

Center for Biomedical Research
Annual Report 2014-2015
Bradley J. Roth, Director
June 30, 2015

Introduction

This report reviews the activities of the Oakland University Center for Biomedical Research in the 2014-2015 fiscal year.

The year began with the arrival of OU's new president George Hynd, who immediately focused on strategic planning. The university's resulting mission statement reinforces the CBR's long-term objectives of fostering faculty-driven research, supporting doctoral programs, encouraging undergraduate research, and advancing knowledge. The rest of this report explains how the CBR achieves these broad goals.

Budget

The best way to understand how the CBR supports OU's mission is to look at the budget.

• Research Excellence Fund Awards	153,980
• Graduate Student Stipends	99,116
• Director Stipend	20,895
• SUPER Program for Undergraduate Research	18,000
• Shared Resources	17,295
• Graduate Student Tuition	15,294
• Gases/Biosafety Cabinets	3251
• Travel to Sigma Xi Conference	2937
• Travel to NSF Day	987
• INNO-VENTION Conference	894
• WISE@OU Lunches	551
• CBR/Sigma Xi Festival	460
• NSF CAREER Webinar	275
• Miscellaneous	33
	\$333,968

The source of these funds is the \$270,173 Research Excellence Fund plus the \$57,711 CBR operating account (total of \$327,884).

Astute readers will notice that expenses exceeded the funds available by about \$6000. Near the end of the fiscal year, when planning how to use the remaining CBR funds, I made an error when estimating of how much money I had left to spend. The result is that I overspent the CBR budget by roughly 2%. I withdrew the needed balance from the CBR gift fund, which began the fiscal year with \$34,601 and ended with \$28,970. Generally I have maintained the gift fund as a strategic reserve, but this year my mistake necessitated dipping into it. I thank Assistant Dean Laura Culbert for helping me clean up my mess.

The gift fund has grown over the years because of anonymous gifts. I thank all who have donated to the CBR, and encourage anyone making contributions through the All University Fund Drive to consider choosing the Center for Biomedical Research for your gift.

REF Research Awards

Each year the CBR oversees a competition for Research Excellence Fund awards. The purpose of these awards is described in the review guidelines sent out each October with the Call for Proposals.

Research Excellence Fund Support of Biomedical Research is intended as seed money for obtaining external grant support. The main criterion determining the success of an application is if there is a high likelihood that the seed money will lead to an external award, and especially an award from the National Institutes of Health.

A faculty committee reviewed the proposals: Arik Dvir (Biological Sciences), Nessian Kerrigan (Chemistry), Dao-Qi Zhang (Eye Research Institute), and Evgeniy Khain (Physics). The awards for 2014-2015 are:

Xiangqun Zeng	Chem	13,000
Mi Hye Song	Biol	19,000
G. Madlambayan	Biol	16,000
Randall Westrick	Biol	15,000
Thomas Raffel	Biol	13,832
Fabia Battistuzzi	Biol	12,248
Doug Wendell	Biol	7,500
Sheldon Gordon	Biol	5,000
Shravan Chintala	ERI	20,000
Yang Xia	Physics	21,000
Lisa Welling	Psychology	11,400
Total		153,980

The \$21,000 award to CBR member Yang Xia is the largest ever made through this mechanism (eclipsing Zijuan Liu's 2013 \$20,000 award, and Shravan Chintala's \$20,000 award this year), and represents bridge funding to keep his laboratory running between NIH grants. Such bridge funding has consistently been a high priority for REF funds. Assistant Professor Lisa Welling's award supports her research in the Department of Psychology, and reflects the growing research presence of her department and their new graduate program.

Graduate Student Support

The PhD programs in Biological and Biomedical Sciences, in Health and Environmental Chemistry, and in Medical Physics are vital for OU's biomedical research effort. The CBR continues to support graduate students in these programs, and I view this as one of the

most important investments we make. This year, the Research Excellence Fund paid \$99,116 in stipends to support seven students (7 x \$14,000, plus fringe benefits). Traditionally the CBR supports two students in each PhD program, but this year—because of low tuition expenses—it supported a third student from Biological and Biomedical Sciences. The tuition cost was low this year (\$15,294 compared to \$41,990 last year) because: 1) The PhD programs reduced the number of credits required from 90 to 80; 2) Several students were near the end of their graduate studies and did not need many credits; and 3) The Graduate Research Assistant Tuition (GReAT) program, administered by the Office of Research Administration, provided tuition for two students. I appreciate this support from Vice Provost Dorothy Nelson, and as always I benefit from the unflagging assistance of Business Manager Jean Miao, who administers the great GReAT program.

