

RESEARCH ANNUAL REPORT

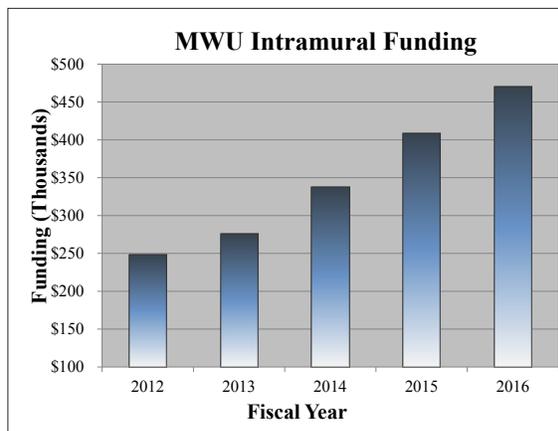
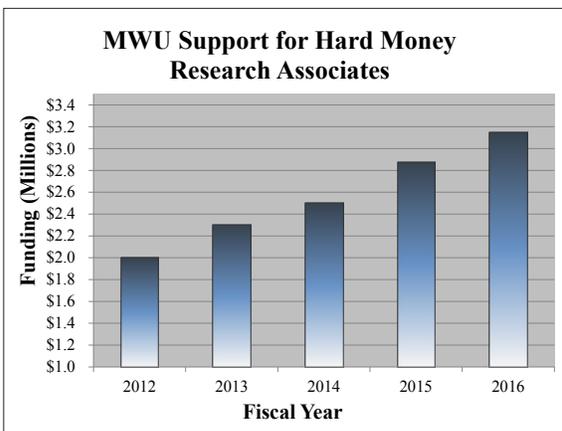
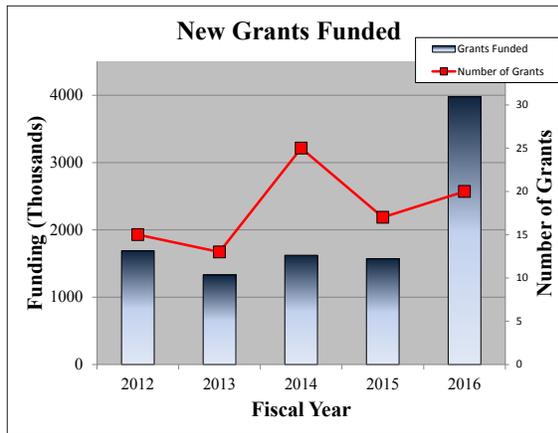
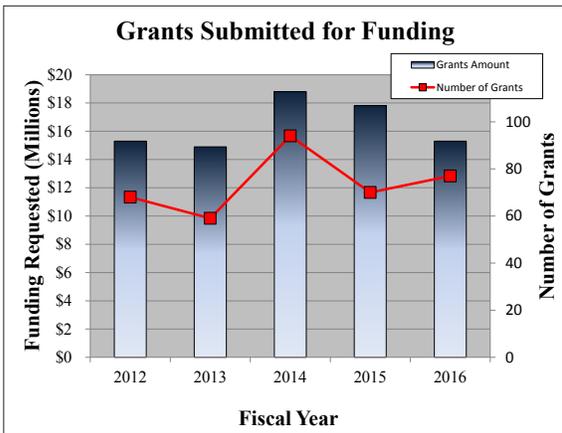
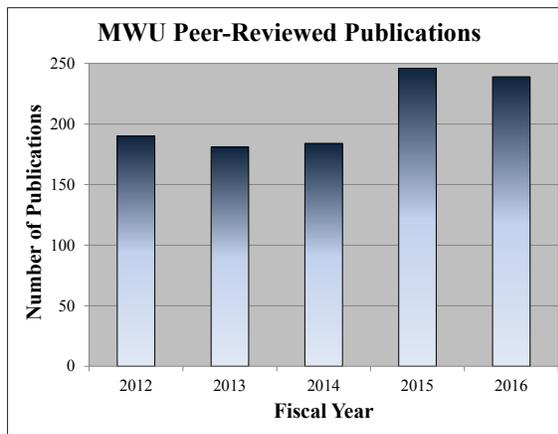
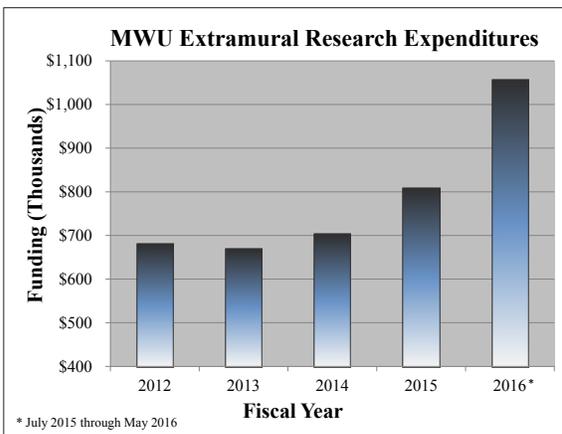
TOGETHER, WE'LL
GUIDE THE FUTURE
OF TOMORROW'S
HEALTH CARE.

OFFICE OF RESEARCH AND SPONSORED PROGRAMS

July 1, 2015 - June 30, 2016

Historical Research Support and Activity Data

The Midwestern University (MWU) *Annual Research Report* demonstrates research achievements of which members of the MWU community should be proud. As you will see inside this report, support for research at MWU is growing. The graphs below show historical data over the last five years, highlighting MWU's research activity and support. THANK YOU to all of MWU's faculty members, research staff and students whose efforts have consistently strengthened MWU's research programs.



Theresa W. Fossum, DVM, PhD
Vice President of Research & Strategic Initiatives



James M. Woods, PhD
Director, Office of Research & Sponsored Programs

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Fast Research Facts 2015 - 2016

Support for Faculty Research

- All Midwestern University (MWU) faculty are in 100% “hard money” (university-funded) positions, where they are encouraged, but not dependent upon bringing in extramural funding;
- Recaptured Salary Incentive: Faculty who receive grants which support “hard money” salary positions can earn “additional compensation;”
 - MWU paid out \$64,265 in such incentives directly to faculty July 2015 through May 2016
- MWU provides “hard money” research technicians for faculty, including 53 Full Time Equivalents funded at \$3,150,072 for fiscal year (FY) 2016;
- New faculty are provided start-up packages;
- Faculty can request capital research equipment through the university;
 - MWU purchased \$1,344,373 in capital research equipment in FY 2015;
 - Each campus requested and received a new confocal microscope within the last five years;
- Competitive intramural funding is available for faculty who actively seek extramural funding, including \$470,696 awarded in FY 2016;

Support for Student Research

- MWU makes a significant commitment to student research, demonstrated through the availability of \$375,840 in research stipends in FY 2016;
- MWU’s Research Days, held on each campus, had a total of 290 presentations in FY 2016 where almost all of these were by students engaged in research;
- MWU pays for high quality poster printing costs for its students and faculty, including printing of more than 339 research posters in FY 2016;
- MWU supports students to travel and present their research, including \$500 of support for first author students who have an abstract accepted at a national meeting: \$19,366 in FY 2016

Funding Success

- MWU’s extramural research expenditures for FY 2016 totaled \$1,056,759
- MWU’s active research awards in FY 2016 totaled \$6,985,151
- MWU faculty have received more than 50 NIH grants through 2015, the majority of which have been R15 awards, but also include several R01, R21 and R03 awards;
- NSF & HRSA Grants
- Foundation Grants: American Heart Association, Diabetes Action Research and Education Foundation, Leakey Foundation, North American Deer Farmers Association, North American Elk Breeder’s Association, National Association of Chain Drug Stores, American Medical Association, Moore Foundation, Marfan Foundation, CARE Foundation, etc.
- For-profit grants: Celleration, Contamac, Kalos Therapeutics, Novo Nordisk, Hiossen, Sangart, Tian Medical, Impladent, etc.

Office of Research & Sponsored Programs (ORSP)

- MWU's ORSP handles both pre-award and post-award grant and contract submissions, including 77 proposals submitted in FY 2016 requesting over \$15,300,000;
- MWU's ORSP has received significant budget increases since 2008, allowing us to offer intramural funds to all colleges, and to offer the following full-time positions to support faculty research:
 - A *Senior Grants Specialist* and *Grants Administrator* to assist faculty with grant and budget preparation and submission;
 - *Research Administrators* to assist MWU's IACUC, IRB, Radiation Safety and Biosafety Committees;
 - A *Manager of Bio/Clinical Statistics* to assist with data management and statistical needs;
 - A *Research Compliance Specialist* to help ensure MWU performs research in a manner compliant with federal, state and MWU regulations;
- For faculty involved in animal research who are seeking extramural funding, the ORSP can waive animal per diem charges, including nearly \$117,000 of waived charges in FY 2016;
- In FY 2016, MWU's ORSP offered \$9,800 to support a Research Seminar Series where faculty can bring in experts in their field (departments typically supplement the ORSP honorarium);

Research Facilities

- In 2014 MWU completed a new Veterinary Classroom and Laboratory building on our Glendale, Arizona campus:
 - This building has 11,161 square feet of space dedicated to research;
 - The research-related costs of the building total \$10,017,270;
 - This brings the total cost of expenditures for research space on the Glendale campus, including our Foothills, Cholla and Cactus Wren buildings, to \$20,870,255;
 - Our Foothills Building includes a 2,920 square foot animal facility;
- In 2011 MWU completed construction of a new Science Hall on our Downers Grove campus:
 - This provides researchers with 104,789 net assignable square feet dedicated to research;
 - The research-related costs of the building totaled \$56,200,200;
 - This includes a 13,170 square foot animal facility which received full AAALAC accreditation in 2012;
- A new Institute for Healthcare Innovation™ clinical research center is being planned for the Glendale campus, which will add additional research space, anticipated in the coming year;

The Bottom Line

- Midwestern University's commitment to building and sustaining a vital research environment is genuine;
- Administrative support for research is very strong, because of a firm belief in the ingenuity of MWU faculty.

