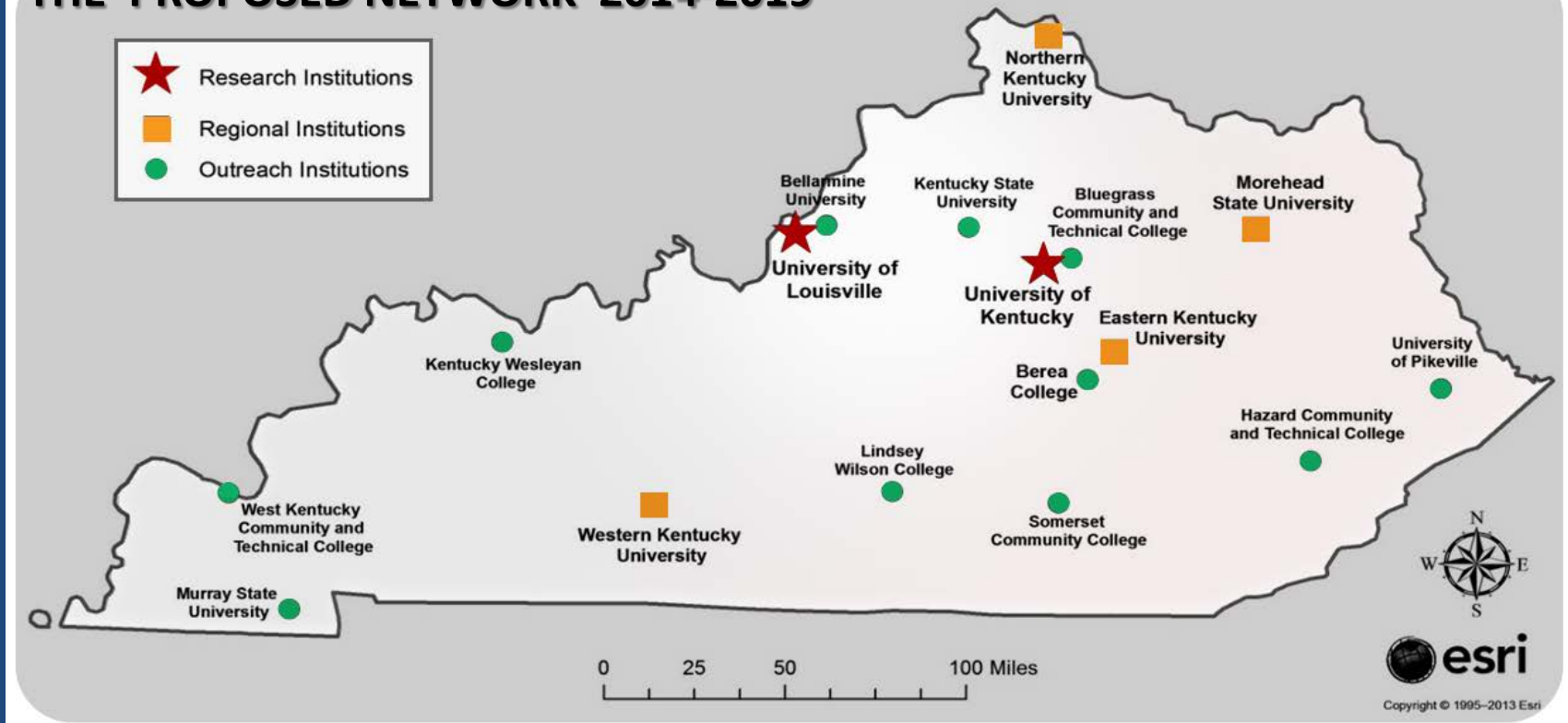
#1	CALIFORNIA	\$3.2 B
#2	MASSACHUSETTS	\$2.2 B
#3	NEW YORK	\$1.8 B
#4	PENNSYLVANIA	\$1.3 B
#5	TEXAS	\$1.0 B

<b>#30</b>	<b>Kentucky</b>	<b>\$138 M</b>
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Data available on the new Research Portfolio Online Reporting Tool (RePORT): <http://report.nih.gov>



## THE PROPOSED NETWORK 2014-2019



- A statewide collaborative community
- Hosted by the University of Louisville



**\$1 million -** Administrative Core  
Genomics Core  
Bioinformatics Core  
Applied Statistics Core  
Pilot NGS Projects  
Bioinformatics Summit