Student	Department	Mentor	Publications
David Kahn	Physics	Yang Xia	<p>Kahn D, et al. (2015) Effects of cryopreservation on the depth-dependent elastic modulus in articular cartilage and implications for osteochondral grafting. <i>Journal of Biomechanical Engineering</i>, 137: 054502.</p> <p>Wang N, Kahn D, et al. (2015) Molecular origin of a loading-induced black layer in the deep region of articular cartilage at the magic angle. <i>Journal of Magnetic Resonance Imaging</i>, 41: 1281-1290.</p>
Nicholas Charteris	Physics	Evgeniy Khain	
Jia Li	Chemistry	Ferman Chavez	<p>Pawlak PL, Panda M, Li J, et al. (2015) Oxalate oxidase model studies: Substrate reactivity. <i>European Journal of Inorganic Chemistry</i>, 2015: 646-655.</p> <p>Easley CR, Li J, et al. (2015) Synthesis and characterization of 4-, 5-, and 6-coordinate tris(1-ethyl-4-isopropylimidazolyl-kappa N)phosphine cobalt(II) complexes. <i>European Journal of Inorganic Chemistry</i>, 2015: 2092-2100.</p>
Shi Chen	Chemistry	Nessan Kerrigan	<p>Mondal M, Chen S, et al. (2015) Phosphine-catalyzed diastereoselective synthesis of beta-lactones from disubstituted ketenes and alpha-chiral oxyaldehydes. <i>Journal of Organic Chemistry</i>, 80: 5789-5794.</p>
Bala Burugula	Biological Sciences	Chaabi Govind	<p>Burugula BB, et al. (2014) Histone deacetylases and phosphorylated polymerase II c-terminal domain recruit SPT6 for contrascriptonal histone reassembly. <i>Journal Molecular and Cellular Biology</i>, 34: 4115-4129.</p>
Rachana Chandran	Biological Sciences	Lan Jiang	<p>Iordanou E, Chandran RR, et al. (2014) The novel Smad protein Expansion regulates the receptor tyrosine kinase pathway to control Drosophila tracheal tube size. <i>Developmental Biology</i>, 393: 93-108.</p> <p>Chandran RR, et al. (2014) Gene expression profiling of Drosophila tracheal fusion cells. <i>Gene Expression Patterns</i>, 15: 112-123.</p>
Christina McKee	Biological Sciences	Rasul Chaudhry	

Shared Resources

Besides awards to individual investigators, the CBR also supports shared resources used by investigators across campus. This year these totaled \$17,295.

- \$10,000 for a -80° C freezer for the Department of Biological Sciences.
- \$5295 for the maintenance contract of the transmission electron microscope in the Ocular Structure & Imaging Facility.
- \$2000 to replace a sudden malfunction of a refrigerator in the laboratory of CBR member Rasul Chaudhry.

The TEM in the Eye Research Institute's OS&I Facility is overseen by CBR member Andrew Goldberg. This year, Goldberg hired Victoria Kimler to replace long-time staff member Loan Dang, who retired.

Other Budget Items

The CBR provided \$18,000 to support the Eye Research Institute's Summer Undergraduate Program in Eye Research (SUPER). Students in the program during the summer of 2014 include Erin Feeney, Mason Geno, Nahrain Putris, Kirsten Laux, Brandon Metcalf, Nathan Spix, and Jermyn Yohannan. Undergraduates can accomplish much during a summer working with faculty. For example, Nahrain Putris and Mason Geno, mentored by CBR member Shraavan Chintala, published an article in the journal *Investigative Ophthalmology and Vision Science* (Activation of TLR3 promotes the degeneration of retinal ganglion cells by up-regulating protein levels of the JNK 3, **56**: 505-514). SUPER is just one of several undergraduate research opportunities on campus. Another, the Summer Research Program in Biological Sciences and Chemistry, supported 16 students. Such research experiences can be life-changing for undergraduates still choosing a career.

