The CBR/Sigma Xi Research Festival, April 1, 2019.
Introduction

Engineer and inventor Dean Kamen claims “We are in a race between knowledge and catastrophe.” I believe the primary goal of the Center for Biomedical Research is to support the quest for new knowledge needed to prevent future catastrophes, by engaging in fundamental research and by educating the next generation of researchers. Biomedical research, however, is not cheap. It requires an infrastructure of facilities and equipment. Sometimes the infrastructure is exciting, like a new confocal microscope, and other times it is mundane, such as a pure water supply or a biosafety cabinet. Yet, it is all essential. This year, the CBR focused on strengthening the infrastructure for biomedical research here at Oakland University.

Budget

The budget reflects the priorities and goals of the Center for Biomedical Research.

- REF awards 144,524
- LiCor Scanner 50,000
- Grad stipends 28,000
- Director stipend + fringe 26,762
- Confocal Microscope 25,000
- SUPER 20,000
- Biosafety Cabinet Replacement 7,500
- TEM maintenance contract 5,500
- Bruker EPR Spectrometer 5,000
- Water system for autoclave 4,591
- Sigma Xi student travel 4,068
- Gases/Biosafety cabinet recertification 3,171
- Correct a REF award from a previous year 2,000
- CBR/Sigma Xi Festival 1,177
- OU Genomics Conference 733
- MMMS Conference 100

Total $328,126

This money comes from the $270,517 Research Excellence Fund and the $59,727 CBR Operating Account. In addition, the CBR gift account received donations totaling $4080. It currently holds $42,310.
REF Awards

The Research Excellence Fund awards for 2017-2018 are

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<th>Faculty member</th>
<th>Department</th>
<th>Amount</th>
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<tr>
<td>Andrew Goldberg</td>
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<td>Roman Dembinski</td>
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<td>Michael Sevilla</td>
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<td>Colin Wu</td>
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<td>Luis Villa-Diaz</td>
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<td>Chhabi Govind</td>
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<td>Lan Jiang</td>
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<td>Zijuan Liu</td>
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<td>Sumit Dinda</td>
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<tr>
<td><strong>Total</strong></td>
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</table>

The purpose of the REF awards is to function as seed money for obtaining an external grant. See last year’s annual report for strategies that will increase your odds of getting REF support. This year, the committee that reviewed REF proposals consisted of myself and CBR members Doug Wendell, Ferman Chavez, and Dao-Qi Zhang.

Graduate Student Support

Normally the CBR supports graduate students in three PhD programs: Biological and Biomedical Sciences; Health and Environmental Chemistry; and Medical Physics. This year, however, Assistant Dean Laura Culbert shifted four of these students to unused graduate assistantships, saving the CBR $56,000 in graduate student stipends plus even more for tuition. The CBR spent $28,000 for the remaining two stipends and the remaining tuition was covered by the Graduate Research Assistantship Tuition, or GReAT, Program. This small outlay for graduate students resulted in a larger-than-usual budget for other needs. Most of the resulting funds were used for shared resources (see below). The College of Arts and Sciences Dean’s Office is changing the way they allocate graduate assistantships to minimize unused packages, so I do not expect a similar windfall in future years. Nevertheless, all biomedical researchers owe a big thank you to Assistant Dean Culbert for effectively increasing the 2018-2019 budget by about 20%.

Graduate student stipends will increase next year from $7000 to $7500 per semester. This is good news, as it will allow OU to recruit better graduate students. It will, however, further strain the CBR budget.

Shared Resources

This year, REF funds were used for several shared resources, many representing critical infrastructure for the research effort.
- A $50,000 contribution toward a Licor Odyssey Scanner, used to analyze western blot assays. The instrument will be used by faculty members in the Eye Research
Institute, as well as in the Departments of Chemistry and Biological Sciences. A similar scanner purchased in 2008 is now obsolete and needed updating. CBR member Andrew Goldberg led the effort to purchase the new scanner.

- $25,000 for a spinning-disk confocal microscope. This contribution covered only about a sixth of the $145,000 cost, which was split among the CBR, the Eye Research Institute, the Departments of Chemistry and Biological Sciences, the Research Office, and the College of Arts and Sciences. Thank you to Assistant Professor Adam Avery, of the Department of Chemistry, for helping organize this effort.

- $7500 for a new Biosafety cabinet. The Department of Biological Sciences needed to replace two nearly nonfunctional, 20-year-old biosafety cabinets. The CBR purchased one of them.