**Research Intensive Institutions**

**\$1.5 million -** Developmental Research Programs  
Support/Logistics  
Workshops  
Summer Student Programs  
Small Genome Project  
Pilot NGS Projects

**Regional Comprehensive Institutions  
Outreach Institutions**

***Over \$41 million total costs – 13 years***

# THE *IDeA* in KENTUCKY

## RESOURCES

JUNIOR FACULTY

PILOT PROJECTS LEADING  
TO FEDERALLY COMPETITIVE  
INVESTIGATORS IN  
BIOMEDICAL RESEARCH

## TWD FOR THE NEW ECONOMY

WELL-TRAINED STUDENTS

BUILD A BETTER PIPELINE.  
INVESTIGATORS CONTRIBUTE  
TO HEALTH SCIENCES  
RESEARCH, EDUCATION  
AND  
HEALTH

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SUSTAINABLE INFRASTRUCTURE



## Major objectives:

- I. Increase State's **research capacity** for biomedical research
- II. Enhance quality of the **pipeline** from undergraduate to **advanced degrees** in biomedical and health related sciences.

Provide **undergraduate students** with more opportunities for quality research experiences

Increase the number of **undergraduate students** interested in a career in biomedical research.





# I. Research Capacity Building Strategies:

- ✓ Establish a **committed** network.
- ✓ Promote a **theme** – Functional Genomics.
- ✓ Build **state-of-the-art** core research facilities.
- ✓ **Recruit and train** junior research faculty.
- ✓ Facilitate **collaborations** between institutions.
- ✓ Develop a critical mass of **independently funded investigators** at each institution .
- ✓ Institutional commitments – **release time, research space, etc.**
- ✓ ***Developmental research funding.***

Ultimate Goal: Build **sustainable** research infrastructure

# ***Research Support Program Evolution***

## **➤ KBRIN 2001 – 2004:**

- 13 PUI colleges and universities
- Major research grants (~\$50K)
- Faculty Summer Fellowships (~\$10K)

## **➤ INBRE1 2004-2009**

- 4 regional state universities
- Major research grants (~\$100K)
- Faculty Summer Fellowships (~\$10K) – 2004 – 2005
- KBRIN-AREA Awards (Two Year, \$12.5K/year), 2006-2009
- Post-Doc/Tech Support (\$50K), 2007-2009

## **➤ INBRE2 2009-2014**

- Major Research Grants (Five year, \$75K/year)
- KBRIN-AREA Awards (Two-Year, \$25K/year)
- Post-Doc/Tech Support (\$25K-\$50K)
- Bridge Funding (\$20K-\$50K)
- Start-Up Awards (\$25K+\$25K match), 2012 - 2013

# ***INBRE3 Developmental Research Programs***

## ***2014 - 2019***

### **➤ Recruitment Award Programs:**

- Start-Up Award (\$25K + \$25K match)
- New Investigator Award (\$75K + \$25K match)

### **➤ Sustainability Award Programs:**

- Post-Doc/Tech Support (\$25K-\$50K)
- Bridge Funding (\$20K-\$50K)

### **➤ Research Development Award Program:**

- KBRIN-IDeA Awards (Two-Year, \$40K/year)

**New!**

# ***Developmental Research Core***

## **➤ Mentoring:**

- Scientific mentor
- Intensive NIH Grant Writing workshops
- Individual Proposal Reviews and Consultations
- Establish Metrics for Success
- Site visits

## **➤ Metrics/Expectations:**

- Must devote 50% effort to Research
- Institutional Commitment ~ cash match/release time/research facilities
- Must Involve Undergraduate Students
- Must submit an NIH grant each year
- Must publish a minimum of one research manuscript per year

# ***NIH R15 – Academic Research Enhancement Awards (AREA)***

AREA grants support research projects in the biomedical and behavioral sciences conducted by faculty and students in colleges/universities and health professional schools that have not received more than \$6 million in NIH research grants in 4 out of the last 7 fiscal years

The three goals of the AREA program are:

1. to support meritorious research,
2. to strengthen the research environment of the institution, and
3. to expose students to research.

*Max. Award \$300,000 for up to 3 years*

***The AREA or R15 grant is a research award and not a training award, so the focus is not on course work but on hands-on meritorious research.***

See <http://grants.nih.gov/grants/funding/area.htm> for detailed information

# ***KBRIN Recruitment Awards***

**Purpose:** to facilitate the recruitment of qualified junior faculty at Kentucky colleges and universities who have the background, training, and motivation to establish an externally-funded biomedical research program involving undergraduate students.