Downers Grove Campus Multidisciplinary Research Award Recipients

Project Title: *Classifying and Overcoming the Risk of Fetal and Maternal Vancomycin Induced Kidney Injury: A Rat Model to Understand and New Formulation to Circumvent*; **Investigators (pictured left to right):** Dr. Brooke Griffin (CCP), Dr. Medha Joshi (CCP), Dr. Walter Prozialeck (CCOM), Dr. Teresa Hubka (CCOM) (*not pictured*), Dr. Anil Gulati (CCP), Dr. Marc Scheetz (CCP) and Dr. Gwen Pais (CCP) (*not pictured*)



kidney function necessary to classify damage, thus less is known about vancomycin's toxicity to the fetus. Because of the common use and importance of vancomycin for life-threatening infections to the mother, vancomycin serves as a candidate drug for 1) improved understanding of the relationship

between drug exposure and fetal kidney toxicity and 2) molecular modification to retain efficacy while circumventing toxicity to the mother and fetus. AIM1: Quantify the relationship between fetal vancomycin exposure and kidney injury to rat pups; Details: Methodologies that were not previously studied, such as the analysis of Kidney Injury 1 molecule, are highly sensitive and specific for vancomycin kidney injury. Additionally, we will measure vancomycin concentrations in the rat pup kidneys to see if accumulation occurs. AIM2: Develop and characterize a liposomal formulation of vancomycin designed to minimize transplacental transfer; Details: The parent compound will be encapsulated in liposomal core in order to minimize transplacental crossing to the fetus and renal tubular transit for the mother, thereby circumventing injury for both fetus and mother.

Approximately 90% of pregnant women and their fetuses are exposed to at least one medication during their pregnancy. The FDA previously classified the safety of medications in pregnancy as "A,B,C,D, or X" (X=teratogenic/avoid) according to their teratogenicity potentials; however, these classifications have been removed. Hence, clinicians are forced now more than ever to rely on primary medical literature for the safety of drugs during pregnancy. Vancomycin is a commonly used antibiotic during pregnancy for the treatment of severe sepsis and a candidate drug for our study. Although vancomycin was previously FDA classified as pregnancy category B, emerging data suggest kidney damage in adults. Further, data suggests that vancomycin crosses the placental barrier, though early toxicity studies have not employed the more sensitive assessments of

ship between drug exposure and fetal kidney toxicity and 2) molecular modification to retain efficacy while circumventing toxicity to the mother and fetus. AIM1: Quantify the relationship between fetal vancomycin exposure and kidney injury to rat pups; Details: Methodologies that were not previously studied, such as the analysis of Kidney Injury 1 molecule, are highly sensitive and specific for vancomycin kidney injury. Additionally, we will measure vancomycin concentrations in the rat pup kidneys to see if accumulation occurs. AIM2: Develop and characterize a liposomal formulation of vancomycin designed to minimize transplacental transfer; Details: The parent compound will be encapsulated in liposomal core in order to minimize transplacental crossing to the fetus and renal tubular transit for the mother, thereby circumventing injury for both fetus and mother.

Project Title: *Osteopathic Manipulative Treatment (OMT) Makes a Brain of Difference: A Proof of Principle Clinical Trial on the Effectiveness of OMT in Improving Neuropsychology in Adults with Pain*; **Investigators (left to right):** Dr. Mireille Rizkalla (CCOM), Dr. Kurt Heinking (CCOM), Dr. Kimberly Huntington-Alfano (CCOM), Dr. Kyle Henderson (CCOM) and Dr. Ann Impens (IHI)

Musculoskeletal pain is the most common reason for office visits to osteopathic physicians. While the majority of these cases are effectively treated with osteopathic manipulative treatment (OMT), the clinical picture is compounded by the fact that these patients also complain of neuropsychological (NP) impairment, which is far less understood and presents a major therapeutic obstacle. That pain could impede NP has long been shown in the literature. Deficits can be severe and are particularly apparent in working memory and attention. While the value of osteopathic manipulative treatment (OMT) for improving pain is well recognized, the extended benefits of OMT on neuropsychological status is yet to be explored. There is good reason to expect cognitive responsiveness to OMT. Previous research has already reported related outcomes, includ-



ing relief from depression and stress, with concomitant changes in neuroimmunological markers. The purpose of this prospective, single arm trial is to examine the impact of OMT at improving the neuropsychological profile of adults with pain. A neuropsychological assessment and biomedical inflammatory panel will be collected at pre-and-post OMT to track the changes in response to 4 weeks of treatment. Information garnered from this study will elucidate OMT practice parameters; potentially supporting the use of OMT for pain-induced cognitive dysfunction.

Glendale Campus Multidisciplinary Research Award Recipients

Project Title: Biochemical Characterization of MERS and MHV Coronavirus Helicases and Identification of Broad-spectrum Small Molecule Inhibitors of Coronavirus Helicases; Investigators (pictured top to bottom): Dr. Adeyemi Adedeji (CVM) and Dr. Mark Olsen (CPG)

Coronaviruses are known to cause a wide range of diseases in humans and animals. Middle East Respiratory Syndrome coronavirus (MERS-CoV) and Mouse hepatitis virus (MHV) are coronaviruses that cause lethal diseases of humans and mice respectively, for which there are currently no effective treatment. In light of the dramatic success in antiviral therapeutics targeted against HIV, many researchers in the coronavirus field consider antiviral therapy to be the brightest hope for success. The recent emergence of the related human-animal coronaviruses SARS (Severe Acute Respiratory Syndrome) and MERS has provided an impetus to study these agents. This rapidly emerging field of research has paved the way for dramatic parallel advances in MHV therapeutics. Two of the most important viral replication enzymes of

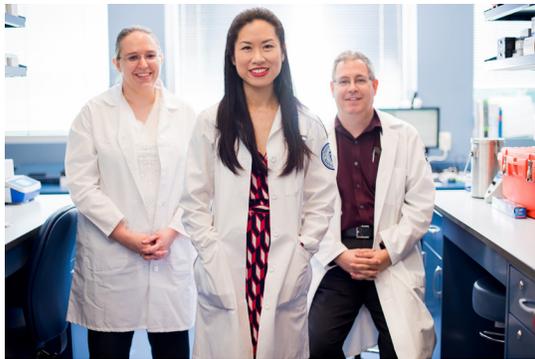
coronaviruses are the viral polymerase and helicase. Dr. Adedeji has extensive experience untangling the mechanisms of coronaviral pathogenesis and creating high-throughput *in vitro* assays to assess anti-coronavirus compounds. Most importantly, Dr. Adedeji has previously cloned and successfully expressed the SARS coronavirus viral polymerase and helicase. This feat was accomplished through multiple modifications of previously published strategies. Here at MWU, Dr. Adedeji has already cloned, expressed and purified the helicase proteins of MERS-CoV and Feline Infectious Peritonitis virus (FIP-CoV). We have also completed the bacterial characterization of MERS-CoV helicase, and started the biochemical characterization of FIP-CoV helicase. We plan to use the same techniques to clone, express and

purify MHV helicase protein. This will be followed by the biochemical characterization of the enzymatic activities of this viral protein. The enzymatic activities would be used to confirm the inhibitory effect of SSYA10-001, a previously identified SARS-CoV helicase inhibitor with a potential for broad-spectrum activity against other coronaviruses. We will also use these enzymatic activities as a foundation for future identification of more potential small molecule inhibitors that have broad-spectrum activities against coronaviruses.



Glendale Campus One Health Research Award Recipients

Project Title: Evaluation of Small Molecule Inhibitors in Human and Canine Hemangiosarcoma Cell Lines; Investigators: Dr. Valerie Wong (CVM) (center), Dr. Mark Olsen (CPG) (right) and Kristen Richter (CVM) (left)



Canine hemangiosarcoma is a common and spontaneous cancer of the blood vessel wall. It commonly affects the spleen and heart and is characterized by early and aggressive metastasis. Most dogs with hemangiosarcoma do not survive for more than 6 months even with surgical treatment followed by chemotherapy. At the cellular level, it is now thought that canine hemangiosarcoma arises from early blood cell precursors. Clinical and cellular properties are shared in a human version of this cancer, named human angiosarcoma. Like canine hemangiosarcoma, human angiosarcoma has a poor prognosis even with aggressive treatment. However, a major difference exists between the human and canine blood vessel cancers – human angiosarcoma occurs rarely. The rarity of this disease makes it extremely difficult to study human angiosarcoma and to investigate potential treatments. Given the clinical and cellular similarities between canine hemangiosarcoma and human angiosarcoma, the dog version of the disease is a very good and easily accessible model for the human version of the disease. We propose a study to investigate the effects of various anti-cancer compounds on the viability, proliferation, migration, and invasion of commercialized blood vessel cancer cell lines from dogs and humans. Several different cancer pathways have been implicated in the disease process of canine hemangiosarcoma and these pathways can be targeted with specific anti-cancer compounds. Based on the published literature, we have chosen a select group of anti-cancer compounds to investigate in this study. We hypothesize that these compounds will reduce growth and migration (and therefore metastatic potential) of the cancer cells in cell culture conditions. The results of this study are expected to support the use of canine hemangiosarcoma as a disease model for human angiosarcoma and to potentially identify an effective treatment for these conditions.

Downers Grove Campus One Health Research Award Recipients

Project Title: Investigation of the Effects of Cyanobacteria Lipopolysaccharide on Human Immune Cell Activation and Function; **Investigators (pictured left to right):** Dr. Michelle Swanson-Mungerson (CCOM) and Dr. Alejandro Mayer (CCOM)



Cyanobacteria (“blue-green algae”) are a ubiquitous group of Gram-negative bacteria found in freshwater systems worldwide that are linked to illness and, in some cases, death among humans and other animals (i.e., livestock, wildlife). Exposure to cyanobacteria through drinking water and food products exposes these bacteria and their toxins to the gut associated lymphoid tissue (GALT). Within the GALT resides a significant percentage of the body’s B cells of the immune system and monocytes that influence the B cell microenvironment. Both B cells and monocytes are known to become activated after exposure to bacteria. However, despite the exposure of GALT B cells and monocytes to cyanobacterial products, the ability of cyanobacteria to modulate their activation is unknown.

Lipopolysaccharides (LPS), widely recognized as

toxins in Gram-negative bacteria, are implicated in the toxicity of cyanobacteria. LPS activates both B cells and monocytes and despite our understanding of LPS from other species of Gram-negative bacteria, the potency and/or ability of cyanobacteria LPS to affect human B cell and monocyte activation is currently unknown. We hypothesize that activation of B cells and monocytes by cyanobacteria LPS profoundly contributes to cyanobacterial-induced human and animal disease. Previous data from our laboratories indicate that cyanobacterium *Oscillatoria* sp. LPS activates murine B cells to proliferate, increase endocytosis, and produce antibodies. Furthermore, our data demonstrate that *Oscillatoria* sp. LPS induces inherently different signaling pathways in murine B cells when compared to LPS from other Gram-negative bacteria, indicating that *Oscillatoria* sp. LPS has novel properties in B cell activation.