- $5500 for the maintenance contract for the Eye Research Institute’s transmission electron microscope.

- $5000 to support the purchase of a Bruker Electron Paramagnetic Resonance Spectrometer. The Department of Chemistry submitted a proposal to the National Science Foundation Major Research Instrumentation Program for this instrument. It was funded, but the budget was cut, and the CBR contribution was to help make the purchase possible with the lower NSF support.

- $4591 for a new reverse osmosis water system for the autoclaves in the Department of Biological Sciences. The autoclaves have needed maintenance because of damage caused by the poor quality of the water, and this water system is meant to avoid future maintenance costs. The total amount was split between the REF and the College of Arts and Sciences.

- $3171 for gasses and recertification of functioning biosafety cabinets.

Other Budget Items

The CBR provided $20,000 to support the Eye Research Institute’s Summer Undergraduate Program in Eye Research (SUPER). The 2018 cohort included Sharon Tan, Christian Rizza, Peter Gaied, Dominic Mier, Kaylee Moyer, and Obadah Asbahi. These students presented their research at the Eighteenth Annual SUPER Symposium on Friday, July 27, 2018.

2018 SUPER students with CBR director Brad Roth. Photo supplied by Frank Giblin.
Thirteen OU students presented at the 2018 Sigma Xi Student Research Conference in San Francisco. The CBR supported the travel costs for three: Ann Fuelle, Tyler Parsons, and Roshan Timilsina ($4068). Graduate students Tyler Parsons, who works with CBR member Gerard Madlambayan, and Roshan Timilsina, in the Medical Physics PhD Program, both won gold medals from Sigma Xi for their posters.

OU faculty and students at the Sigma Xi Student Research Conference in San Francisco.

The OU Genomics Symposium was held March 7 in the Oakland Center. It featured talks by several graduate students, and a keynote lecture by Stephen O’Brien, a member of the National Academy of Sciences. Thanks to CBR member Fabia Battistuzzi and Assistant Professor Taras Oleksyk, both of the Department of Biological Sciences, for organizing the symposium. The CBR paid for the lunch ($733).

Participants at the Genomics Symposium. Stephen O’Brien is the white-haired gentleman in the center, to his right is CBR member Fabia Battistuzzi, and to his left in the grizzly shirt is Assistant Professor Taras Oleksyk.
The CBR/Sigma Xi Research Festival was held April 1 in the Founders Ballroom of Oakland Center. Over two dozen students (both undergrad and graduate) presented posters about their research. The poster session was followed by the Sigma Xi annual lecture: Gabriela González spoke about gravitational waves. The winners of the student poster competition were Asma Khan, Tyler Parsons, and Nicole Fellows; each received a copy of The Double Helix. The CBR paid for food at the festival ($448), printing of two student posters ($152), the books ($48), the stipend for González ($500), and breakfast with González ($29). Thanks to CBR member Gerard Madlambayan—the acting president of OU’s chapter of Sigma Xi while president and CBR member Fabia Battistuzzi was on sabbatical—for helping to organize the event.

CBR member Xiangqun Zeng, of the Department of Chemistry, received $2000 to correct for a glitch in a Research Excellence Fund award from a previous year.

The CBR provided $100 to support the Michigan Microscopy and Microanalysis Society Annual Conference at Central Michigan University in Mount Pleasant on November 1. Thanks to Vickie Kimler for her leadership in ensuring OU’s participation in MMMS events.

**CBR Activities**

The CBR administers the Michael P. and Elizabeth A. Kenny Merit Scholarship for the Sciences. This year it was awarded to five Oakland University students

- **Evan Cramer.** Evan is a Biochemistry major who has performed research in the laboratories of Assistant Professor Colin Wu (Dept Chemistry) and CBR member Mi Hye Song (Dept Biological Sciences) purifying proteins that control cell division. He is a Dean’s Student Fellow in the Honors College.

- **Paige Nightingale.** Paige is a Bioengineering major, a student in the Honors College, and a member of the Golden Key Honor Society. Her research, studying how pluripotent stem cells differentiate into cardiomyocytes, is performed in the laboratory of Assistant Professor Luis Villa-Diaz (Dept Biological Sciences).

- **Jared Zaporski.** Jared is a Biochemistry major who performed a research internship at the Chicago Botanic Gardens. He works in the laboratory of Assistant
Professor Ziming Yang (Dept Chemistry), where he studies the effect of minerals on soil enzymatic activity. He is a member of the Honors College.