## **Faculty Start-Up Awards:**

- One-year award
- \$25,000 + \$25,000 Institutional Match
- 25% release time required
- Must attend KBRIN R15 Grant writing Workshop
- Expected to apply for KBRIN-IDeA Award in first year

## **Distinguished New Investigator Awards:**

- Two-year award
- \$75,000/year + \$25,000 institutional match
- 50% release time required
- Must attend KBRIN R15 workshop
- Must submit an NIH R15 proposal within first year

# ***KBRIN Post-Doctoral Fellow Awards***

**Purpose:** The purpose of this program is two-fold:

- 1) to enhance the productivity of the NIH-R15 funded faculty member during the award period by providing full-time management of the laboratory; and
- 2) to train and develop new Ph.D. investigators for faculty positions at PUIs.

## **Conditions and Awards:**

- Must have an active NIH R15 grant
- Maximum award is \$25,000 direct costs + F & A
- Post-doctoral salary must follow NIH compensation scale
- Maximum Post-Doc teaching is one-course per semester with institutional support
- Must have a career development plan in place
- PI must devote at least 50% effort to research

# ***KBRIN Bridge Funding Award***

## **Purpose**

The purpose of this program is to enable NIH-funded faculty to maintain their research program for short periods of time between the lapse of initial grant funding and the start of a new or renewal NIH grant award

## **Eligibility, Conditions and Awards:**

- Must have an expiring NIH R15 grant and a renewal application pending or to be submitted shortly
- The applicant must show evidence of research progress and meeting the expected KBRIN metrics (e.g., publications, grant proposals, etc).
- Must have at least 50% release time for research
- Maximum award is \$50,000 + F&A
- Awards are for one year and are non-renewable



# ***KBRIN-IDeA (Investigator Development Award)***

## **Purpose:**

The objective of this program is to provide support to promising junior investigators to establish a research program involving undergraduate students that is competitive for NIH funding

## **Eligibility:**

- **Tenure-track and tenured faculty** at Kentucky Colleges and Universities eligible for NIH R15 funding may apply.
- Applicants **must contact an NIH institute Program Officer** and provide a statement confirming that the research topic area is potentially fundable by an NIH institute or center.
- Applicants must have **attended a KBRIN NIH R15 grant writing workshop**
- Applicants **must identify a senior investigator** to serve as mentor/collaborator.
- Beyond the initial two-year award, renewal applications for an additional year of funding will be considered

# ***KBRIN-IDeA (Investigator Development Award)***

## **Conditions:**

- Institutions must grant the PI **50% release time** from teaching per academic year.
- PIs must **involve undergraduate students** in their research, monitor student progress, and provide tracking information to the KBRIN office.
- Applicants **must submit** an NIH-Academic Research Enhancement Award (AREA, R15) **grant proposal** prior to the conclusion of each grant period (annually for a two-year grant).
- Applicants are **expected to publish** a minimum of one research manuscript per year in a peer-reviewed PubMed journal.

# ***KBRIN-IDeA (Investigator Development Award)***

## **Awards:**

- Requests for funding may include expenses for supplies, equipment, use of core facilities, travel costs, summer salary, and undergraduate research assistants. **Funds may also be requested to partially cover the cost of faculty release time (Buy-out; maximum \$6000 annually)**
- Initial awards are limited **to a maximum of \$40,000 per year in direct costs for up to two years (\$80,000 total)**. The second year of funding is contingent upon research progress and continued NIH funding of the parent grant)
- Facilities and administrative (F&A) costs will be provided in addition to direct costs.

# ***KBRIN-IDeA (Investigator Development Award)***

## **Applications Guidelines :**

- To facilitate the preparation of future NIH-AREA (R15) proposals, applications *must be prepared following the instructions and format of NIH-AREA (R15) proposals* using the PHS 398 research grant application instructions and forms

## **Review Criteria:**

- Standard NIH R15 review criteria (**Significance, Innovation, Approach, Investigator, Environment**) along with mentor/collaborator qualifications, student training opportunities, and institutional support

# ***KBRIN-IDeA (Investigator Development Award)***

## **Review Process:**

- Submission deadline: TBA, probably early December, 2014
- Application package submitted as a single PDF file
- Reviewers with NIH R01/R15 experience from multiple disciplines
- Written reviews and scores provided in NIH format