As in past years, the CBR paid for the purchase of liquid nitrogen, carbon dioxide and other gasses, and for recertification of biosafety cabinets, in the Departments of Biological Sciences and Chemistry, totaling \$3251. This support helps maintain the infrastructure needed for biomedical research to flourish.

CBR member Shailesh Lal is the president of OU's chapter of Sigma Xi, the Scientific Research Society. This year, Lal worked with the CBR, the Eye Research Institute, and the Department of Biological Sciences to raise funds to send seven students and one faculty member to the Sigma Xi Student Research Conference: undergraduates Marisa Brake, Erin Feeney, Mason Geno, Nahrain Putris, and Elizabeth Scott; graduate students Sunil Kandel and Stephanie Verbeek; and Assistant Professor Fabia Battistuzzi. The CBR contributed to this effort by providing \$2937 for Verbeek and Battistuzzi to attend the conference in Glendale, Arizona.

The CBR partners with the Women In Science and Engineering at Oakland University (WISE@OU, <http://www.oakland.edu/advance>) program, funded by an ADVANCE grant from the National Science Foundation and led by PI Kathy Moore, to support young faculty in science and engineering. The CBR paid for two faculty lunches (\$551) and a webinar about applying for the NSF CAREER award (\$275). In addition, WISE@OU helped find the resources to send four young faculty to NSF Day at Texas Tech on May 20: Fabia Battistuzzi (Biological Sciences), Randy Westrick (Biological Sciences), Yuejian Wang (Physics), and

Khalid Mohmood (Computer Science and Engineering). The CBR contributed \$987 to this effort, with the rest of the funds from the Office of Research Administration, the College of Arts and Sciences, and the School of Engineering and Computer Science.

This year the CBR/Sigma Xi Research Festival was held on March 27 in the new Engineering Center, just before the Sigma Xi Annual Lecture by Dr. David Ginsburg of the University of Michigan Medical School, who spoke about “Bringing Genetics & Genomics to the Clinic: What, Where and When.” Twenty-five posters by OU undergraduate and graduate students doing biomedical research were shared with OU faculty and visitors. The CBR provided \$460 for costs associated with the event. The top three posters were presented by Rachana Chandran (working with CBR member Lan Jiang), Viktoria Mladenovik (with Sumi Dinda of the School of Health Sciences), and Mida Pezeshkian (with CBR member Gerard Madlambayan). Each of these three students received a copy of James Watson’s book *The Double Helix*. I thank the CBR members and others who served as judges for this event. I also thank Medical Physics graduate students Kharananda Sharma, Suran Galappaththige, and Rachel Surowiec for helping me organize the festival.

Another way to support students is by helping them network with local industries. Oakland County’s Medical Main Street sponsored the INNO-VENTION conference in Novi, Michigan last October to showcase the Life Science and Health Care industries in Southeast Michigan. The CBR paid the \$149 registration fee for six OU graduate students: Cameron Atkinson, Nicholas Charteris, Norman Leo, Mida Pezeshkian, Kharananda Sharma, and Ranjeeta Thapa. For \$894 OU was represented at this important event, and our graduate students had the opportunity to network with potential employers.

CBR Activities

The CBR supports biomedical research and education in many ways. For instance, I maintain the CBR webpage (<http://www.oakland.edu/cbr>). OU recently moved its web support from CareWorks to Percussion, and the CBR website made the arduous transition. Because of this change I have been posting less to the CBR News webpage, and relying more on the Oakland University Center for Biomedical Research Facebook page. There, I post news articles, event reminders, job ads, student research opportunities, and other useful information. I encourage anyone who uses Facebook to “Like” the CBR page. One thing still available at the CBR website is past annual reports, which I hope you find useful.

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 list of members can be found at the CBR website. This year Nesson Kerrigan (Chemistry) was appointed as a CBR member. This was an easy decision, given Kerrigan’s recent grant from the National Institutes of Health.