- **Aaron Bogden** (incoming freshman). Aaron is a student at Clarkston High School who plans on majoring in Chemistry or Engineering Chemistry and joining the Honors College.

- **Vincent Gaytan** (incoming freshman). Vincent attends Marine City High School and plans on majoring in Chemistry.

These undergraduates will contribute to the College of Arts and Sciences goal of providing a strong liberal arts education combined with a chance to do cutting-edge scientific research while an undergraduate. A special thank you to Michael and Elizabeth Kenny for supporting these scholarships, which are aiding in the education of these exceptional students and advancing crucial biomedical research. Also, thanks to Lori Posey, a Development Associate in the College of Arts and Sciences, who helps me administer the awards.

The CBR added two new members this year. Mi Hye Song, of the Department of Biological Sciences, was appointed a member of the CBR because of her recent grant from the National Institutes of Health, and for her publications about centrosome duplication over the past three years. Sumi Dinda, of the School of Health Sciences, was appointed to recognize his aggressive search for external funding and for several articles with multiple OU undergraduate coauthors. CBR member Sanela Martic, formerly of the Department of Chemistry, left OU for a position in Canada.

The CBR participated in an effort led by the Research Office to upgrade the computer resources on campus. A new high-performance computing facility should arrive by fall 2019, and will be critical for research in medical physics, computational chemistry, and genomics.

I served on the search committee for a new Director of Sponsored Programs. Welcome to Andrea Buford, who was selected for that position.

Two undergraduate students who worked with CBR members were nominated by OU for the Goldwater Scholarship.

- **Austin Fee** is a bioengineering major from Grand Blanc, Michigan. He worked with CBR member Brad Roth using mathematical modeling to study mechanobiology, and published an article in the *American Journal of Undergraduate Research* about this work.

- **Sarah Medley** is a double major (biology and mathematics) from Riley, Michigan. She works with CBR member Fabia Battistuzzi and presented her research on computational evolution at the Society for Molecular Biology and Evolution 2018 Meeting in Yokohama, Japan. She is a member of the Honors College.

The CBR maintains the Center for Biomedical Research website (www.oakland.edu/cbr), Facebook page (“Oakland University Center for Biomedical Research”), and Twitter feed (@OaklandUniv_CBR). During January, @OaklandUniv_CBR tweeted about 38 different summer research opportunities that OU students could apply for, at places such as the National Institutes of Health, the Mayo Clinic, the Sloan Kettering Cancer Center, and Johns Hopkins University. Be sure to like and follow the CBR for news about biomedical research on campus.

**Biomedical Research at Oakland University**

Sadly, the co-founder of the Eye Research Institute and its director for 22 years, Dr. Venkat Reddy, passed away on June 30, 2018, at the age of 95. CBR member Frank Giblin and his
coauthor Peter Kador wrote in their article “Venkat N. Reddy, 1922-2018, in Memoriam” published in the March 2019 issue of Experimental Eye Research: “He will be remembered as an excellent scientist and academic leader, a true gentleman scholar and a key figure in the founding of ophthalmic research as a respected discipline.” CBR member Andrew Goldberg, of the Eye Research Institute, has been granted the Alvira M. and Venkat N. Reddy Endowed Research Professorship in Eye Research. He will use the funds to study causes and potential cures for eye diseases, such as retinitis pigmentosa and macular degeneration.

CBR member Xiangqun Zeng was appointed as an Oakland University Distinguished Professor. At OU’s Research, Innovation and Engagement Town Hall, Zeng received the Most Active Grant Seeker Award, CBR member Randy Westrick was named Researcher of the Year, and CBR member Yang Xi received the Frank Giblin Lifetime Achievement Award. Congratulations to them all!

Randy Westrick receiving the Researcher of the Year Award at the Research, Innovation and Engagement Town Hall. Shown (l-r) are Provost James Lentini, Westrick, President Ora Hirsch Pescovitz, and Chief Research Officer Dave Stone.

Biomedical research carried out at Oakland University was featured at the 2019 Meeting of Minds Undergraduate Research Conference, held at the University of Michigan-Flint on May 10.