## **Selection Process:**

- Proposals scored and discussed by review committee to obtain priority ranking
- Steering committee review and selection based upon ranks and funding available
- PI submits selected proposals to KBRIN External Advisory Committee for review and approval
- Approved proposals sent to NIGMS for administrative review



## Progress and Outcomes

# ***KBRIN-AREA (Academic Research Enhancement Awards)***

- 2009 to 2013: *Funding History*

24 investigators from 6 institutions were funded for 2-4 years:

- WKU – 10
- NKU – 7
- ECU - 4
- MSU - 3
- MUR - 1
- UofL - 1

❖ *Of 14 PIs who have completed two or more years of AREA funded research, **6 have been awarded NIH R15 grants***

❖ ***9 additional R15s** from Major, Post-doc & Bridge fund awardees*

## ***KBRIN-IDeA (Investigator Development Award)***

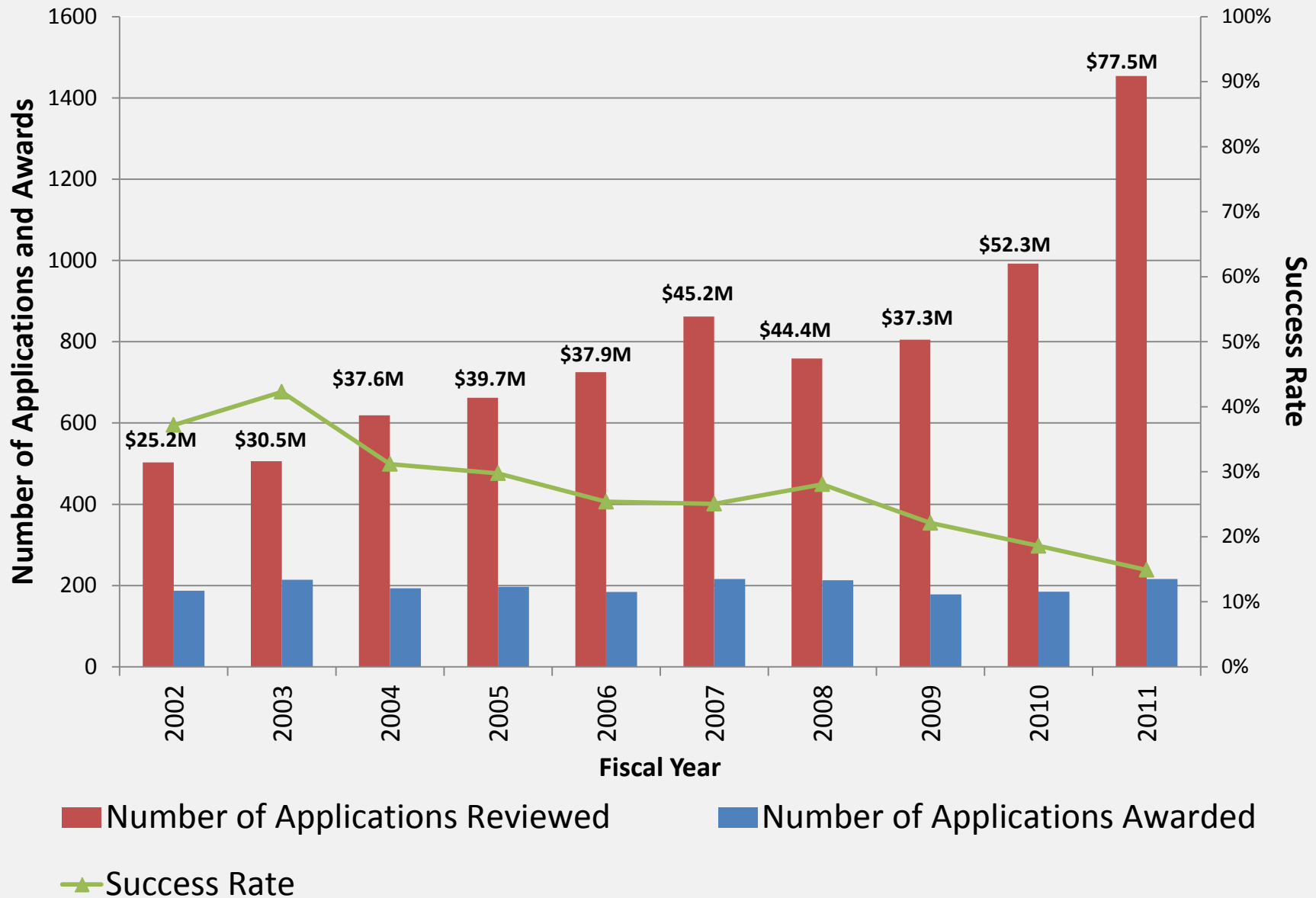
- **2014- 15 Competition:**
  - \$480,000 available for Direct Costs
  - Four 2<sup>nd</sup> year non-competitive renewal grants approved
  - 17 proposals received from 5 regional universities
  - Reviewed by 10 independent reviewers with NIH expertise
  - Proposals were discussed and ranked
  - The top eight research proposals were funded:
    - Five new proposals
    - Three one-year competitive renewals