In the upcoming year as part of our One Health Grant, we will expand our initial studies and test whether *Oscillatoria* sp. LPS activates human B cells and monocytes. Furthermore, we will test if LPS-induced signal transduction is unique in human B cells and monocytes, as was seen in the murine B cells. The findings from this study will serve as the preliminary data for a novel AREA grant submission in which we plan to work with a structural chemist in order to determine the structure of *Oscillatoria* sp. LPS and the mechanism by which it induces altered signaling in B cells and monocytes. Overall, the findings from these studies will identify novel mechanisms by which *Oscillatoria* sp. promotes disease in both humans and animals.

Downers Grove *STUDENT* One Health Research Award Recipient

Project Title: A Pilot Study of Fecal Microbial Transplants from Exercised to Obese Mice; **Student Investigator:** Nicholas Smith (MBS ‘17); **Faculty Sponsors:** Dr. Christian Evans (CHS), Dr. Mae Ciancio (CHS), Dr. Melphine Harriott (CCOM) and Dr. Marc Scheetz (CCP)



The microbes that live within our gut play a role in health and disease. Humans and animals share many of the same gut bacteria and fungi, but every individual has a unique microbial composition that changes due to a variety of factors. Diet and exercise are two such factors that may change this composition, contributing to an individual’s health. Fecal microbiota transplantation (FMT) from healthy donors has improved health outcomes in human patients with *Clostridium difficile* infection and much can be learned from the beneficial microbes that colonize the gut of their recipient. This study will use FMT as an intervention in a rodent model of diet-induced obesity. Weight measurements and fecal samples before and after treatment will be analyzed to determine how the FMT changes the composition of gut microbes. We anticipate that mice receiving FMT from exercise mice will be partially protected from high fat, diet-induced obesity compared to mice receiving FMT from sedentary mice. The potential therapeutic applications of these findings could significantly improve the weight management of the morbidly obese as well as individuals who are not able to physically exercise.

Downers Grove *STUDENT* One Health Research Award Recipients

Project Title: The Systematic Identification of the Best Oral Hygiene Method for Household Dogs; **Student Investigators (pictured left to right):** Priyal Bhavsar (CDMI '17), Daniel Jarrett (CDMI '17) and Insia Virji (CDMI '17); **Faculty Sponsor:** Dr. Mae Ciancio (CHS)

Periodontal disease is the most common oral disease in dogs, occurring five times more often than in humans. Although brushing a pet's teeth can be a stressful experience, dog owners can choose from several over-the-counter alternatives to help keep their pets' teeth clean, ranging from antiseptic oral gels and water additives to dental wipes. Our objective is to measure and assess the periodontal health of dogs before and after use of the following products: toothbrush with toothpaste, antiseptic oral gel, dental wipes, and alkaline water additive. Measurements will include salivary pH, plaque index as a percentage using plaque disclosing fluid, and cotton swabs taken from buccal mucosa to test bacterial load before and after use of the products. This study will aim to inform dog owners of the effectiveness of these products as compared to standard oral tooth brushing.



Glendale Campus *STUDENT* One Health Research Award Recipients

Project Title: Pet Animal Exposure to Secondhand E-cigarette Smoke; **Student Investigator:** Jordan Kline (CDMA '19); **Faculty Sponsors:** Dr. Angela Mexas (CVM) and Dr. John Mitchell (CDMA)

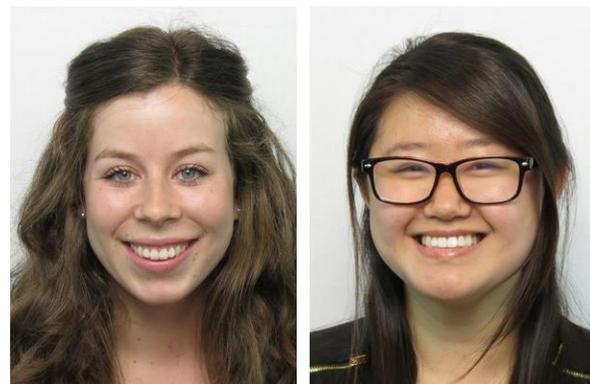


The main objective of the project is to determine if companion animals exposed to secondhand smoke of electronic cigarettes have increased total nicotine levels in their bodies. The specific aims of the study include measuring total nicotine levels in companion animals exposed to secondhand vapor from electronic cigarettes utilizing mass spectrometry of dissolved hair samples. The project also aims to compare findings to other studies of companion animals exposed to secondhand cigarette smoke and not exposed to secondhand cigarette smoke to determine if there has been significant exposure to nicotine via inhalation of secondhand vapor.

Glendale Campus *STUDENT* One Health Research Award Recipients

Project Title: Evaluation of CXCR4 Inhibitors in Canine Hemangiosarcoma and Human Angiosarcoma; **Student Investigators (pictured left to right):** Molly Klein (CVM '19) and Tiffany Wong (CPG '18); **Faculty Sponsors:** Dr. Valerie Wong (CVM) and Dr. Mark Olsen (CPG)

Canine hemangiosarcoma (HSA) is a common and spontaneous neoplasia of endothelial cells that affects the spleen, liver, heart and skin. With extremely poor prognosis and approximately 50,000 new diagnoses in the U.S. per year, there is a need to develop a more effective treatment. Furthermore, it has been suggested that canine HSA could be a good model for human angiosarcoma (HA). This proposed research project aims to investigate novel therapies for canine HSA and human HA by determining the anti-cancer effects of five specific chemokine inhibitors of canine HSA and human HA *in vitro*. All compounds that have significant inhibitory effects will be identified for further characterization of their therapeutic potential.



Institute for Healthcare Innovation Advances Industry Sponsored Clinical Trials at Midwestern University



IHI Team (from left to right): Dr. Ann Impens, Christine Wills, Katarina Ivkovic, Dr. Chad VanDenBerg, Shellee Diggs and Dr. Craig Woods

The Institute for Healthcare Innovation (IHI), formed in 2014, has made recent progress in advancing clinical trials at Midwestern University. In the spring of 2016, the IHI secured an industry sponsored human Phase III clinical trial to evaluate a collagen sponge in patients with diabetic foot ulcers, with Dr. John Tassone (*pictured below, left*) serving as the Principal Investigator (PI). Then, in June 2016, Midwestern University's Multispecialty Clinic was selected as a clinical trial site for a second IHI industry sponsored human Phase II podiatry study. With Dr. Donald Curtis (*pictured below, center*) serving as the PI, the IHI is evaluat-

ing a topical drug for painful diabetic neuropathy.

In addition to working with the School of Podiatric Medicine, the IHI is focused on industry sponsored research with the College of Veterinary Medicine. In June 2016, the IHI and Dr. Valerie Wong (*pictured below, right*) initiated an industry sponsored study on improving the diagnosis of canine Valley Fever, a fungal infection which also affects humans. The IHI is currently in negotiations with several veterinary pharmaceutical companies to perform studies in immunology and orthopedics, proposing to further Midwestern University's translational medicine efforts and One Health initiative.



MULTI-COLLEGE EXTRAMURALLY SUBMITTED PROPOSALS:

Investigator/s	College	Department	Proposal Title	Date Submitted	Total Budget	Agency	Start Date
Fornaro, M. (CCOM) & Gulati, A. (CCP)	CCOM & CCP	Multidisciplinary	Endothelin B Receptor Agonist, IRL-1620, Treatment to Promote Neurogenesis and Re-Network Neuronal Connections After SCI	1/21/2016	\$50,000	Innocentive	6/1/2016
Kristjansdottir, K. (CHS-DG), Gasiorowski, J. (CHS-DG) & Fornaro, M. (CCOM)	CHS-DG & CCOM	Multidisciplinary	Mechanisms that Enhance and Direct Sensory Nerve Fiber Regeneration on Defined Topographically Patterned Surfaces	2/25/2016	\$446,505	NIH-R15	9/1/2016

TOTAL OF MULTI-COLLEGE EXTRAMURALLY SUBMITTED PROPOSALS: \$496,505

ARIZONA COLLEGE OF OPTOMETRY (AZCOPT): EXTRAMURALLY SUBMITTED PROPOSALS

Investigator/s	College	Department	Proposal Title	Date Submitted	Total Budget	Agency	Start Date
Kozlowski, M.	AZCOPT	Optometry	Treatment of Age-related Macular Degeneration by Inhibition of Cell Senescence	10/25/2015	\$442,700	NIH-R15	7/1/2016

TOTAL OF AZCOPT EXTRAMURALLY SUBMITTED PROPOSALS: \$442,700

ARIZONA COLLEGE OF OSTEOPATHIC MEDICINE (AZCOM): EXTRAMURALLY SUBMITTED PROPOSALS

Investigator/s	College	Department	Proposal Title	Date Submitted	Total Budget	Agency	Start Date
Al-Nakkash, L.	AZCOM	Physiology	Mechanistic Understanding of the Deficit in Intestinal C1-secretion in Diabetes Using Whole Jejunum Tissue and Enteroids and Pinpointing How Genistein Ameliorates This	10/25/2015	\$375,000	NIH-R15	7/1/2016
*Al-Nakkash, L.	AZCOM	Physiology	Genistein: Understanding Its Ability to Ameliorate Intestinal Dysfunction in Diabetes	5/27/2016	\$40,000	Diabetes Action Research and Education Foundation	1/1/2017
*Al-Nakkash, L.	AZCOM	Physiology	Dietary Genistein Improves Intestinal Function in a Model of Diabetes: How?	6/10/2016	\$60,000	Diabetic Complications Consortium	10/1/2016

AZCOM EXTRAMURALLY SUBMITTED PROPOSALS (Continued)