CBR member Lakshmi Raman, of the Department of Psychology, and her students Erica Cogswell and Amy Perumalil.
Twenty-four students participated in the Summer Undergraduate Research Fellowship Program in 2018. This program matches undergraduates with faculty from the Departments of Chemistry and Biological Sciences, to conduct a summer research project. Thank you to Andrea Jones for helping to administer this program each year. A group of faculty (myself, Mi Hye Song, Luis Villa-Diaz, Randy Westrick, and Colin Wu) received $60,000 from the American Heart Association for another undergraduate summer research program.

Yet again I have led a group applying for undergraduate research funding from the Beckman Scholars Program. We will keep trying until successful.

CBR member Yang Xia, of the Department of Physics, and Professor Misa Mi, of the Oakland University William Beaumont School of Medicine, organized the first OU-wide interdisciplinary research colloquium on April 16. This colloquium is a forum for OUWBSOM faculty to meet faculty from across the OU campus, so they can exchange innovative research ideas and explore opportunities for collaboration. CBR members Lan Jiang, Ken Mitton, Michael Sevilla, Yang Xia, Xiangqun Zeng, and myself all presented brief overviews of our research.

In August, CBR member Chhabi Govind, of the Department of Biological Sciences, was awarded a three-year, $443,592 grant from the National Institutes of Health (R15GM126449). The grant will support his research into the role of histone chaperones in transcription and chromatin structure.

CBR member Mi Hye Song, was awarded a $442,500 grant (R15GM128110) from the National Institutes of Health. She leads an active laboratory studying the molecular mechanisms of centrosome assembly and function in *C. elegans*, a nematode worm often used as a biological model organism. She and her students have recently published papers in *G3: Genes, Genomes, Genetics* (Volume 7, Pages 3937-3946, 2017), *Zebrafish* (Volume 14, Pages 311-321) and *Biology Open* (Volume 6, Pages 17-28).

If you would like to help the Center for Biomedical Research do more to support research and education at Oakland University, you are welcome to donate through the All University Fund Drive (fund number 30128). Your contribution will help us win that race between knowledge and catastrophe.

Brad Roth
### Appendix A


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<td>KOZAK, ANDREA T.</td>
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Appendix B
Current Members of the Center for Biomedical Research

CBR Members

CBR members are active biomedical researchers who are affiliated with OU. Members are expected to publish biomedical research regularly in professional journals and have external support for their research or be actively applying for external support.

Amy Banes-Berceli
Associate Professor, Department of Biological Sciences

Banes-Berceli studies the molecular mechanisms of hypertension and diabetes with a focus on the JAK/STAT signaling pathway. She investigates the role of this pathway with other known pathways in these disease states, focusing on their effects and regulation in the kidney and in vascular function. Learn more about Banes-Berceli

Fabia Battistuzzi
Associate Professor, Department of Biological Sciences

Battistuzzi’s research focuses on understanding the evolutionary mechanisms at the basis of pathogenicity. Using the genus Plasmodium, i.e. the agent of malaria, as a model system, her team employs bioinformatics methods to study variability in genome complexity and identify regions of purifying and positive selection. Learn more about Battistuzzi

Rasul Chaudhry
Professor, Department of Biological Sciences

Stem cells provide a renewable resource for basic research, tissue engineering and clinical applications. Chaudhry is investigating the molecular mechanisms of neurogenesis and osteogenesis; therapeutic applications of stem cells for treating spinal cord injuries, neurological and degenerative diseases including disc, retinal, and nerve degeneration, Multiple sclerosis, Alzheimer’s and Parkinson’s. Learn more about Chaudhry

Ferman Chavez
Professor, Department of Chemistry

Chavez’s current research aim is to develop synthetic models for active sites of various metalloenzymes. Such models will be used to probe enzymatic mechanisms and as catalysts for organic transformations and bioremediation. He is also interested in the controlled release of nitric oxide (NO) from synthetic materials for biomedical applications. Learn more about Chavez

Roman Dembinski
Professor, Department of Chemistry

Dembinski is pursuing the synthesis of nucleosides analogues, particularly their coordination complexes. It is expected that such compounds may exhibit interesting biological properties. The ultimate goal is to synthesize materials that exhibit antiviral, anticancer properties, serve as bio-probes, and also to develop new synthetic methodologies. Learn more about Dembinski