**Total Awards for 2014-15 = 12**

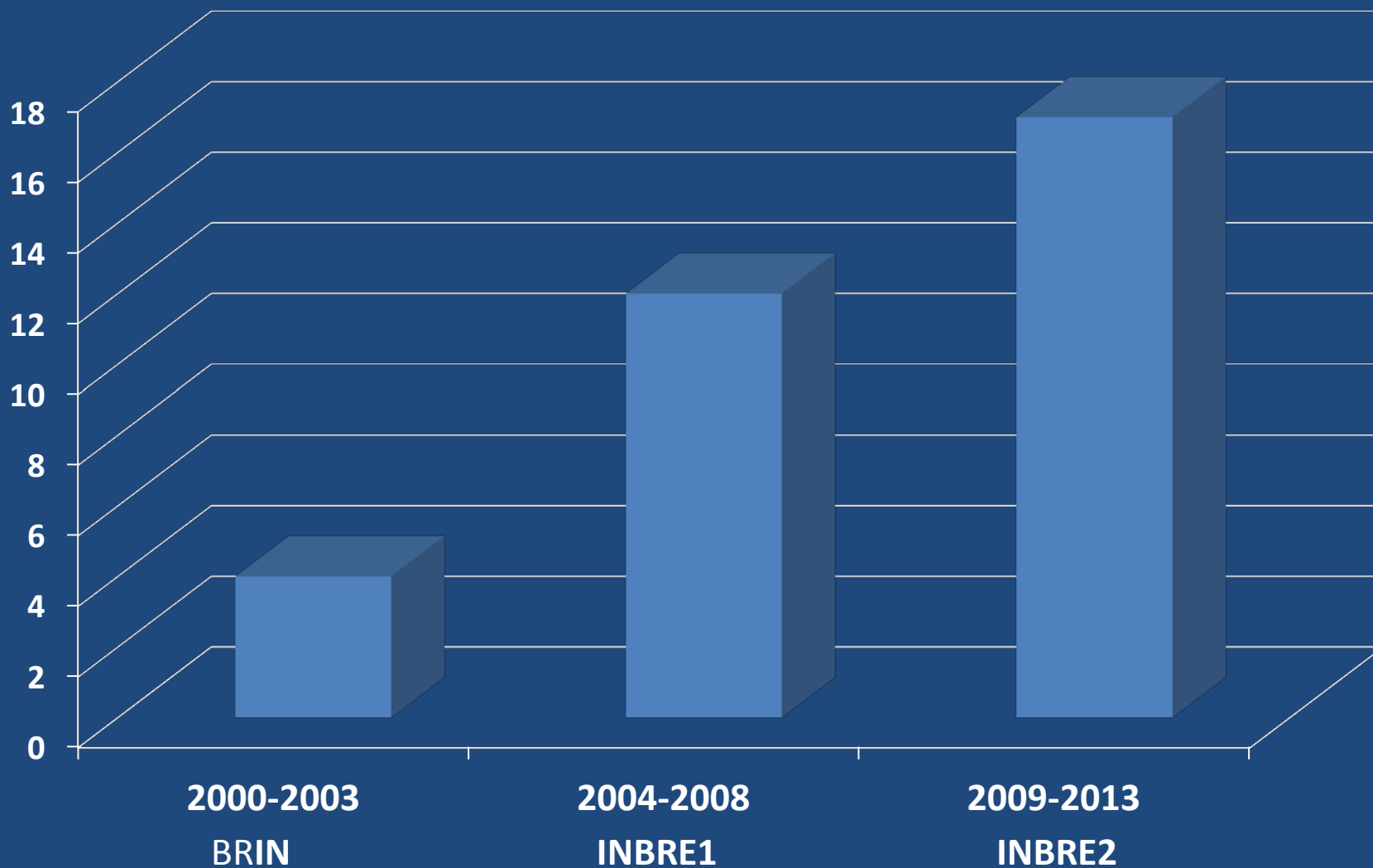
***Four awards to WKU