Investigator/s	College	Department	Proposal Title	Date Submitted	Total Budget	Agency	Start Date
*Bae, N.	AZCOM	Biochemistry	The Telomere-protective Protein RAP1 Associates with Proteins Involved in Aging-related Disorders	6/22/2016	\$360,900	NIH-R15	4/1/2017
Call, G.	AZCOM	Pharmacology	Development and Use of a Genetically-manipulable Ischemia-reperfusion Injury Model	7/21/2015	\$150,000	American Heart Association	1/1/2016
Call, G.	AZCOM	Pharmacology	Oxygen Regulation of Stroke: A Novel Approach Using Drosophila	10/16/2015	\$150,000	NIH-R03	7/1/2016
Carroll, C.	AZCOM	Physiology	Amniotic Fluid-derived Allograft to Augment Tendon-bone Healing in a Massive Cuff Tear Rat Model	11/2/2015	\$250,000	American Orthopaedic Society for Sports Medicine Subcontract to Yale University	1/1/2016
Carroll, C.	AZCOM	Physiology	Administrative Supplement: Novel Effects of Genistein on Tendon Remodeling in a Model of Estrogen-Deficiency	3/4/2016	\$99,962	Administrative Supplement: NIH-R15	7/1/2016
Grossman, A.	AZCOM	Anatomy	Early and Middle Miocene Fauna in Israel	8/15/2015	\$20,520	The Leakey Foundation through The Hebrew University	5/1/2016
Grossman, A.	AZCOM	Anatomy	The Effects of Environmental Variability on the Composition of Early Miocene Catarrhine Communities: The Case of Loperot	11/1/2015	\$20,000	The Wenner Gren Foundation	7/1/2016
Haley, N.	AZCOM	Microbiology & Immunology	Managing CWD in Farmed Cervids through Antemortem Testing, Targeted Culling, and Development of Genetic Resistance Breeding Programs	1/7/2016	\$48,593	North American Deer Farmers Association	3/1/2016
Haley, N.	AZCOM	Microbiology & Immunology	Managing CWD in Farmed Cervids through Antemortem Testing, Targeted Culling, and Development of Genetic Resistance Breeding Programs	1/7/2016	\$8,625	North American Elk Breeder's Association	3/1/2016
*Jentarra, G.	AZCOM	Biochemistry	Analysis of the Presence and Potential Role of Chronic Infection in Alzheimer's Disease	6/17/2016	\$70,000 (includes \$35,000 match from MWU)	Arizona Alzheimer's Consortium	7/1/2016

AZCOM EXTRAMURALLY SUBMITTED PROPOSALS (Continued)

Investigator/s	College	Department	Proposal Title	Date Submitted	Total Budget	Agency	Start Date
Jones, D.	AZCOM	Pharmacology	Muscarinic Receptor Uncoupling Alzheimer's Disease	9/30/2015	\$100,000	Genentech	1/1/2016
Kemper, L.	AZCOM	Administration	Disaster Preparedness: A Unique Adaptation of One Health	9/16/2015	\$75,000	American Medical Association	10/1/2015
Kim, C.	AZCOM	Biochemistry	The Role of SAM Polymerization in Polycomb-dependent Chromatin Structures	10/5/2015	\$1,665,333	NIH-R01 Subcontract to the Institut de Recherchers Cliniques de Montréal	7/1/2016
Kim, C. (Lee, O., AZCOM '18)	AZCOM	Biochemistry	Structural Analysis of Polycomb Repressive Complex 1 (PRC1) in Cancer Stem Cells	11/30/2015	\$5,000	American Medical Association	6/16/2016
*Lawson, K.	AZCOM	Biochemistry	Oncogenic P-cadherin Signaling in Oral Dysplasia	6/23/2016	\$375,000	NIH-R15	4/1/2017
*Olson, C.	AZCOM	Physiology	Alcohol Effects on Brain Mechanisms of Vocal Learning	6/16/2016	\$147,936	NIH-R21 Subcontract From Oregon Health & Science University	4/1/2017
Speicher, M.	AZCOM	Administration	Improving the Predictive Value of Clinical Clerkship Grades in Estimated Competence in Entrustable Professional Activities	2/16/2016	\$4,920	American Association of Colleges of Osteopathic Medicine	7/1/2016
*Speicher, M.	AZCOM	Administration	The Value of Osteopathic Clinical Care: A Multi-Level Analysis	5/3/2016	\$81,119	American Osteopathic Association	7/1/2016
Townsend, K.	AZCOM	Anatomy	Collaborative Research: After the Bridgerian Crash - Mammalian Paleocommunities and Paleoecologies During the Middle Eocene	2/26/2016	\$76,106	NSF	7/1/2016
VandenBrooks, J.	AZCOM	Physiology	Collaborative Research: How Will Oxygen-limited Heat Tolerance Affect the Dispersal of Species Climate Warming?	8/7/2015	\$308,573	NSF	1/1/2016

TOTAL OF AZCOM EXTRAMURALLY SUBMITTED PROPOSALS: \$4,492,587

**CHICAGO COLLEGE OF OSTEOPATHIC MEDICINE (CCOM):
EXTRAMURALLY SUBMITTED PROPOSALS**

Investigator/s	College	Department	Proposal Title	Date Submitted	Total Budget	Agency	Start Date
*Edwards, J.	CCOM	Pharmacology	Diabetic Nephropathy and Urinary Biomarkers of Renal Function	4/15/2016	\$332,299	American Diabetes Association	1/1/2017
*Green, D.	CCOM	Biochemistry	Determination of the Role of Nutrition in a Mouse Model of Oral Cancer	6/25/2016	\$432,962	NIH-R15	4/1/2017
Henderson, K.	CCOM	Physiology	Analytical Assessment of the Cranial Rhythmic Impulse	7/16/2015	\$332,024	NIH-R21	4/1/2016
Henderson, K.	CCOM	Physiology	Analytical Assessment of the Cranial Rhythmic Impulse	12/21/2015	\$19,783	American Academy of Osteopathy	5/1/2016
*Henderson, K.	CCOM	Physiology	Empathy in Osteopathic Medical Students: Is it all in the Hands?	5/3/2016	\$149,933	American Osteopathic Association	7/1/2016
*Plotkin, B.	CCOM	Microbiology & Immunology	Herpes Simplex Virus (HSV-1 and HSV-2) Inhibition of <i>Staphylococcus aureus</i> Biofilm Initiation	6/25/2016	\$450,000	NIH-R15	4/1/2017
Tiwari, V.	CCOM	Microbiology & Immunology	Vironano-peptide Therapy Against Herpes Simplex Virus	10/16/2015	\$206,250	NIH-R21 Subcontract from the University of Illinois at Chicago	7/1/2016
Tiwari, V.	CCOM	Microbiology & Immunology	Structure-function Analysis of Sulfated-heparan Sulfate During HCMV Infection	10/25/2015	\$450,000	NIH-R15	7/1/2016
Tiwari, V.	CCOM	Microbiology & Immunology	Novel Peptide Based Therapy Against Zika Virus	2/16/2016	\$438,613	NIH-R21 Subcontract to the University of Illinois at Chicago	9/1/2016
*Tiwari, V.	CCOM	Microbiology & Immunology	Impact of Molecular Diversity in Heparan Sulfate Chain During HCMV Entry and Cell Fusion	6/25/2016	\$450,000	NIH-R15	4/1/2017

TOTAL OF CCOM EXTRAMURALLY SUBMITTED PROPOSALS: \$3,261,864

**CHICAGO COLLEGE OF PHARMACY (CCP):
EXTRAMURALLY SUBMITTED PROPOSALS**

Investigator/s	College	Department	Proposal Title	Date Submitted	Total Budget	Agency	Start Date
Andurkar, S.	CCP	Pharmaceutical Sciences	Understanding the Mechanisms Involved in the Potentiation of Morphine Analgesia by Endothelin ET _A Receptor Antagonists	10/25/2015	\$450,000	NIH-R15	7/1/2016
*Andurkar, S.	CCP	Pharmaceutical Sciences	Understanding the Mechanisms Involved in Potentiation of Morphine Analgesia by Endothelin ET _A Receptor Antagonists	6/25/2016	\$450,000	NIH-R15	4/1/2017
Gilchrist, A.	CCP	Pharmaceutical Sciences	Targeting Multiple Myeloma Using Biased CCR1 Antagonists with Extended Residence Times	10/25/2015	\$475,694	NIH-R15 Subcontract to Kean University	7/1/2016
Gulati, A.	CCP	Pharmaceutical Sciences	Risk Benefit Aspects of Developing Centhaquin Citrate for Post-operative Pain	9/4/2015	\$62,238	NIH-SBIR Subcontract from Pharmazz, Inc.	4/1/2016
Gulati, A.	CCP	Pharmaceutical Sciences	Mechanistic Study of ET _B Receptor Mediated Angiogenesis and Neurogenesis in Alzheimer's Disease	2/25/2016	\$450,000	NIH-R15	10/1/2016
Joshi, M.	CCP	Pharmaceutical Sciences	Combination Drug Loaded PEGylated Liposomal Nanocarriers for the Treatment of Stroke	8/31/2015	\$10,000	American Association of Colleges of Pharmacy	1/1/2016
*Joshi, M.	CCP	Pharmaceutical Sciences	Nanoliposomal Formulations for Treatment of Stroke	6/25/2016	\$450,000	NIH-R15	4/1/2017
Kliethermes, M.	CCP	Pharmacy Practice	Physician Preferences for Medication List Structure to Optimize Utilization	10/19/2015	\$5,000	American Society of Health-System Pharmacists Foundation	12/1/2015
Leonard, M.	CCP	Pharmaceutical Sciences	Influence on Aging on Endothelin Mediated Neurovascular Remodeling Following Cerebral Ischemia	7/23/2015	\$100,676	American Heart Association	1/1/2016
McLaughlin, M.	CCP	Pharmacy Practice	Dosing of NRTIs During Continuous Renal Replacement Therapy	7/1/2015	\$20,000	Society of Infectious Diseases Pharmacists Subcontract to the University of Michigan	9/1/2015
*Scheetz, M.	CCP	Pharmacy Practice	Elucidation of an Informed Drug Dosing Scheme to Minimize Kidney Injury	6/25/2016	\$461,956	NIH-R15	4/1/2017

CCP EXTRAMURALLY SUBMITTED PROPOSALS (Continued)

Investigator/s	College	Department	Proposal Title	Date Submitted	Total Budget	Agency	Start Date
Tran, T.	CCP	Pharmacy Practice	Midwestern University SBIRT Training (MUST) Program	1/4/2016	\$833,798	Substance Abuse and Mental Health Services Administration	9/29/2019
Tran, T. & Fjortoft, N.	CCP	Pharmacy Practice and Administration	Preparing Pharmacy Students for Their Role in the Opioid Crisis: Advancing the Pharmacy Curriculum	3/8/2016	\$20,000	National Association of Chain Drug Stores Foundation	7/1/2016