I am part of the leadership team for WISE@OU, and often find it difficult to know if I am participating in some activity as part of WISE@OU or as the director of the CBR. (I usually solve this problem by counting the activity as part of both duties, thereby double dipping). This spring, WISE@OU and the CBR organized a series of activities aimed at young faculty in STEM (science, technology, engineering, and math). On April 24, Laila Guessous (a co-PI on the NSF ADVANCE grant and a member of the WISE@OU leadership team) organized a discussion with the School of Engineering and Computer Science Professor Mike Polis

about tips and advice when applying to the National Science Foundation. Polis is a former program director at NSF. The CBR paid \$275 for access to a webinar about applying for a CAREER award, NSF's most prestigious grant aimed at young faculty. On April 30 WISE@OU held a CAREER award discussion, attended by OU's two current CAREER award holders: CBR member Libin Rong (Mathematics & Statistics) and CBR member Jing Tang (Electrical and Computer Engineering). About a dozen young faculty attended, and we discussed strategies when applying for this award. Finally, on May 13 CBR member Yang Xia presented a talk on applying for grants from the National Institutes of Health (Xia has had NIH funding for over 15 years). Together, these events will help our young faculty avoid some of the common pitfalls associated with applying for NSF and NIH grants.

WISE@OU holds periodic lunches for the new STEM faculty. Chief Information Officer Theresa Rowe and Vice Provost for Research Dorothy Nelson attended one, and the discussion turned to finding computational resources for large-scale data analysis. In response, Yonghong Yan (Computer Science and Engineering) organized an interdisciplinary collaboration to apply for a computer cluster from Silicon Mechanics. I helped in the preparation of the proposal, although it was mainly Yan's effort.

One skill you need when applying for grants or publishing articles is the ability to write well. Therefore, WISE@OU collaborated with the Center for Excellence in Teaching and Learning to hold a writing workshop. I gathered a team of talented writers, including CBR member Libin Rong (Mathematics and Statistics), Jo Reger (Sociology, Anthropology, Social Work, and Criminal Justice), and Jennifer Vonk (Psychology), and we discussed Best Practices in Scientific Writing. Kathy Moore led a CETL workshop about Working with STEM Teaching Assistants.

Another way to support biomedical researchers is to nominate them for awards. I nominated CBR member Xiangqun Zeng for the International Service Award presented by OU's International Students and Scholars Office. In my letter, I wrote

“As the world becomes, in Thomas Friedman's words, ‘flat’, we must look globally for the talent and expertise to maintain our competitive edge. I believe this global approach is occurring in a microcosm at Zeng's lab. Outstanding young researchers, many who are female and from China or other Asian countries, receive an opportunity to participate in scientific research with Zeng. Under her mentorship, they flourish, are successful, and then in many cases stay here in the United States, enriching our culture and strengthening our scientific infrastructure, making us more globally competitive.”

To my delight, she won the award.

One way to support students is through advising. I don't do advising as part of my CBR duties, but I do serve on the Premed Council (now Pre-Health Council). Our most important activity this year was to search for a Pre-Professional Advisor. Shannon Esselink (Director of Advising Services for the College of Arts and Sciences), Christina Grabowski (Assistant Dean for Admissions at the Oakland University William Beaumont School of Medicine), CBR members Amy Banes-Berceli (Biological Sciences) and Patricia Wren (School of Health Sciences), and I interviewed several candidates. We chose Donna Pikula, and she is OU's new Coordinator of Pre-Professional Advising.

One way to focus on student accomplishments is to provide scholarships. The College of Arts and Sciences awards the Michael P. and Elizabeth A. Kenny Merit Scholarship for the Sciences, and this year the CBR was in charge of selecting the winner. The Kenny's gift

supporting this scholarship has grown to the point that we awarded two scholarships, to undergraduates Lauren DeMeyer and Jermyn Yohannan. DeMeyer is a Biology major who works with Mi Hye Song (Biological Sciences). Yohannan is a Biology major who was mentored by CBR member Andrew Goldberg (Eye Research Institute) as part of the SUPER program last summer. Each will receive \$5000.

OU continues to develop and strengthen its relationship with Beaumont Health System, the clinical partner of the OUWB School of Medicine. One tie that binds the two institutions is the OU-Beaumont Biomedical Research Symposium (held October 31). I had the honor to serve as one of the four judges evaluating presentations at this event.

Finally, I represent the CBR on the Research Strategic Planning Committee, led by CAS Dean Kevin Corcoran.

Biomedical Research at Oakland University

Biomedical researchers and students had many accomplishments this year. Here I list a few. More can be found at the CBR News website and the OU CBR Facebook page.