Sumit Dinda
Associate Professor, School of Health Sciences

Dinda’s research focuses on the effects and molecular mechanisms of endocrine disruptor compounds (EDC) on steroid receptors and tumor suppressor genes in breast cancer cells. He also focuses on the action of flavonoids (plant based chemicals) with hormones and anti-hormones in breast cancer cells. Learn more about Dinda
Frank Giblin
Distinguished Professor, Eye Research Institute
Giblin studies metabolic and biochemical properties of the lens, with focus on oxidative and free radical processes in the formation of nuclear cataract, a common type of maturity-onset human cataract that affects the lens, causing blindness. He also investigates unusually active antioxidant mechanisms present in the epithelium of the lens. Learn more about Giblin

Andrew Goldberg
Professor, Eye Research Institute
The molecular pathologies involved in the great majority of inherited retinal degenerations remain largely unknown, despite identification of the genes involved. Goldberg's efforts are focused on understanding disease at the molecular level by studying affected protein structure and function. Ongoing studies address mechanisms of photoreceptor outer segment renewal and stability. Learn more about Goldberg

Chhabi Govind
Associate Professor, Department of Biological Sciences
Govind strives to discover the molecular mechanisms regulating gene expression. His lab utilizes powerful yeast genetics and biochemistry to understand mechanisms involved in recruiting chromatin modifying and remodeling complexes, and their role in transcription elongation. He is currently investigating how histone acetylation modulates chromatin plasticity during RNA polymerase II elongation. Learn more about Govind

Lan Jiang
Associate Professor, Department of Biological Sciences
The Drosophila tracheal system is an excellent model to study the morphogenesis of mammalian branched structures, such as the vertebrate airway, circulatory system, kidney ducts, and excretory epithelia. Jiang's research interests center around identifying novel genes and studying the functions of these novel genes during tubular organ formation. Learn more about Jiang

Evgeniy Khain
Associate Professor, Department of Physics
Biological multicellular systems present an exciting example of stochastic non-equilibrium systems. Khain investigates collective behavior of a large number of living cells, in the context of wound healing and tumor growth. His primary goal is modeling the growth of malignant brain tumors, which are not treated effectively by current therapies. Learn more about Khain

Ravindra Khattree
Professor, Department of Mathematics and Statistics
Khattree's current research interests lie in the area of multivariate statistical methods for biomedical research. In particular, he is interested in the repeated measures data, clinical trials and problems involving the determination of bioequivalence. Presently, Khattree is studying the interconnections between spirituality and various neuropsychological measures for breast cancer patients. Learn more about Khattree
**Andrea Kozak**  
**Associate Professor, Department of Psychology**

Kozak’s research program investigates factors associated with excess weight (e.g., low distress tolerance, food addiction), ways to help people lose weight and keep it off (e.g., diet and activity change interventions), and the consequences of overweight and obesity (e.g., poor quality of life, cardiovascular disease, diabetes). [Learn more about Kozak](#)

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**Shailesh Lal**  
**Professor, Department of Biological Sciences**

Transposable elements constitute a large proportion (44%) of the human genome and are linked to a number of genetic disorders and cancer. Lal is using maize as a model to study Helitrons, a novel superfamily of recently discovered transposable elements to study their mechanism of transposition and gene capture. [Learn more about Lal](#)

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**Zijuan Liu**  
**Associate Professor, Department of Biological Sciences**

The focus of Liu’s research is to study arsenic detoxification mechanisms using zebrafish as a new vertebrate model. She intends to elucidate the metabolic pathways, identifying the transporters and enzymes involved in arsenic uptake. Her long-term goal is to validate zebrafish as a model to study arsenic associated human diseases. [Learn more about Liu](#)

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**Gerard Madlambayan**  
**Associate Professor, Department of Biological Sciences**

Madlambayan focuses on defining how different cancers (solid and liquid) exploit normal stem and progenitor cell activity to foster their growth and subsequent relapse post-therapy. The ultimate goals are to identify promising cellular and molecular targets for cancer treatment, prevention of relapse and disease monitoring. [Learn more about Madlambayan](#)

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**Kenneth Mitton**  
**Associate Professor, Eye Research Institute**

Gene-based therapy for retinal degeneration will require the manipulation of gene expression within a complex regulatory network. However, the extent of the encompassing transcription factors, and all the genes targeted by the network, are unknown. Mitton addresses these questions by focusing on interactions of FIZ1, a transcriptional coregulator he discovered. [Learn more about Mitton](#)

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**Christina Papadimitriou**  
**Associate Professor, School of Health Sciences**