TOTAL OF CCP EXTRAMURALLY SUBMITTED PROPOSALS: \$3,789,362

COLLEGE OF DENTAL MEDICINE ARIZONA (CDMA): EXTRAMURALLY SUBMITTED PROPOSALS

Investigator/s	College	Department	Proposal Title	Date Submitted	Total Budget	Agency	Start Date
Kramer, R. & Shafi, B.	CDMA	Dental	A Novel Modular Teaching System for Clinical Education that Couples Augmented Reality with a Multitude of Digital Healthcare Technologies	8/31/2015	\$100,000	Microsoft	10/5/2015
*Mills, D. (Tang, A., BMS '17)	CDMA	Dental	Evaluation of Magnification Lenses and Light Curing Unit Spectral Irradiance	5/23/2016	\$540 (Value of Product)	Designs for Vision	5/25/2016
*Mitchell, J.	CDMA	Dental	Development of a Pressurized Water-based Cutting Solution for Removal of Carious Lesions	4/5/2016	\$74,000	NIH-R43 SBIR Subcontract from Dentavations	1/1/2017
Mitchell, J. (Nguyen, H., CDMA '19)	CDMA	Dental	Color Variability Among Manufacturers of CAD/CAM Materials	1/19/2016	\$2,100	American Association for Dental Research	3/17/2016
Pulido, T. (Ortman, L., CDMA '18)	CDMA	Dental	Antimicrobial Properties, Fluoride and Staining Effects of Commercially Available Green Teas in the US	1/19/2016	\$2,100	American Association for Dental Research	3/17/2016
Smith, B. (Tran, K., CDMA '19)	CDMA	Dental	Bioactive Glass Orthodontic Agents, Reduction in Bacteria and Changes in Hardness	1/19/2016	\$2,100	American Association for Dental Research	3/17/2016

TOTAL OF CDMA EXTRAMURALLY SUBMITTED PROPOSALS: \$180,840

**COLLEGE OF DENTAL MEDICINE ILLINOIS (CDMI):
EXTRAMURALLY SUBMITTED PROPOSALS**

Investigator/s	College	Department	Proposal Title	Date Submitted	Total Budget	Agency	Start Date
Williams, L.	CDMI	Dental	CDMI Oral Health for the Community Program	11/13/2015	\$4,999	American Dental Association	1/1/2016

TOTAL OF CDMI EXTRAMURALLY SUBMITTED PROPOSALS: \$4,999

**COLLEGE OF HEALTH SCIENCES DOWNERS GROVE (CHS-DG):
EXTRAMURALLY SUBMITTED PROPOSALS**

Investigator/s	College	Department	Proposal Title	Date Submitted	Total Budget	Agency	Start Date
*Evans, C.	CHS-DG	Physical Therapy	Does Gut Microbiota Transplant from Ketogenic Diet or Exercise Mice Prevent Diet-Induced Obesity?	6/27/2016	\$31,857	KETOPET Sanctuary	1/1/2017

TOTAL OF CHS-DG EXTRAMURALLY SUBMITTED PROPOSALS: \$31,857

**COLLEGE OF HEALTH SCIENCES GLENDALE (CHS-GD):
EXTRAMURALLY SUBMITTED PROPOSALS**

Investigator/s	College	Department	Proposal Title	Date Submitted	Total Budget	Agency	Start Date
Burns, S.	CHS-GD	Nurse Anesthesia	Nurse Anesthetist Traineeship Program	11/20/2015	\$45,000	Health Resources and Services Administration	7/1/2016
Davis, M.	CHS-GD	Biomedical Sciences	Epigenetic Mechanisms Controlling Switching Between Metastatic and Proliferative Subtypes in the SW13 Adrenal Adenocarcinoma Cell Line	10/12/2015	\$419,379	NIH-K22	7/1/2016
*Esfandiarei, M.	CHS-GD	Biomedical Sciences	Children and Adolescents with Marfan Syndrome - 10,000 Healthy Steps and Beyond	4/11/2016	\$30,484	The Marfan Foundation Subcontract from Stanford University	1/1/2017
Esfandiarei, M.	CHS-GD	Biomedical Sciences	Understanding the Role of Inducible Nitric Oxide During the Progression of Aortic Aneurysm in a Mouse Model of Marfan Syndrome	2/25/2016	\$450,000	NIH-R15	12/1/2016

CHS-GD EXTRAMURALLY SUBMITTED PROPOSALS (Continued)

Investigator/s	College	Department	Proposal Title	Date Submitted	Total Budget	Agency	Start Date
O'Neal, S.	CHS-GD	Physical Therapy	The Effect of a Target-based Rowing Exercise Program on People with Parkinson's Disease: A Pilot Study	8/5/2015	\$39,531	Foundation for Physical Therapy	1/1/2016
*Roman, G.	CHS-GD	Physical Therapy	Characterization of Glenohumeral Damage Following Rotator Cuff Tear in Older Adults	6/21/2016	\$36,252	Arizona Biomedical Research Commission Subcontract from Arizona State University	9/1/2016

TOTAL OF CHS-GD EXTRAMURALLY SUBMITTED PROPOSALS: \$1,020,646

COLLEGE OF PHARMACY GLENDALE (CPG): EXTRAMURALLY SUBMITTED PROPOSALS

Investigator/s	College	Department	Proposal Title	Date Submitted	Total Budget	Agency	Start Date
Elbayoumi, T.	CPG	Pharmaceutical Sciences	Genistein-Lipidic Nanocarrier Combinations to Overcome Cancer Chemo-resistance in Diverse Tumors	10/1/2015	\$128,711	Elsa U. Pardee Foundation	3/1/2016
Elbayoumi, T.	CPG	Pharmaceutical Sciences	Coated Tocotrienol Nano-emulgels to Augment Imiquimod Therapy of Melanomas	11/16/2015	\$168,732	Melanoma Research Alliance Collaboration with Affiliated Dermatology	5/1/2016
Elbayoumi, T.	CPG	Pharmaceutical Sciences	Genistein-Lipidic Nanocarrier Combinations to Overcome Cancer Chemo-Resistance in Diverse Tumors	3/11/2016	\$25,000	United Soybean Board	1/1/2017
*Elbayoumi, T.	CPG	Pharmaceutical Sciences	CD44-targeted Multi-layered Tocotrienol Nanoemulgels for Mitochondrial Chemosensitization of Melanomas to Augment Proapoptotic Effects of Imiquimod	6/21/2016	\$598,216	Arizona Biomedical Research Commission	1/1/2017
*Weissig, V.	CPG	Pharmaceutical Sciences	Novel Mechanisms of Aging-Related Dementia from Medin and A β Induced Vasculopathy	6/5/2016	\$300,000	NIH-R01 Subcontract from Carl T. Hayden Medical Research Foundation	4/1/2017

TOTAL OF CPG EXTRAMURALLY SUBMITTED PROPOSALS: \$1,220,659

**COLLEGE OF VETERINARY MEDICINE (CVM):
EXTRAMURALLY SUBMITTED PROPOSALS**

Investigator/s	College	Department	Proposal Title	Date Submitted	Total Budget	Agency	Start Date
Jaffe, M. & Wong, V.	CVM	Veterinary Medicine	Photothermal Nanocomposites for Tissue Repair	7/5/2015	\$76,928	NIH-R01 Subcontract from Arizona State University	4/1/2016
Jaffe, M.	CVM	Veterinary Medicine	Merial Veterinary Scholars Program	10/30/2015	\$13,920	Merial	6/1/2016
*Jaffe, M.	CVM	Veterinary Medicine	Bioengineered 3D Dormant Tumor Micro-environments	6/5/2016	\$86,539	NIH-U01 Subcontract from Arizona State University	5/1/2017
Wong, V.	CVM	Veterinary Medicine	The Value and Utility of Incentives in Engaging Veterinarian Practitioners in Clinical Research	8/1/2015	\$2,000	Merial	8/1/2015
*Wong, V.	CVM	Veterinary Medicine	Engineering DNA Delivery Polymers Using Combinatorial and Chemoinformatics Methods	6/24/2016	\$118,370	NIH-R01 Subcontract from Arizona State University	4/1/2017
Wong, V. & Woods, C. (IHI)	CVM	Veterinary Medicine	Nanoscale Radiation Dosimeters	2/5/2016	\$100,344	NIH-R01 Subcontract from Arizona State University	11/1/2017

TOTAL OF CVM EXTRAMURALLY SUBMITTED PROPOSALS: \$398,101

**INSTITUTE FOR HEALTHCARE INNOVATION (IHI):
EXTRAMURALLY SUBMITTED PROPOSALS**

Investigator/s	College	Department	Proposal Title	Date Submitted	Total Budget	Agency	Start Date
Impens, A.	Downers Grove	IHI	Empathy: From Medical School to Residency	2/16/2016	\$5,000	American Association of Colleges of Osteopathic Medicine	4/1/2016
*Woods, C.	Glendale	IHI	Therapeutic Effect of an Endothelin Agonist in Dogs with Degenerative Myelopathy	6/1/2016	\$9,750	CARE Foundation	6/1/2016
*Woods, C.	Glendale	IHI	Canine Genetic Disease Database	6/23/2016	\$19,925	CARE Foundation	6/29/2016

TOTAL OF IHI EXTRAMURALLY SUBMITTED PROPOSALS: \$34,675

**MWU SUBMITTED 77 EXTRAMURAL PROPOSALS FROM ALL COLLEGES
FOR FISCAL YEAR 2016: \$15,374,795**

*The asterisk denotes new material. All material in this report is cumulative from July 1, 2015 through July 31, 2016.

AZCOM: ALL ACTIVE EXTRAMURALLY-FUNDED RESEARCH AWARDS DURING THE REPORTING PERIOD

Investigator/s	College	Department	Proposal Title	Total Award	Agency	Start Date	End Date
Al-Nakkash, L.	AZCOM	Physiology	Improving Intestinal Function in the <i>ob/ob</i> Mouse, a Model of Type II Diabetes	\$10,000	Diabetes Action Research and Education Foundation	1/1/2014	12/31/2015
Al-Nakkash, L.	AZCOM	Physiology	Understanding the Mechanism for Genistein-mediated CI Secretion: In Diabetes	\$10,000	United Soybean Board	11/1/2014	3/31/2016
Baab, K.	AZCOM	Anatomy	Integration of Robust Features Across the Cranial and Postcranial Skeleton	\$10,128	The Leakey Foundation	2/1/2015	2/4/2017
Broderick, T.	AZCOM	Physiology	The Cardiac Oxytocin System in Diabetes	\$25,000	Diabetes Action Research and Education Foundation	1/1/2012	7/5/2016
Carroll, C.	AZCOM	Physiology	Novel Effects of Genistein on Tendon Remodeling in a Model of Estrogen-Deficiency	\$468,639	NIH-R15 Subcontract to the University of Arizona and the University of North Carolina at Charlotte	12/1/2015	11/30/2018
Haley, N.	AZCOM	Microbiology & Immunology	Managing CWD in Farmed Cervids through Antemortem Testing, Targeted Culling, and Development of Genetic Resistance Breeding Programs	\$48,593	North American Deer Farmers Association	3/1/2016	3/1/2021
Haley, N.	AZCOM	Microbiology & Immunology	Managing CWD in Farmed Cervids through Antemortem Testing, Targeted Culling, and Development of Genetic Resistance Breeding Programs	\$8,625	North American Elk Breeder's Association	3/1/2016	3/1/2021
*Kim, C.	AZCOM	Biochemistry	The Role of SAM Polymerization in Polycomb-dependent Chromatin Structures	\$1,019,683	NIH-R01 Subcontract to the Institute de Recherchers de Montreal	6/1/2016	5/31/2020
*Kim, C. (Lee, O., AZCOM '18)	AZCOM	Biochemistry	Structural Analysis of Polycomb Repressive Complex 1 (PRC1) in Cancer Stem Cells	\$5,000	American Medical Association	6/16/2016	4/16/2017
Riede, T.	AZCOM	Physiology	The Evolution of Avian Vocalization	\$137,111	Gordon and Betty Moore Foundation Subcontract from The University of Texas at Austin with a Subcontract to the Southeast Idaho Research Institute	11/1/2014	10/31/2016

