

Center for Biomedical Research  
Annual Report 2011-2012  
Bradley J. Roth, Director, CBR  
June 30, 2012

*Introduction*

The Center for Biomedical Research was busy during 2011-2012, a year marked by much change at Oakland University, particularly in research. It is often useful at times like these to recall the mission of the CBR:

- To promote and support biomedical research and education at Oakland University and allied Institutions
- To recruit and retain outstanding biomedical scientists
- To facilitate collaborative biomedical research projects
- To develop gift, grant and contract support for biomedical research programs, graduate and undergraduate training, core facilities and equipment.

This annual report describes how CBR activities during the last fiscal year have advanced this mission.

*Budget*

The budget indicates how the CBR supports biomedical research. Below I list how the CBR money (including the Research Excellence Fund, REF) was spent.

• REF awards	113,337
• Grad stipends	83,000
• ICP-MS	25,000
• Graduate tuition	24,865
• SUPER	18,000
• Director stipend	16,145
• ERI electron microscope	6,000
• Confocal microscope upgrade	5,000
• Gas/Safety cabinet	4,106
• Biology dump valve	2,926
• Winkler research support	1,500
• Dawkins talk	500
• Evolution of Violence meeting	500
• CBR research festival	364
• Misc	332
	\$301,575

The source of these funds is the \$259,852 REF funding, the CBR operating account with \$56,313, and the CBR gift fund.

## *Graduate Student Support*

Graduate student support (stipend and tuition) for the Biomedical Sciences graduate programs is an important item supported by the CBR. Typically six graduate students are supported (a stipend of \$7000/semester, plus tuition), two in each specialization of the Biomedical Sciences PhD program. Two PhD students were supported in both the Department of Physics and the Department of Chemistry. However, this year the Department of Biological Sciences chose to use these funds to support one PhD and two masters students. The CBR paid \$24,865 in tuition costs. The research office generously covered the remaining tuition through the Graduate Research Assistant Tuition (GReAT) program. The amount paid for stipends for the students was \$83,000, so that the total cost for graduate student support was \$107,865. Graduate students supported by the CBR were:

- Jessica Koppen, Health and Environmental Chemistry
- Jyothi Digambaranath, Health and Environmental Chemistry
- David Kahn, Medical Physics
- Nicholas Charteris, Medical Physics
- Rudragouda Channappanavar, Biological Communication
- Janell Halauer, MS Biology
- Brian Lynch, MS Biology

Koppen uses computational methods to study the optical properties of gold nanoclusters with Maria Bryant. Digambaranath graduated in April 2012, performing her dissertation research with CBR member John Finke, studying the structure of misfolded proteins, such as are important in Alzheimer's disease. Charteris worked with CBR member Evgeniy Khain, and attended the Joint 2012 MBI-NIMBioS-CAMBAM Summer Graduate Workshop on Stochastics Applied to Biological Systems in June. He was coauthor on a paper titled "Migration of Adhesive Glioma Cells: Front Propagation and Fingering" (Physical Review E, Volume 86, Article Number 011904, 2012). David Kahn works for CBR member Yang Xia, studying the properties of articular cartilage and its role in osteoarthritis. Rudragouda Channappanavar completed his PhD this year under CBR member Susmit Suvas. He was coauthor on an article "Substance P in the Corneal Stroma Regulates the Severity of Herpetic Stromal Keratitis Lesions" (Investigative Ophthalmology & Visual Science, Volume 52, Pages 8604-8613, 2011). Master student Janell Hallauer studies with CBR member Zijuan Liu, and published "Pentavalent Arsenate Transport by Zebrafish Phosphate Transporter NaPi-IIb1" (Zebrafish, Volume 8, Pages 125-131, 2011).

### *REF Research Awards*

The largest single expense arose from the competition for REF funds that was held in the winter. Funding decisions were made by an ad hoc committee consisting of myself plus Arik Dvir, Roman Dembinski, Ken Mitton, and Keith Williams. The following faculty were supported:

• Frank Giblin	ERI	17,500
• Shravan Chintala	ERI	13,000
• Ferman Chavez	Chemistry	15,500
• Nessian Kerrigan	Chemistry	15,500
• Evgeniy Khain	Physics	14,837
• Satish Walia	Biological Sci	10,000
• Doug Wendell	Biological Sci	5,000
• Shailesh Lal	Biological Sci	12,000
• Alex Zuo	Biological Sci	5,000
• Sumi Dinda	SHS	5,000
Total		113,337

The funds were awarded to help these faculty members perform their research, with the goal of stimulating external grant proposals. In some cases, the funds are helping young faculty obtain the preliminary data needed to get their first grant, and in other cases they act as bridge funding for previously funded faculty.