faculty***



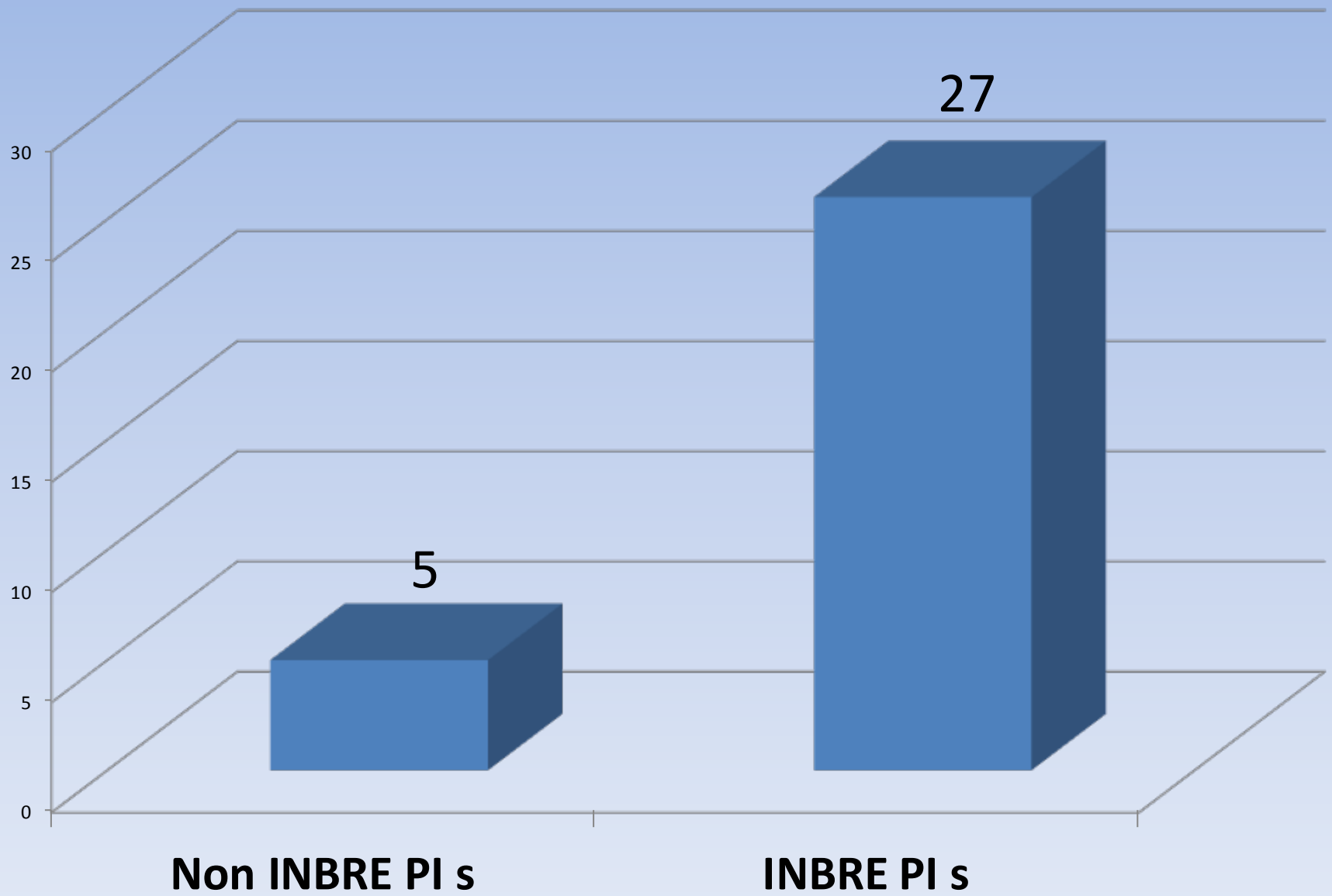
# NIH Funding Statistics for R15 AREA Program