- Undergraduate biology major Marisa Brake was accepted into the American Heart Association Midwest Affiliate Undergraduate Student Research Program. The AHA will support her research with Randy Westrick (Biological Sciences) this summer. Brake was also the OU nominee for the Barry Goldwater Scholarship.
- Undergraduate Erin Feeney won a medal at the Sigma Xi Student Research Conference. Feeney, a biology major, participated in the SUPER program, working with Clinical Associate Kimberly Drenser and CBR member Ken Mitton to study the impact of the protein norrin on the structural integrity of the ischemic retina.
- Biochemistry major Hanna Trzeciakiewicz was awarded OU's Undergraduate Distinguished Achievement Award at the fall commencement. Trzeciakiewicz works in the laboratory of Sanela Martic (Chemistry) and was first author of an article about the electrochemistry of heparin binding to tau protein on gold surfaces (*Electrochimica Acta*, **162**:24-30, 2015). The tau protein is a biomarker for Alzheimer's disease.
- Graduate student Deepa Talreja, of the Biological and Biomedical Sciences PhD Program, won first prize and a \$500 award at the Vision Research Workshop hosted by the Kresge Eye Institute. Talreja works with Satish Walia (Biological Sciences) and graduated in the winter.
- CBR member Xiangqun Zeng (Chemistry) received OU's Research Excellence Award. Zeng leads an interdisciplinary laboratory that has been supported by over \$6 million in funding from the National Institutes of Health, the National Institute for Occupational Health and Safety, the Office of Naval Research, the American Chemical Society, and the National Institute for Environmental Health and Safety.
- CBR member Libin Rong (Mathematics & Statistics) received the Marian P. Wilson Award, presented by the College of Arts and Sciences to recognize an outstanding publication by an OU faculty member. Rong received the award for his article about the rapid emergence of protease inhibitor resistance in the hepatitis C virus (*Science*

Translational Medicine, 2:30ra32, 2010) which, according to the Web of Knowledge, has already been cited 117 times.

- On March 9, the Women and Gender Studies Program hosted a panel about Women in STEM. CBR members Wenjin Zhou and Amy Banes-Berceli were members of the panel, along with WISE@OU leader Kathy Moore and undergraduate biochemistry major Hannah Trzeciakiewicz.
- Distinguished Professor Michael Chopp (Physics) was awarded the Thomas Willis Lecture Award by the American Heart Association. Each year the recipient presents a lecture at the annual International Stroke Conference.
- CBR member Chhabi Govind's research was highlighted in an article on the OU website, describing his recent publication with graduate student Marla Spain (*Molecular Cell*, 56:652-666, 2014).
- CBR member Tamara Hew-Butler (School of Health Science) was featured on another OU website article about how the Exercise Science Program explores the value of proper hydration. Hew-Butler was interviewed on the radio show Science Friday discussing the health effects of ultramarathons.
- A figure from an article by faculty member Eugene Surdutovich (Physics) appeared on the cover of the November 2014 issue of the *European Physics Journal D* (Multiscale approach to the physics of radiation damage with ions, 68:353)
- Medical student Flo Doo earned an award in the Google Glass Challenge. Her design transmits radiographic images to a surgeon wearing the Google Glasses in the operating room.
- OUWB medical student Rachel Hunt was accepted into the National Institutes of Health Medical Research Scholars Program, a year-long enrichment program designed to attract creative, research-oriented medical students to NIH's intramural campus in Bethesda, Maryland.
- On May 15, the Oakland University William Beaumont School of Medicine graduated its first class of 47 students. Earlier in the year the medical school, led by Founding Dean Robert Folberg, was granted full accreditation for five years from the Liaison Committee on Medical Education. The school placed 100% of the graduating class into residency programs, a remarkable rate.

One goal of the CBR is to promote external grants, particularly from the National Institutes of Health. This year several grants were awarded to OU faculty doing research related to biomedical topics. These awards have one thing in common: they passed through the able hands of Grant Officer Bonnie Kwit, who is in charge of all NIH and NSF applications. Without Bonnie, we would be in big trouble.

- Judy Fouladbaksh (School of Nursing) arrived at OU in the fall with a NIH award in hand to study yoga as an alternative therapy for cancer patients.
- CBR member Andrew Goldberg was granted an additional year (\$350,000) of funding on his NIH grant about molecular scaffolding in photoreceptor renewal and retinal disease.
- CBR member Jing Tang (Electrical and Computer Engineering) was awarded a prestigious 3-year, \$500,000 National Science Foundation CAREER Award (Number

1454552). The goal of a CAREER award is to support junior faculty who exemplify the role of teacher-scholar. Tang develops hybrid Positron Emission Tomography /Magnetic Resonance Imaging (PET/MRI) systems.