An additional \$15,000 was spent to fully fund the REF awards from the previous year (a tight budget resulted in parts of some of the awards being delayed until after the start of the fiscal year on July 1, 2011). Because the total REF awards (including the delayed part) was included in the budget in last year's annual report, I have not included it in this year's budget listed above.

### *Shared Resources*

The largest shared resource investment was the purchase of an Inductively Coupled Plasma--Mass Spectrometer (IPC-MS, total cost approximately \$160,000). This instrument was needed particularly by CBR member Zijuan Liu, an NIH-funded Assistant Professor in the Department of Biological Sciences, but will also be used widely by researchers throughout OU. Identification of funding was finalized during my last month as interim Vice Provost for Research, with the CBR contributing \$25,000. Other contributions were from the Department of Biological Sciences, the Provost's office, the College of Arts and Sciences, the Research Office, and the Department of Physics. The ICP-MS is now up and operational on the third floor of the Science and Engineering Building.

The Eye Research Institute has maintained a transmission electron microscope for many years, and is changing from supporting this instrument through external funds to supporting it by user fees. During this transition, the CBR has been providing partial support for the TEM, and this year supplied \$6000 for the

maintenance contract. CBR member Andrew Goldberg of the ERI has been leading this important effort.

The Department of Biological Sciences has maintained a Nikon Confocal Microscope System, used by many researchers at OU. Recently, several researchers requested an upgrade to this microscope: purchase of a bright field detection unit. Funding for this upgrade was split between the Research Office (\$10,000) and the CBR (\$5000).

One final infrastructure investment is about \$3000 to purchase dump valves for two water purification systems in the Department of Biological Sciences.

### *Other Budget Items*

During the first two months of the fiscal year, I was finishing my appointment as interim Vice Provost for Research, and was therefore not receiving the CBR director's stipend. The result was two months less spent on my stipend.

Each year the CBR provides \$18,000 to support the Eye Research Institute's Summer Undergraduate Program in Eye Research (SUPER). Students supported during the summer of 2011 include David Byrd, Daniel Feldmann, Amaal Haimout, Charlotte Massoll, Joseph Vercellone, Adrienne Wallace, and Alexandra Zetye.

The CBR granted \$1500 from the CBR gift fund to Prof. Barry Winkler to help cover his remaining research expenses. Winkler retired this year after 40 years in the Eye Research Institute. His career was marked by decades of external funding from the National Institutes of Health, leading to important advances in understanding the metabolism and physiology of the retina. Winkler gave his "last lecture" in March.

I continued the past practice of the CBR paying for liquid nitrogen, carbon dioxide, and recertification of biosafety cabinets in the Departments of Biological Sciences and Chemistry, totaling \$4106.

The Department of Psychology has become increasingly involved in biomedical research, particularly with the arrival of its chairman Todd Shackelford. Their new PhD program was approved this winter, and is scheduled to admit its first students in the fall. The CBR provided modest contributions to two Dept of Psychology programs that supported their research effort. Renowned evolutionary biologist, author, and advocate for science Richard Dawkins gave a talk at OU in October, and the CBR provided \$500 to support his visit. In April, the Department of Psychology organized a conference about "The Evolution of Violence," held at Meadow Brook Hall, and the CBR supplied another \$500 to support it.

### *CBR Activities*

I continue to maintain the News section of the CBR website ([www.oakland.edu/cbr](http://www.oakland.edu/cbr)), which highlights the accomplishments of OU biomedical researchers. Typically, one or two news items are posted each week. The CBR also has a Facebook page (<http://www.facebook.com/pages/Oakland-University-Center-for-Biomedical-Research/139479655553>) where you can keep up with the latest events and announcements. Like us!

The annual CBR/Sigma Xi Research Festival was held April 4, 2-4 pm in the hallway outside of 204 O'Dowd Hall. Approximately 20 students displayed posters about their research. All CBR members were invited to be judges in the top poster competition, and 12 faculty members participated. The event was followed by the Sigma Xi lecture at 4 pm by Ananias Diokno, Executive Vice President & Chief Medical Officer of Beaumont Health System. After his talk, the winners of the poster competition were announced. (The gift-card prizes were supplied by Sigma Xi).

Bala Burugula	\$250
Marla Spain	\$100
Daniel Feldmann	\$100
Farid Badar	\$100
Hypaitia Rauch	\$50
Chitra Murlidharan	\$50

The requirements for membership in the CBR are 1) at least an average of one biomedical publication per year over the last three years, 2) either current external support for research or at least one biomedical grant proposal per year over the last three years, and 3) at least one year working at OU. The full list of members can be found at the CBR website ([www.oakland.edu/cbr](http://www.oakland.edu/cbr)). This year, Assistant Professor Gerard Madlambayan, of the Department of Biological Sciences, was added as a new member of the CBR.