AZCOM: ALL ACTIVE RESEARCH AWARDS (Continued)

Investigator/s	College	Department	Proposal Title	Total Award	Agency	Start Date	End Date
Worden, K.	AZCOM	Osteopathic Manipulative Medicine	Use and Effectiveness of Osteopathic Manipulative Medicine in the Clinical Setting	\$1,500	A.T. Still University/A.T. Still Research Institute	7/15/2013	12/31/2015

TOTAL OF AZCOM ACTIVE EXTRAMURALLY-FUNDED RESEARCH AWARDS: \$1,744,279

AZCOPT: ALL ACTIVE EXTRAMURALLY-FUNDED RESEARCH AWARDS DURING THE REPORTING PERIOD

Investigator/s	College	Department	Proposal Title	Total Award	Agency	Start Date	End Date
Esposito, C.	AZCOPT	Optometry	Study of Adult Strabismus	\$5,625	National Eye Institute Cooperative Agreement with JAEB Center for Health Research, Inc.	3/1/2016	3/1/2017
Handford, P.	AZCOPT	Optometry	Study of Binocular Computer Activities for Treatment of Amblyopia	\$30,000	National Eye Institute Cooperative Agreement with JAEB Center for Health Research, Inc.	11/1/2014	9/30/2016
Harrison, W.	AZCOPT	Optometry	Multisite Fielding of CLAY SIGHT Tool to Active Red Eye Clinical Population: AKA CLAY Red Eye Lite	\$600	CLAY Study Group	10/1/2013	10/1/2015
Kozlowski, M.	AZCOPT	Optometry	Antiproliferative Activity of a New Class of Peptides	\$72,523	Kalos Therapeutics	3/1/2014	2/5/2017
Kozlowski, M.	AZCOPT	Optometry	Evaluation of Telomerase Activating Agents for Prevention and Treatment of Dry AMD	\$42,650	Portes Foundation and the Institute of Medicine Chicago	3/1/2014	10/1/2015

TOTAL OF AZCOPT ACTIVE EXTRAMURALLY-FUNDED RESEARCH AWARDS: \$151,398

CCOM: ALL ACTIVE EXTRAMURALLY-FUNDED RESEARCH AWARDS DURING THE REPORTING PERIOD

Investigator/s	College	Department	Proposal Title	Total Award	Agency	Start Date	End Date
Bjork, B.	CCOM	Biochemistry	Prdm16 and Mecom in Mouse Embryonic Mandible and Palate Development	\$446,940	NIH-R15	7/1/2014	6/30/2017
Heinking, K. & Henderson, K.	CCOM	Osteopathic Manipulative Medicine & Physiology	Improving Osteopathic Post-doctoral Training with Basic Science and Osteopathic Manipulative Medicine Integration	\$5,000	American Association of Colleges of Osteopathic Medicine	7/1/2013	10/31/2015
Kopf, P.	CCOM	Pharmacology	The Role of 12-Lipoxygenase in Aldosterone Secretion	\$417,791	NIH-R15	7/1/2015	4/30/2018

CCOM: ALL ACTIVE RESEARCH AWARDS (Continued)

Investigator/s	College	Department	Proposal Title	Total Award	Agency	Start Date	End Date
Mejia-Alvarez, R.	CCOM	Physiology	Control of IP ₃ R-mediated Calcium Release	\$122,504	NIH-R01 Subcontract from Rush University Medical School	6/1/2015	5/31/2019
Murthy, A.	CCOM	Pathology	Immunopathogenesis of Chlamydia Pneumonia Medicated Atherosclerosis	\$214,500	American Heart Association - Midwest Affiliate	7/1/2013	6/30/2016
Murthy, A.	CCOM	Pathology	Mechanism(s) of CD8 ⁺ T Cell-mediated Chlamydia-induced Reproductive Pathology	\$459,396	NIH-R15	7/1/2013	6/30/2016
*Ramsey, K.	CCOM	Microbiology & Immunology	Isolation of Novel Rodent Chlamydiae	\$422,488	NIH-R21	4/1/2016	3/31/2018
Tiwari, V.	CCOM	Microbiology & Immunology	Novel Peptides Against Modified Heparan Sulfate	\$204,875	NIH-R21 Subcontract from University of Illinois Chicago	9/1/2014	8/31/2016

TOTAL OF CCOM ACTIVE EXTRAMURALLY-FUNDED RESEARCH AWARDS: \$2,293,494

CCP: ALL ACTIVE EXTRAMURALLY-FUNDED RESEARCH AWARDS DURING THE REPORTING PERIOD

Investigator/s	College	Department	Proposal Title	Total Award	Agency	Start Date	End Date
D'Souza, J.	CCP	Pharmacy Practice	Evaluating the Impact of Pharmacist Interventions on Statin Adherence	\$5,000	American Society of Health-System Pharmacists Foundation	1/1/2015	1/1/2017
Gettig, J.	CCP	Pharmacy Practice	Community Pharmacy Residency Expansion Project	\$50,000	National Association of Chain Drug Stores Foundation	7/1/2013	6/30/2016
Gulati, A.	CCP	Pharmaceutical Sciences	Regulation of Blood Brain Barrier by Sphenopalatine Ganglion	\$75,926	Tian Medical, Inc.	2/3/2014	2/2/2016
Gulati, A.	CCP	Pharmaceutical Sciences	Mentor and Train PCCM and NPM Fellows	\$89,360	Advocate & Hospitals Corporation	1/1/2015	12/31/2015
Scheetz, M.	CCP	Pharmacy Practice	Patient-oriented Research on Hospital-acquired Pathogens	\$36,682	NIH-K24 Subcontract from Northwestern University	7/1/2013	6/30/2018
Scheetz, M.	CCP	Pharmacy Practice	Elucidation of an Informed Drug Dosing Scheme to Minimize Kidney Injury	\$458,764	NIH-R15	4/1/2014	3/31/2017

CCP: ALL ACTIVE RESEARCH AWARDS (Continued)

Investigator/s	College	Department	Proposal Title	Total Award	Agency	Start Date	End Date
Scheetz, M.	CCP	Pharmacy Practice	Prospective Observational Evaluation of the Association Between the Day 2 Vancomycin Exposure and Failure Rates Among Adult Hospitalized Patients with MRSA Bloodstream Infections (PROVIDE)	\$20,000	NIH-UM1 Subcontract from Northwestern University	12/12/2014	11/30/2019
Scheetz, M.	CCP	Pharmacy Practice	Enhancement of Antibiotic Activity with Nanoparticles	\$39,290	Northwestern Memorial Hospital	1/1/2015	12/31/2015
Scheetz, M.	CCP	Pharmacy Practice	Optimizing Clinical Use of Polymyxin B: Teaching an Old Drug to Treat Superbugs	\$100,078	NIH-R01 Subcontract from Wayne State University	6/19/2015	5/31/2020
Scheetz, M.	CCP	Pharmacy Practice	Transrectal Ultrasound Guided Prostate Biopsy	\$26,475	Northwestern Hospital/ Illinois Department of Healthcare and Family Services	9/1/2015	4/30/2016
Schumacher, C.	CCP	Pharmacy Practice	MEDication Focused Outpatient Care for Underutilization of Secondary Prevention	\$58,313	NIH-R18 Subcontract from the University of Iowa	4/1/2014	3/31/2019

TOTAL OF CCP ACTIVE EXTRAMURALLY-FUNDED RESEARCH AWARDS: \$959,888

CDMA: ALL ACTIVE EXTRAMURALLY-FUNDED RESEARCH AWARDS DURING THE REPORTING PERIOD

Investigator/s	College	Department	Proposal Title	Total Award	Agency	Start Date	End Date
Mitchell, J.	CDMA	Dental	Antibacterial Effects of Synthetic Bone Grafting Materials	\$4,410	Impladent, Ltd.	6/11/2014	12/31/2015
Rolf, D.	CDMA	Dental	Dental Education Grant and Clinical Trials Agreement	The Value of \$485,851	Hiossen, Inc.	12/15/2011	12/14/2016

TOTAL OF CDMA ACTIVE EXTRAMURALLY-FUNDED RESEARCH AWARDS: \$490,261

CHS-DG: ALL ACTIVE EXTRAMURALLY-FUNDED RESEARCH AWARDS DURING THE REPORTING PERIOD

Investigator/s	College	Department	Proposal Title	Total Award	Agency	Start Date	End Date
Cahill, S.	CHS-DG	Occupational Therapy	Tiered Occupational Therapy (TOT): Preparing Scholars to Work in School Mental Health	\$1,157,279	U.S. Department of Education	12/1/2015	11/30/2020

TOTAL OF CHS-DG ACTIVE EXTRAMURALLY-FUNDED RESEARCH AWARDS: \$1,157,279

**CHS-GD: ALL ACTIVE EXTRAMURALLY-FUNDED RESEARCH AWARDS
DURING THE REPORTING PERIOD**

Investigator/s	College	Department	Proposal Title	Total Award	Agency	Start Date	End Date
Esfandiarei, M.	CHS-GD	Biomedical Sciences	Role of Caveolin-1 (Cav-1) Protein During the Progression of Aortic Aneurysm in a Mouse Model of Marfan Syndrome	\$75,000	Marfan Foundation	7/1/2015	6/30/2017