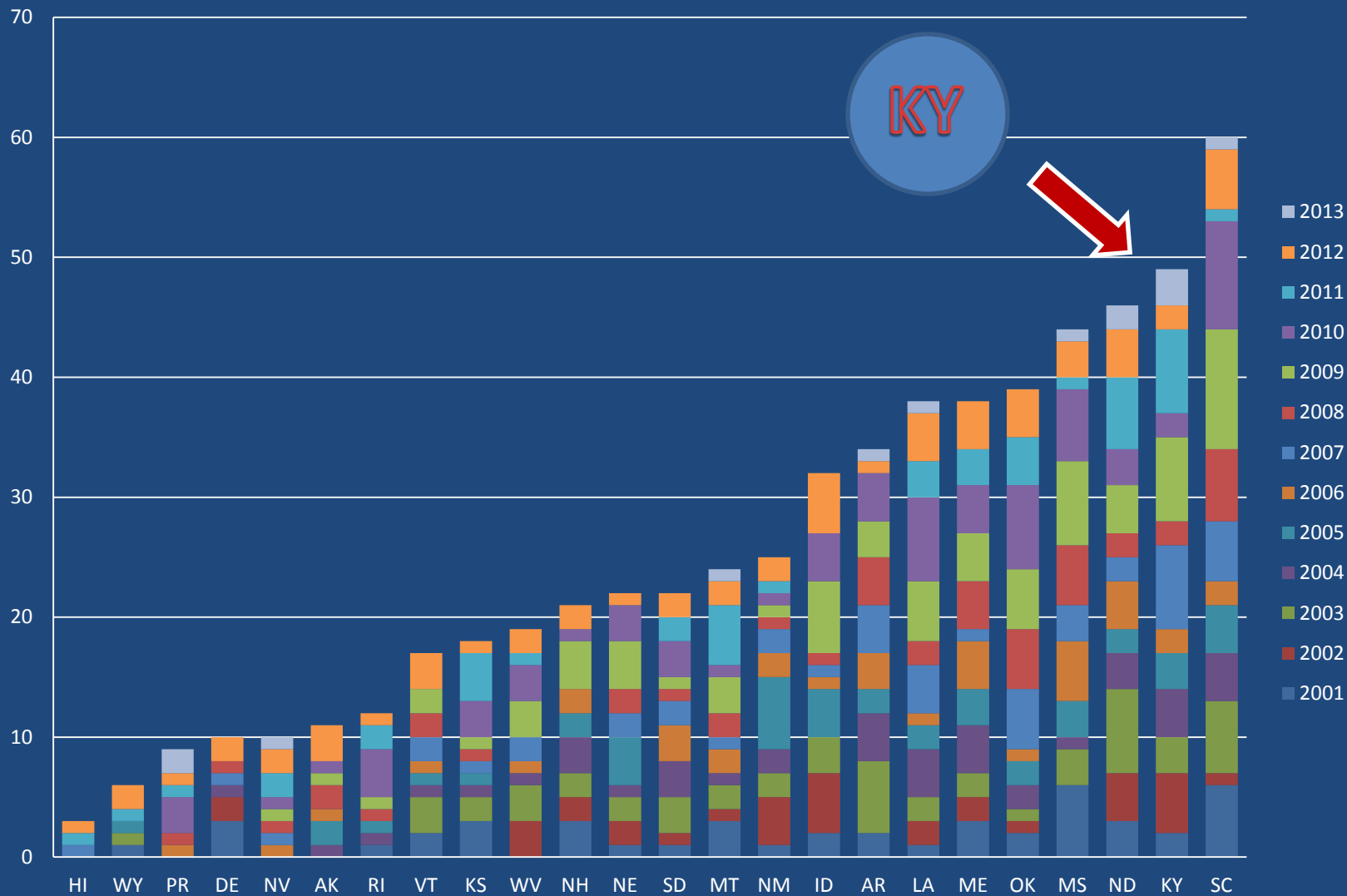
## NIH R15 Grants Awarded at KY PUIs during BRIN, INBRE1, and INBRE2 Years