Other activities I participated in as CBR director include:

- Serving as a member of the organizing committee for the Second Midwest Conference on Stem Cell Biology and Therapy, to be held October 5-7, 2012 at Meadow Brook Hall.
- Met with candidates for a faculty position in the Department of Psychology.
- Sponsored and organized (with help from CBR member Yang Xia) a seminar by Michael Kleerekoper about Bone Micro-Architecture in February.
- Organized and led a tour of OU biomedical facilities for undergraduate biomedical engineering majors from Lawrence Tech University.
- Attended a grant writing workshop sponsored by the Research Office, and gave the closing remarks.
- Worked with the chair of the Department of Biological Sciences Arik Dvir, College of Arts and Sciences Associate Dean Kathy Moore, and representatives from Career Services to establish an internship program to get OU undergraduates obtaining experience in the local biosciences industry.
- Serving on the Premed Council.
- Presented a talk about "Where's the Money? Identifying Grant Funding Sources" at the School of Health Sciences annual faculty retreat.
- Nominated several young faculty for the National Institutes of Health Early Career Reviewer Program

## *Biomedical Research at Oakland University*

One celebrated event at OU this year was the arrival of the first class of 50 students to the Oakland University William Beaumont School of Medicine. This new medical school, led by Founding Dean Robert Folberg and established in partnership with Beaumont Health System, is dedicated to enabling students to become skillful, ethical, and compassionate physicians, inquisitive scientists who are invested in the scholarship of discovery, and dynamic and effective medical educators.

Another positive change this year was the hiring of the new Vice Provost for Research, Dorothy Nelson, who arrived in September. As CBR director, I have maintained an excellent working relationship with her while we both strive to promote research at OU.

Associate Dean Kathy Moore is principal investigator on a grant from the National Science Foundation through their ADVANCE program, aimed at increasing the participation and advancement of women in academic science and engineering careers. The grant establishes the Women in Science and Engineering at Oakland University (WISE@OU) program (<http://www.oakland.edu/advance>), with the goal of creating a comprehensive program in recruitment, retention, and career development of women or under-represented populations in the disciplines of science, technology, engineering and math (STEM). I have the honor of being part of the leadership team for this effort. Another impending change for biomedical research at Oakland is the scheduled retirement of Kathy Moore in the fall of 2012. During her term in the dean's office of the College of Arts and Sciences she has vigorously supported biomedical research. She kept the CBR alive during the interregnum between Denis Callewart's term as CBR director and mine. She will be a difficult act to follow for the new Associate Dean. Fortunately, she plans to continue in emeritus status leading the WISE@OU program.

OU biomedical researchers had a number of noteworthy accomplishments this year, including three grants to early-career assistant professors. CBR member Chhabi Govind, of the Department of Biological Sciences, was awarded a 5-year, \$1.3M grant from the National Institutes of Health. Govind's award is an example of how CBR seed money, in the form of REF funds in previous years, helps to generate a large external grant coming to OU. A joint OU-Beaumont research project led by CBR member Mohammad-Reza Siadat, of the Department of Computer Science and Engineering, and Ananias Diokno, Executive Vice President and Chief Medical Officer of Beaumont Health System, resulted in a \$644,456 grant from the National Institutes of Health. This award shows how OU-Beaumont Multidisciplinary Research Awards also provide seed money that often leads to an external grant. CBR member Libin Rong, of the Department of Mathematics & Statistics, was awarded a 3-year, \$189,551 grant from the National Science Foundation to study the mathematics of HIV infection. OU researchers continue to publish important research results, and many of these publications are featured on the CBR website (see the News Archive: <http://www.oakland.edu/news/?sid=247>).

Finally, the biggest change this year, announced in April, was that OU's Senior Vice President for Academic Affairs and Provost Virinder Moudgil accepted a new position as president of Lawrence Technological University. Provost Moudgil

has done more than anyone to promote biomedical research as Oakland University. He has been a consistent and strong supporter of the Center for Biomedical Research, and it was an honor to serve under him as interim Vice Provost for Research last year. Moreover, throughout his term as Provost he has spent his evenings and other free time continuing his biomedical research on the molecular mechanisms of steroid hormone action, and mentoring students in his lab. He will be missed indeed.

*Brad Roth*

U.S. Department of Health & Human Services

NATIONAL INSTITUTES OF HEALTH  
**Research Portfolio Online Reporting Tools (RePORT)**  
 REPORTS, DATA AND ANALYSES OF NIH RESEARCH ACTIVITIES

Search

HOME | ABOUT RePORT | FAQs | GLOSSARY | CONTACT US

QUICK LINKS RESEARCH ORGANIZATIONS WORKFORCE FUNDING REPORTS LINKS & DATA

Home > RePORTER > Project Search Results

MyRePORTER<sup>BETA</sup> Login | Register System Health:

**Project Search Results**

Back to Query Form Save Query Share Query

Export Current Page GO

PROJECTS PUBLICATIONS PATENTS DATA & VISUALIZE MAP<sup>BETA</sup> LINKS<sup>BETA</sup> NEWS & MORE<sup>BETA</sup>