- CBR member Shailesh Lal (Biological Sciences) was awarded a three-year, \$540,000 grant from the National Science Foundation (award number 1412218) for the genetic, molecular, and biochemical analysis of RNA splicing factors critical for maize endosperm development.
- CBR member Nessian Kerrigan (Chemistry) was awarded a grant (R15GM107800) from National Institutes of Health. The 3-year award, with \$333,587 in the first year, is to study catalytic asymmetric synthesis of deoxypropionates from ketenes.
- CBR member and director of the Eye Research Institute, Frank Giblin, recently had his National Institutes of Health grant (award number R01EY002027-36) renewed for another four years. The “-36” at the end of his award number is the year of the award; Giblin’s grant to study proteins of normal and cataractous lenses is currently in its 36th year! The project began in 1977, and is now funded through summer 2018. Forty years of continuous funding is a remarkable achievement.
- Jennifer Lucarelli (School of Health Sciences) obtained a three-year, \$1.95 million grant from the Centers for Disease Control and Prevention to reduce chronic diseases, promote healthier lifestyles, address health disparities, and control health care spending. The grant focuses on making Pontiac, Michigan a healthier place to live.

CBR funding helped support some of these investigators, although in all cases the credit for the external funding goes to the hardworking and tenacious researchers who persevered in a poor funding environment until they ultimately obtained support. Goldberg, Lal, Kerrigan, and Giblin have all been recipients of REF funds in the last three years, and this money has provided crucial bridge funding or funding for preliminary data. Although the CBR did not fund Tang’s research, it did review her REF proposal and recommended to Dean Chamra of the School of Engineering and Computer Science that she receive support. No matter how I spin things, the CBR cannot claim credit for Lucarelli’s gigantic award.

Besides grants, another source of support for research is philanthropy. The Eye Research Institute was the recipient of a magnificent \$3.7 million gift from Irene Kinsey Stare, the wife of ERI cofounder V. Everett Kinsey. Kinsey died in 1978, and when his wife passed away in 2013, she remembered the ERI in her will. CBR member and ERI director Frank Giblin has maintained the ERI as a strong and successful program, so that it was in a position to benefit from such a large donation.

Welcomes and Farewells

This year we have welcomed new leaders to campus, and said goodbye to longtime friends. CBR member Susmit Suvas (formerly of the Department of Biological Sciences) left OU last fall for a new position at the Kresge Eye Institute. Ken Hightower, Dean of the School of Health Sciences, retired after 40 years of service to OU. Hightower spent much of his OU career working in the Eye Research Institute. Charlie Lindemann (Biological Sciences) also retired last fall. Lindemann’s laboratory has a long history of funding from the National Science Foundation to study sperm motility.

Vice Provost for Research Dorothy Nelson stepped down from her leadership of the Office of Research Administration, and this fall she will become the new chair of the Department of Sociology, Anthropology, Social Work, and Criminal Justice. The chair of the Department of Biological Sciences, Arik Dvir, became interim Vice Provost for Research in May. Dvir, who was interim CBR director last year when I was on sabbatical, will oversee the research effort at the university. CBR member Doug Wendell took over as interim Chair of Biological Sciences. Finally, we welcome the new Dean of Graduate Studies Claudia Petrescu, who will arrive in August. Graduate study is at the heart of the biomedical research effort at OU, and we look forward to her leadership in strengthening and expanding our graduate programs. Dean Petrescu's office in O'Dowd Hall has a spectacular view of OU's bell tower, another welcome addition to campus this year.

Finally, our new President George Hynd has decades of research experience in child neuropsychology, having used cutting-edge imaging techniques such as magnetic resonance imaging to learn about brain development and reading disabilities. With the team of President Hynd and Provost Lentini now in place, we all look forward great times to come.