## KY R15 Awards in the PUIs 2002-2013



## Cumulative R15 Awards in IDeA States 2001-2013



## Faculty Successes!

**47** awards  
including all  
universities

**32** awards  
excluding the  
major research  
institutions

**16** in last 5  
years!

Faculty	Institution	Year
Wesley White *	MSU	2002-06
Patrick Schultheis *	NKU	2002-05
Ilsun White	MSU	2003-07
Stephen Asmus	CEN	2004-07
Sterling Wright	MUR	2004-08
Brian Cusato	CEN	2006-09
Rodney King	WKU	2007-11
Nancy Rice	WKU	2007-11
Patrick Schultheis *	NKU	2007-10
Mark Bardgett *	NKU	2007-11
Wesley White *	MSU	2007-11
Sigrid Jacobshagen	WKU	2007-11
Kevin Williams	WKU	2007-10
Hazel Barton	NKU	2008-11
Doug Dennis *	MSU	2008-11
Stephen Asmus	CEN	2009-12
Stefan Paula	NKU	2009-12
Eimear Mullin	NKU	2009-12
Janelle Hare	MSU	2009-12
Doug Dennis *	MSU	2009-11
Alexey Arkov	MUR	2009-12
Cecile Marczynski	NKU	2010-13
Patrick Schultheis *	NKU	2010-13
Kristi Haik/H. Bullen	NKU	2011-14
Mark Bardgett *	NKU	2011-14
Rebekah Waikel	EKU	2011-14
Tanea Reed	EKU	2011-14
Wesley White *	MSU	2011-14
Chris Curren	NKU	2012-15
Janelle Hare*	MSU	2013-16
Katy Carlson	MSU	2013-16
Stefan Paula*	NKU	2013-16

## R15 Awards at KY PUIs

\* 7 PIs with  
multiple R15  
hits

**Nearly \$10 million in total funding!**



## II. Student Development Strategies:

- ✓ Summer Research Experiences at Research Intensive Institutions
- ✓ Academic Year Research Assistantships at Regional Institutions
- ✓ Small Genome Project – Outreach Institutions ~ **New at WKU**

**Ultimate Goal:** Increased number of well-prepared students pursuing graduate and/or professional training in biomedical/health related sciences.

*KBRIN Developmental Research Grants  
Workshops, Mentoring, Metrics*

*KBRIN Summer Undergraduate  
Research Programs  
Home Institution Research Programs*

NIH R15 Grants

NIH Bridge Grants  
NSF – REU Grants  
NSF – RUI Grants  
NSF – STEP Grants  
HHMI Grants

Increased Student Participation in Biomedical Research

### **Institutional Outcomes**

- Increased emphasis on student research
- Institutional support for student research
- State-wide membership in Council for Undergraduate Research (CUR)
- Institutional Offices of Undergraduate Research
- Curricular changes emphasizing research
- Institutional Student Research Celebrations

### **Student Outcomes**

- Increased research skills, training and confidence
- Increased student presentations/publications
- Increased students pursuing graduate and professional schools in biomedical sciences
- Skilled workforce



## WKU KBRIN Contacts:

*Dr. Cheryl Davis, KBRIN Lead Faculty*

## Current WKU Faculty who have received KBRIN funding:

- Claire Rinehart
- Sigrid Jacobshagen
- Rodney King
- Nancy Rice
- Michael Smith
- Di Wu
- Raja Dakshinamurthy
- Ajay Srivastava
- Noah Ashley
- Kim Soo Moon
- Nilesh Sharma
- Jill Maples
- Kevin Williams

➤ **2001-14 Total KBRIN Funding including F&A for WKU: \$4,537,010**

➤ **2014-15 Total KBRIN Budget including F&A for WKU: \$408,422**



# **NIH R15 Grant Writing Workshop**

## **KAS – Lexington, KY**

### **November 14<sup>th</sup>, 2014**

**Mark your  
calendar!**

#### **Tentative Agenda:**

- 9:00 am Registration & Continental Breakfast**
- 9:30 am Welcome & Introduction – Nigel Cooper**
- 9:45 am Overview of NIH & Proposal Development Strategy – Bruce Mattingly**
- 10:45 am Break**
- 11:00 am Anatomy of an NIH R15 AREA Proposal – Scott Niles**
- 12:00 pm Roundtable Lunch and Discussion**
- 1:00 pm Ingredients of a Successful NIH Proposal – Nigel Cooper**
- 2:00 pm Budget Development, Reviews & Revisions – Bruce Mattingly**
- 3:00 pm Break**
- 3:15 pm Panel Discussion – Recent R15 Recipients**
- 4:15 pm INBRE Resources & Future Directions – Nigel Cooper**
- 4:30 pm Adjournment**





Detailed information on all of KBRIN grant programs may be found at:

<http://louisville.edu/research/kbrin/>

# Questions?