There were 10 results matching your search criteria.  
 Click on the column header to sort the results

Show/Hide Search Criteria Page 1 of 1

T: Application Type; Act: Activity Code; Project: Admin IC, Serial No.; Year: Support Year/Supplement/Amendment

<input type="checkbox"/>	T	Act	Project	Year	Sub #	Project Title	Contact PI/ Project Leader	Organization	FY	Admin IC	Funding IC	FY Total Cost by IC	Similar Projects
<input type="checkbox"/>	5	R00	HL091177	04		<a href="#">PHYSIOLOGICAL ROLE OF ACTIVATION OF THE JAK/STAT PATHWAY IN HYPERTENSION</a>	<a href="#">BANES-BERCELLI, AMY</a>	OAKLAND UNIVERSITY	2011	NHLBI	NHLBI	\$240,514	
<input type="checkbox"/>	5	R01	EY002027	34		<a href="#">PROTEINS OF NORMAL AND CATARACTOUS LENSES</a>	<a href="#">GIBLIN, FRANK JOSEPH</a>	OAKLAND UNIVERSITY	2011	NEI	NEI	\$389,032	
<input type="checkbox"/>	5	R01	EY013246	10		<a href="#">MOLECULAR SCAFFOLDING FOR PHOTORECEPTOR OUTER SEGMENT STRUCTURE AND RENEWAL</a>	<a href="#">GOLDBERG, ANDREW FX</a>	OAKLAND UNIVERSITY	2011	NEI	NEI	\$342,275	
<input type="checkbox"/>	1	R01	GM095514	01A1		<a href="#">MECHANISMS OF RSC RECRUITMENT AND ITS ROLE IN TRANSCRIPTION</a>	<a href="#">GOVIND, CHHABI KUMAR</a>	OAKLAND UNIVERSITY	2011	NIGMS	NIGMS	\$272,207	
<input type="checkbox"/>	5	R01	EB008421	04		<a href="#">MAGNETO-ACOUSTIC EFFECTS IN IMAGING</a>	<a href="#">ROTH, BRADLEY JOHN</a>	OAKLAND UNIVERSITY	2011	NIBIB	NIBIB	\$92,815	
<input type="checkbox"/>	5	R01	CA045424	25		<a href="#">MECHANISMS FOR RADIATION DAMAGE TO DNA: LET EFFECTS</a>	<a href="#">SEVILLA, MICHAEL DOUGLAS</a>	OAKLAND UNIVERSITY	2012	NCI	NCI	\$203,672	
<input type="checkbox"/>	5	R01	CA045424	24		<a href="#">MECHANISMS FOR RADIATION DAMAGE TO DNA: LET EFFECTS</a>	<a href="#">SEVILLA, MICHAEL DOUGLAS</a>	OAKLAND UNIVERSITY	2011	NCI	NCI	\$203,672	
<input type="checkbox"/>	5	R21	EY020625	02		<a href="#">ROLE OF CORNEAL NEUROPEPTIDES IN THE PATHOGENESIS OF HERPETIC STROMAL KERATITIS</a>	<a href="#">SUVAS, SUSMIT</a>	OAKLAND UNIVERSITY	2011	NEI	NEI	\$177,600	
<input type="checkbox"/>	5	R01	AR052353	04		<a href="#">ADAPTABILITY OF ARTICULAR CARTILAGE TO EXTERNAL LOADING BY MICROSCOPIC IMAGING</a>	<a href="#">XIA, YANG</a>	OAKLAND UNIVERSITY	2011	NIAMS	NIAMS	\$440,404	
<input type="checkbox"/>	5	R21	EB009513	02		<a href="#">SCFV PIEZOIMMUNOSENSOR DETECTION OF THERAPEUTIC ANTIBODIES IN HUMAN SERUM</a>	<a href="#">ZENG, XIANGQUN</a>	OAKLAND UNIVERSITY	2011	NIBIB	NIBIB	\$188,423	

Page 1 of 1

Download Readers:

About RePORT | FAQs | Glossary | Contact Us | Site Map | Accessibility Statement | Privacy Statement | Disclaimer | FOIA | Help Downloading Files

The RePORTER database is available to all public users at <http://exreporter.nih.gov/>. As the data are available for bulk download, the RePORTER system reserves the right to block IP addresses that fail to adhere to instructions in the system's robots.txt files or submit requests at a rate that negatively impacts service delivery to other users. RePORTER reserves the right to terminate any automated query to the RePORTER application that negatively affects service delivery to other users.



Page Last Updated on July 28, 2012  
 This site is best viewed with Internet Explorer (7.0 or higher) or Mozilla Firefox (3.0).

NIH... Turning Discovery Into Health

RePORTER2