Papadimitriou is a sociologist and rehabilitation researcher who uses a social justice/equity approach ([www.ccqhr.ca](http://www.ccqhr.ca)) to study peer support interventions for persons with physical disabilities in the USA. She works with various groups, including CARF International, to implement person-centered care best practices. [Learn more about Papadimitriou](#)
Lakshmi Raman
Associate Professor, Department of Psychology
Raman explores our understanding of biological and psychological concepts such as the origins of illness and the impact of nutrition on mind-body interactions. Her interests include examining if and when children and adults think biological and psychological factors impact health issues, and assessing how healthy/unhealthy nutrition affects growth and mood. Learn more about Raman

Bradley Roth
Professor, Department of Physics
Roth’s research focuses on bioelectric phenomena, such as the electrical activity of nerves and muscle. His particular interests are electrical stimulation of the heart, pacemakers and defibrillation, magnetic stimulation of nerves, biomagnetism, and using the Lorentz for imaging current or electrical conductivity. Learn more about Roth

Michael Sevilla
Distinguished Professor, Department of Chemistry
Sevilla’s current research interest is the chemistry of free radical species produced by the irradiation of biomolecules, including mechanisms for radiation damage to DNA. He established that the initial effect of radiation is to produce ion radicals on the DNA bases, which lead to strand breaks and biologically relevant damage. Learn more about Sevilla

Mohammad-Reza Siadat
Associate Professor, Department of Computer Science and Engineering
Siadat’s interests are medical image and signal analysis, and medical informatics. His curvature and shape analysis of the gray-white matter interface in the deep perisylvian area (DPSA) is an attempt to fully utilize MRI data. The DPSA and insula harbor hidden epileptogenic foci that cannot be localized by conventional means. Learn more about Siadat

Mi Hye Song
Associate Professor, Department of Biological Sciences
Song studies the molecular mechanisms of centrosome assembly and function in the nematode Caenorhabditis elegans model with the three focuses: RNA-binding roles, protein phosphorylation, and proteolysis. She applies a combination of biochemistry, cell biology, genetics, proteomics, CRISPR/Cas9 genome-editing, and high-resolution confocal imaging to the study of centrosome biology. Learn more about Song

Jing Tang
Associate Professor, Department of Electrical and Computer Engineering
Tang’s research has been on the development and application of acquisition, reconstruction, and analysis techniques in positron emission tomography (PET) and single photon emission computed tomography (SPECT) imaging and also in multimodality imaging such as PET/MRI. Learn more about Tang
Douglas Wendell
Associate Professor, Department of Biological Sciences
Wendell is working on the identification of genes that regulate tumor growth using an estrogen-induced tumor model in the rat. He is also collaborating with Craig Hartrick of William Beaumont Hospital on a pilot project to explore the possibility that susceptibility to chronic pain is affected by common genetic variants. Learn more about Wendell

Randy Westrick
Assistant Professor, Department of Biological Sciences
The genetic contributors to arterial and venous thrombosis are largely unknown. The Westrick laboratory uses mouse models to identify and characterize the genes involved in thrombotic disease. They are using whole genome mutagenesis screens and other inbred mouse models to identify major thrombosis suppressor mutations and pathways. Learn more about Westrick

Keith Williams
Associate Professor, Department of Psychology
Williams explores the behavioral and biological components that modulate drug-taking behavior and addiction. His interests include the pharmacological and behavioral mechanisms of drug reinforcement and craving, drug discriminative stimulus properties, hormonal influences on drug self-administration, and contribution of food intake mechanisms on drug consumption. Learn more about Williams

Yang Xia
Distinguished Professor, Department of Physics
Xia develops multidisciplinary microscopic imaging techniques (μMRI, PLM, FTIR) and their novel applications in biomedicine, with a current research focus on molecular activities in articular cartilage, its degradation plays a major role in the development of osteoarthritis. Learn more about Xia

Xiangqun Zeng
Professor, Department of Chemistry
Zeng directs a chemical and biosensor research group that focuses on developing non-labeled biosensors and chemical sensors for rapid detection of biomarkers and pollutants in complex clinical and environmental samples by exploring new strategies for surface design and new applications for emerging interesting materials for chemical and biological sensing. Learn more about Zeng

Dao Qi Zhang
Associate Professor, Eye Research Institute
Dopaminergic neurons are widely distributed throughout the central nervous system and play vital roles in sensory functions, motor control, and motivation. The most accessible dopaminergic neurons are located in the vertebrate retina. Zhang is interested in understanding how retinal dopaminergic neurons are regulated by light and the biological clock. Learn more about Zhang