Brad Roth



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	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"/>	7	R15	CA169994	02		A PILOT STUDY OF YOGA FOR BREATHING AND QUALITY OF LIFE OF LUNG CANCER PATIENTS	FOULADBAKHSH, JUDITH MARIE	OAKLAND UNIVERSITY	2013	NCI	NCI	\$208,199	
<input type="checkbox"/>	2	R01	EY002027	36A1		PROTEINS OF NORMAL AND CATARACTOUS LENSES	GIBLIN, FRANK JOSEPH	OAKLAND UNIVERSITY	2014	NEI	NEI	\$353,569	
<input type="checkbox"/>	2	R01	EY013246	11A1		MOLECULAR SCAFFOLDING IN PHOTORECEPTOR RENEWAL AND RETINAL DISEASE	GOLDBERG, ANDREW FX	OAKLAND UNIVERSITY	2014	NEI	NEI	\$354,125	
<input type="checkbox"/>	5	R01	GM095514	04		MECHANISMS OF RSC RECRUITMENT AND ITS ROLE IN TRANSCRIPTION	GOVIND, CHHABI KUMAR	OAKLAND UNIVERSITY	2014	NIGMS	NIGMS	\$275,904	
<input type="checkbox"/>	1	R15	GM100369	01A1		THE DROSOPHILA EXPANSION GENE CONTROLS TRACHEAL TUBE DIAMETER	JIANG, LAN	OAKLAND UNIVERSITY	2013	NIGMS	NIGMS	\$324,338	
<input type="checkbox"/>	1	R15	GM107800	01A1		CATALYTIC ASYMMETRIC SYNTHESIS OF DEOXYPROPIONATES FROM KETENES	KERRIGAN, NESSAN JOSEPH	OAKLAND UNIVERSITY	2014	NIGMS	NIGMS	\$333,587	
<input type="checkbox"/>	3	R15	ES022800	01S2		ROLE OF SLC39A8 (ZIP8) IN SELENITE TRANSPORT	LIU, ZIJUAN	OAKLAND UNIVERSITY	2015	NIEHS	NIEHS	\$11,187	
<input type="checkbox"/>	1	R15	ES022800	01		ROLE OF SLC39A8 (ZIP8) IN SELENITE TRANSPORT	LIU, ZIJUAN	OAKLAND UNIVERSITY	2013	NIEHS	NIEHS	\$422,803	
<input type="checkbox"/>	1	U58	DP005885	01		HEALTHY PONTIAC, WE CAN! ELIMINATING HEALTH DISPARITIES IN A LOW-INCOME URBAN MINORITY COMMUNITY	LUCARELLI, JENNIFER	OAKLAND UNIVERSITY	2014	NCCDHP	NCCDHP	\$650,748	
<input type="checkbox"/>	5	U79	SM060542	03		GRIZZLIES RESPONSE: AWARENESS & SUICIDE PREVENTION (GRASP) AT OAKLAND UNIVERSITY	MACDONALD, MICHAEL	OAKLAND UNIVERSITY	2014	CMHS			
<input type="checkbox"/>	1	R15	CA182889	01		ENDOTHELIAL CELL ACTIVATION REGULATES AML GROWTH AND RELAPSE	MADLAMBAYAN, GERARD JAMES	OAKLAND UNIVERSITY	2014	NCI	NCI	\$429,874	
<input type="checkbox"/>	5	R01	CA045424	28		MECHANISMS FOR RADIATION DAMAGE TO DNA: LET EFFECTS	SEVILLA, MICHAEL DOUGLAS	OAKLAND UNIVERSITY	2015	NCI	NCI	\$203,672	
<input type="checkbox"/>	7	R15	GM101633	02		REGULATION OF CENTROSOME ASSEMBLY BY PHOSPHORYLATION	SONG, MI HYE	OAKLAND UNIVERSITY	2012	NIGMS	NIGMS	\$211,682	
<input type="checkbox"/>	5	R01	AR052353	05		ADAPTABILITY OF ARTICULAR CARTILAGE TO EXTERNAL LOADING BY MICROSCOPIC IMAGING	XIA, YANG	OAKLAND UNIVERSITY	2013	NIAMS	NIAMS	\$422,505	
<input type="checkbox"/>	5	R01	EY022640	02		FUNCTIONAL ORGANIZATION OF THE RETINAL DOPAMINERGIC NETWORK	ZHANG, DAO-QI	OAKLAND UNIVERSITY	2015	NEI	NEI	\$361,614	

Active grants listed on the National Institutes of Health Reporter website (<http://projectreporter.nih.gov/reporter.cfm>), June 25, 2015.