TOTAL OF CHS-GD ACTIVE EXTRAMURALLY-FUNDED RESEARCH AWARDS: \$75,000

**CVM: ALL ACTIVE EXTRAMURALLY-FUNDED RESEARCH AWARDS
DURING THE REPORTING PERIOD**

Investigator/s	College	Department	Proposal Title	Total Award	Agency	Start Date	End Date
Jaffe, M. & Wong, V.	CVM	Veterinary Medicine	Photothermal Nanocomposites for Tissue Repair	\$76,876	NIH-R01 Subcontract from Arizona State University	9/8/2015	8/31/2019
Wong, V. (Harris, S., CVM '18)	CVM	Veterinary Medicine	Determination of Differential Protein Expression in Primary and Metastatic Hemangiosarcoma Tumors in Dogs - An Observational Pilot Study	\$5,000	Morris Animal Foundation	6/1/2015	8/31/2015
Wong, V.	CVM	Veterinary Medicine	The Value and Utility of Incentives in Engaging Veterinarian Practitioners in Clinical Research	\$2,000	Merial	8/1/2015	6/30/2016

TOTAL OF CVM ACTIVE EXTRAMURALLY-FUNDED RESEARCH AWARDS: \$83,876

**IHI: ALL ACTIVE EXTRAMURALLY-FUNDED RESEARCH AWARDS
DURING THE REPORTING PERIOD**

Investigator/s	College	Department	Proposal Title	Total Award	Agency	Start Date	End Date
*Woods, C.	IHI	Institute for Healthcare Innovation	Therapeutic Effect of an Endothelin Agonist in Dogs with Degenerative Myelopathy	\$9,750	CARE Foundation	6/1/2016	5/31/2018
*Woods, C.	IHI	Institute for Healthcare Innovation	Canine Genetic Disease Database	\$19,926	CARE Foundation	6/29/2016	6/30/2017

TOTAL OF IHI ACTIVE EXTRAMURALLY-FUNDED RESEARCH AWARDS: \$29,676

TOTAL MWU ACTIVE EXTRAMURALLY-FUNDED RESEARCH AWARDS: \$6,985,151

**ALL OTHER ACTIVE EXTRAMURALLY-FUNDED AWARDS
DURING THE REPORTING PERIOD**

Investigator/s	College	Department	Proposal Title	Total Award	Agency	Start Date	End Date
Burns, S.	CHS-GD	Nurse Anesthesia Program	Nurse Anesthetist Traineeships	\$27,959	Health Resources and Services Administration	7/1/2015	6/30/2016
Graves, T.	CVM	Veterinary Medicine	Shelter Medicine & Community Wellness Program	\$352,725	PetSmart Charities	1/1/2015	12/31/2016
Thompson, C.	CHS-GD	Physician Assistant Program	Physician Assistant Training in Primary Care	\$897,456	Health Resources and Services Administration	8/1/2012	7/31/2017

TOTAL OTHER ACTIVE EXTRAMURALLY-FUNDED AWARDS: \$1,278,140

Proposals included are defined as active grants based on end dates reported to the ORSP on the Principal Investigator's Proposal Approval Form plus any granted no-cost extension or contract addendum.

TOTAL MWU ACTIVE EXTRAMURALLY-FUNDED AWARDS: \$8,263,291

*The asterisk denotes new material. All material in this report is cumulative from July 1, 2015 through July 31, 2016.

PEER-REVIEWED PUBLICATIONS - MULTI-COLLEGE COLLABORATIONS

***Davis MR** (CHS-GD), **Daggett JJ** (CHS-GD), **Pascual AS** (CHS-GD), **Lam JM** (CHS-GD), **Leyva KJ** (AZCOM), **Cooper KE** (CHS-GD) & **Hull EE** (CHS-GD). (2016) Epigenetically maintained SW13+ and SW13- subtypes have different oncogenic potential and convert with HDAC1 inhibition. *BMC Cancer* 16:316.

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PATENTS ISSUED OR PUBLISHED

***Anil Gulati (CCP)**

Title: Method and composition for treating diabetic ketoacidosis

Australian Patent Number: 61/174,283

Date Issued: January 21, 2016

***Anil Gulati (CCP)**

Title: Method and composition for treating diabetic ketoacidosis

China Patent Number: 201080030271.1

Date Issued: March 23, 2016

***Anil Gulati (CCP)**

Title: Medicament use of Centhaquin

China Patent Number: ZL201410085543.8

Date Issued: March 30, 2016

***Anil Gulati (CCP)**

Title: Methods for treatment of stroke or cerebrovascular accidents using an ETB receptor agonist

Japanese Patent Application Number: 2010-521975

Date Issued: May 6, 2016

PATENTS ISSUED OR PUBLISHED (Continued)

***Anil Gulati (CCP)**

Title: Method and composition for treating diabetic ketoacidosis

Canadian Patent Application Number: 2759795

Date Issued: June 2, 2016

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INTRAMURAL FUNDING

AZCOM

Investigator/s	College	Department	Proposal Title
Al-Nakkash, L.	AZCOM	Physiology	Genistein's Mechanism of Action on Both Intestinal Secretion and Overall Phenotype in the <i>ob/ob</i> Mouse Model of Diabetes and Obesity
Broderick, T.	AZCOM	Physiology	Carnitine Homeostasis in Diabetes and Exercise
Call, G.	AZCOM	Pharmacology	The Development and Characterization of an Ischemia/Reperfusion Injury Model in <i>Drosophila Melanogaster</i>
Carroll, C.	AZCOM	Physiology	Evaluating Possible Mechanism Contributing to Treatment Success in Patients Receiving Amniotic Stem Cell Injections for Chronic Achilles Tendinosis
Gonzalez, F.	AZCOM	Microbiology & Immunology	Further Characterization of the <i>Candida Albicans Lap3p Aminopeptidase</i>
Grossman, A.	AZCOM	Anatomy	Paleontological Survey of the Miocene Terrestrial Sediments of Israel
Hall, M.	AZCOM	Physiology	Learning Research Techniques and Collaborations with the Shaun Collin Lab at the University of Western Australia in Perth, Australia
Heesy, C.	AZCOM	Anatomy	Preliminary Analyses on the Interrelationship Between Binocular Visual Field Properties and Orbit Anatomy in Nocturnal and Diurnal Bird Species
Jensen, L. A.	AZCOM	Microbiology & Immunology	The Epidemiology of <i>Giardia</i> Genotypes in Dogs and Cats in the Greater Phoenix Area
Jones, D.	AZCOM	Pharmacology	Characterization of Muscarinic Receptor Uncoupling in Alzheimer's Disease
Jones, T. B.	AZCOM	Anatomy	Alterations in TREM2 and Microglial Phenotype in APOE4 Targeted Replacement Mice and Their Association with Alzheimer's Disease Neurologic Risk
Katzif, S.	AZCOM	Microbiology & Immunology	Regulation of the <i>Staphylococcus aureus</i> Cold Shock Gene <i>cspA</i> by the Peroxide Resistance Regulon Repressor Protein, PerR
Kaufman, J.	AZCOM	Anatomy	CLARITY and Conventional Histology for Detection of Neuropathology in Transgenic Mouse Models of Alzheimer's Disease
Korch, S.	AZCOM	Pharmacology	Phosphoregulation of RelE/G/K Toxin Protein Activity in <i>Mycobacterium Tuberculosis</i>
Lawson, K.	AZCOM	Biochemistry	The Role of P-cadherin in Oral Tumor Progression
Lee, A. H.	AZCOM	Anatomy	Evolution and Development of Wing Bone Laminarity in Birds
Leyva, K.	AZCOM	Microbiology & Immunology	The Influence of MMP13 on Wound Healing in Zebrafish Keratocytes
Nydam, R.	AZCOM	Anatomy	The Early Origin of Squamata: A Search in Deep Time for the Earliest Snakes and Lizards
Plochocki, J. H.	AZCOM	Anatomy	The Effects of Genistein Treatment on Bone Strength in Obese Hyperglycemic Mice
Potter, P.	AZCOM	Pharmacology	Muscarinic Receptor Dysfunction in Alzheimer's Disease
Smith, H.	AZCOM	Anatomy	Evolution and Biotic Adaptation of Several Fossil Turtle Taxa from the Middle Eocene, Uinta Formation, Utah
Tarr, D. E. K.	AZCOM	Microbiology & Immunology	Expression, Purification, and Antimicrobial Testing of Recombinant Defensins from <i>Caenorhabditis Elegans</i> and <i>Hypsibius Dujardini</i>

INTRAMURAL FUNDING

AZCOM (Continued)

Investigator/s	College	Department	Proposal Title
Townsend, K. E. B.	AZCOM	Anatomy	After the Bridgerian Crash: Assessing Mammalian Community Response to Climate Change During the Middle Eocene
Vallejo-Elias, J.	AZCOM	Physiology	Alterations in TREM2 and Microglial Phenotype in Young-Adult APOE4 Human Carriers and their Association with Alzheimer's Disease Neurologic Risk

TOTAL AZCOM INTRAMURAL FUNDING: \$106,392

AZCOPT

Investigator/s	College	Department	Proposal Title
Esposito, C., Feis, A. & Miller, C.	AZCOPT	Optometry	Binocular Gameplay Using the Nintendo 3DS Hand-held Console for the Treatment of Amblyopia
Handford, P.	AZCOPT	Optometry	Use of a Modified CISS to Assess Symptoms in Patients with Accommodative Dysfunction
Harrison, W.	AZCOPT	Optometry	Effects of the Full Field ERG on the mfERG
Harrison, W.	AZCOPT	Optometry	Short Term Changes in mfERG, Anterior Segment OCT, MOPP and Blood Glucose in Control Patients
Hobbs, B.	AZCOPT	Optometry	Emotiv EPOC+: An Affordable Alternative to VEP?
Kozlowski, M. R.	AZCOPT	Optometry	Development and Testing of a New Animal Model for Dry AMD
Osmotherly, K. & Harrison, W.	AZCOPT	Optometry	Therapeutic Effects of Increased Hydration for Tear Osmolarity
Putnam, N.	AZCOPT	Optometry	Building a Tracking Scanning Laser Ophthalmoscope (TSLO) at the Arizona College of Optometry
Putnam, N.	AZCOPT	Optometry	The Role of Natural Ocular Aberrations in Determining Daily Soft Contact Lens Preference and Visual Performance: Phase Two
Putnam, N., Baker, J. & Kozlowski, M.	AZCOPT	Optometry	Effect of Blue Light on the Viability and Functioning of Retinal Pigment Epithelial (RPE) Cells
Yeh, F. & Putnam, N.	AZCOPT	Optometry	Changes in Ocular Aberrations and Visual Performance Associated with Scleral Contact Lens Wear in Normal Subjects

TOTAL AZCOPT INTRAMURAL FUNDING: \$33,433

CCOM

Investigator/s	College	Department	Proposal Title
Chandar, N.	CCOM	Biochemistry	Chromatin Regulation is Mediated by Retinoblastoma Protein in Osteoblasts
Dineley, K.	CCOM	Pharmacology	Mapping Subcellular Distribution of Zn ²⁺ in Human Adrenocortical HAC15 Cells with Fluorescent, Protein-based Zn ²⁺ Sensors
Edwards, J.	CCOM	Pharmacology	Cellular Mechanisms of Cadmium-Induced Hyperglycemia and Hypoinsulinemia
Green, J.	CCOM	Biochemistry	Studies of Folate Catabolism in E. coli: Characterization of the Role of Manganese in Structure and Function of p-Aminobenzoyl-glutamate Hydrolase

INTRAMURAL FUNDING

CCOM (Continued)

Investigator/s	College	Department	Proposal Title
LePard, K. J.	CCOM	Physiology	Regulation of Beta Cell GLUT2 by High Fat Diet and Exercise
Lynch, S.	CCOM	Biochemistry	Hypobromous Acid and Oxidation of Human HDL
McCulloch, P.	CCOM	Physiology	Brainstem Cardiorespiratory Control Mechanisms
O'Hagan, K. P.	CCOM	Physiology	Effects of Pregnancy on Voluntary Wheel Running Activity in Rats
Plotkin, B. J.	CCOM	Microbiology & Immunology	Susceptibility of Mammalian Cells to Chemotherapeutic Agents and Pathogens in the Absence of Oxygen
Ramsey, K.	CCOM	Microbiology & Immunology	Genomic Variation and Chlamydial Virulence
Swanson-Mungerson, M.	CCOM	Microbiology & Immunology	Requirement of P13K-dependent Activation of STAT3 and NF-kB in LMP2A-mediated Increases in IL-10

TOTAL CCOM INTRAMURAL FUNDING: \$53,142

CCP

Investigator/s	College	Department	Proposal Title
Gilchrist, A.	CCP	Pharmaceutical Sciences	Inhibition of Breast Cancer Bone Metastases Through Targeting of CCR1
Joshi, M.	CCP	Pharmaceutical Sciences	Lyophilized Liposomal Formulations of IRL-1620
Leonard, M.	CCP	Pharmaceutical Sciences	Influence of Aging on the Neuroprotective and Neuroregenerative Efficacy of IRL-1620 Following Cerebral Ischemia
Miglis, C.	CCP	Pharmacy Practice	Defining Isometric Humanized Dosing Strategies of Cefepime
Polisetty, R.	CCP	Pharmacy Practice	Impact of Rapid Organism Identification via Matrix-assisted Laser Desorption/Ionization Time of Flight (MALDI TOF) Combined with Antimicrobial Stewardship Team Intervention in Adult Patients in a Community Hospital
Scheetz, M.	CCP	Pharmacy Practice	Defining Neurotoxicity to Restore Susceptibility for Beta-Lactam Antibiotics

TOTAL CCP INTRAMURAL FUNDING: \$40,456

CDMI

Investigator/s	College	Department	Proposal Title
Ali, A.	CDMI Joint Appointment	Dental	Perceptions of the Relationship Between Oral and Systemic Health: A Study of Midwestern University Multi-Specialty Clinic Patients, Students, and Health Professionals
Bjork, B. C. (Raya, K. CDMI '18)	CDMI Joint Appointment	Dental	Functional Assessment of Rare PRDM16 Sequence Variants in Brown Adipose Tissue and Skeletal Myotube Differentiation Assays
Edwards, J.	CDMI Joint Appointment	Dental	Role of the Environmental Toxicant, Cadmium, in Oral Health and Accumulation within Jaw Bone, Teeth and Gingival Tissue

INTRAMURAL FUNDING

CDMI (Continued)

Investigator/s	College	Department	Proposal Title
Fornaro, M.	CDMI Joint Appointment	Dental	Role of Turmeric to Block the Spread and Reactivation of HSV-1 in Comparison to a Traditional Pharmacological Treatment, Acyclovir
Malaiyandi, L.	CDMI Joint Appointment	Dental	Expression and Regulation of Zinc Transporter mRNA in Two Cell Lines Derived from Human Salivary Glands
Mathew, R. (Sears, R. CDMI '17)	CDMI Joint Appointment	Dental	Quantification of Beam Hardening Artefact Produced by Different Indirect Extra Coronal Restorations in Different Voxel and Field of View in Cone Beam Computed Tomography
Mayer, A.	CDMI Joint Appointment	Dental	Exploring a Potential Link between Periodontitis and Neurodegenerative Diseases: Rat Brain Microglia Activation by Porphyromonas Gingivalis Lipopolysaccharide (LPS)
Plotkin, B.	CDMI Joint Appointment	Dental	HSV-1 Modulation of Candida Albicans and <i>Staphylococcus aureus</i> Initiation of Biofilm Formation
Ramos, M. (Pai, C. CDMI '17 & Rupp, S.J. CDMI '17)	CDMI Joint Appointment	Dental	Comparisons on Digital Radiographic Detection of Presumptive Occlusal and Proximal Dental Caries in Caries-active Adults

TOTAL CDMI INTRAMURAL FUNDING: \$20,904

CHS-DG

Investigator/s	College	Department	Proposal Title
Ciancio, M.	CHS-DG	Biomedical Sciences	Preventing Diet-Induced Obesity with Exercise and Hsp70 Overexpression: Role of Liver and Fat FFAR2 and FFAR3 Receptors
Evans, C.	CHS-DG	Physical Therapy	Preventing Diet-Induced Obesity with Exercise and Hsp70 Overexpression: The Role of Gut Microbiota
Fay, M.	CHS-DG	Biomedical Sciences	MicroRNA Expression During Cadmium-induced Nephrotoxicity
Noronha, S.	CHS-DG	Physician Assistant Studies	The Perceived Effects of Animal Assisted Therapy on Test Anxiety in Healthcare Students - A Pilot Study

TOTAL CHS-DG INTRAMURAL FUNDING: \$18,741

INTRAMURAL FUNDING

CHS-GD

Investigator/s	College	Department	Proposal Title
Buhlman, L.	CHS-GD	Biomedical Sciences	Identification of Alpha 6 Subunit-Containing Nicotinic Acetylcholine Receptors on GABAergic Synaptic Terminals that Modulate GABA Neuron Function in the Mouse Ventral Tegmental Area
Hull, E.	CHS-GD	Biomedical Sciences	Control of Subtype Switching through Epigenetic Mechanisms in a Human Adrenal Adenocarcinoma Cell Line
Hull, E.	CHS-GD	Biomedical Sciences	The Role of Exosomes in Squamous Cell Carcinoma
Soby, S.	CHS-GD	Biomedical Sciences	Identification of Virulence Factors in the Bioinsecticide <i>Chromobacterium vaccinii</i>
Thoms, T. L.	CHS-GD	Podiatry	Reliability of Casting Techniques: A Comparison Between a New Innovative Foam Technique and the Neutral Suspension Plaster Cast Technique
Thoms, T. L.	CHS-GD	Podiatry	Reliability of the Digital Goniometer for the Measurement of Neutral Calcaneal Stance Position, Resting Calcaneal Stance Position and Ankle Joint Dorsiflexion

TOTAL CHS-GD INTRAMURAL FUNDING: \$25,140

CPG

Investigator/s	College	Department	Proposal Title
Elbayoumi, T. & Yao, M.	CPG	Pharmaceutical Sciences	Novel Pharmaceutical Strategy for Selective Abrogation of Thrombospondin 1-Induced Vascular Dysfunctions via decoy CD47
Olsen, M.	CPG	Pharmaceutical Sciences	Design and Synthesis of Novel Aspartyl(Asparginy)-Beta-Hydroxylase Inhibitors and Evaluation of Toxicology
Pogge, E. & Boomershine, V.	CPG	Pharmacy Practice	A Pilot Program to Assess the Efficacy of Group Sessions Led by Community Based Health Workers for Tobacco Cessation in a Low Socioeconomic Status Population
Veltri, C.	CPG	Pharmaceutical Sciences	Influence on Immune Signaling by Natural Products Derived from Senora Desert Plants

TOTAL CPG INTRAMURAL FUNDING: \$43,850

CVM

Investigator/s	College	Department	Proposal Title
Brower, A. (Wykoff, S. CVM '18 & Howard, L.A. CVM '18)	CVM	Veterinary Medicine	<i>Brucella canis</i> at Mexican Border
Buhlman, L; Call, B. (Chambers, R. CVM '18)	CVM Joint Appointment	Veterinary Medicine	Parkinson's Behavior Deficits-Drosophala
Dioia, M. (Daggett, J. CVM '18)	CVM Joint Appointment	Veterinary Medicine	Brucella Immune Response
Eberhardt, J.	CVM	Veterinary Medicine	Cytokine Profiles and Their Response to Therapy Dogs with Coccidioidomycosis
Hall, M. (Riley, A. CVM '18 & McDaniel, L. CVM '18)	CVM Joint Appointment	Veterinary Medicine	Optic Nerve Counting Methods Development

INTRAMURAL FUNDING

CVM (Continued)

Investigator/s	College	Department	Proposal Title
Holder, T. & Matyjaszek, S.	CVM	Veterinary Medicine	A Single-Site, Controlled, Blinded-Rater, Paralled Pilot Study to Compare Intratendinous Injection of Bone Marrow Derived Mesenchymal Stem Cells to Platelet-Rich Plasma for Treatment of Grade 2, Deep Digital Flexor Tendonitis of the Forelimb in Performance Horses and Ponies
Mexas, A. (Barchilon, M. CVM '18)	CVM	Veterinary Medicine	Leukocyte Filter for Cell Salvage
Mexas, A. (Herrod, J.A. CVM '18)	CVM	Veterinary Medicine	PK/PD of Carprofen in Mice and Rats
Riede, T. (Hernandez, C. CVM'18)	CVM Joint Appoitment	Veterinary Medicine	Vocalization and Behavior in Rats
VandenBrooks, J. (Gstrein, G. CVM '18)	CVM Joint Appoitment	Veterinary Medicine	Oxygen and Insect Size
Wellensiek, B. (Hansen, A. CVM '18)	CVM Joint Appoitment	Veterinary Medicine	Cap Dependent Translation
Wong, V. (Frohlich, M. CVM '18)	CVM	Veterinary Medicine	Clinpath Reference Ranges-Pigtail Macaques
Wong, V. (Harris, S. CVM '18)	CVM	Veterinary Medicine	Canine Hemangiosarcoma Metastasis

TOTAL CVM INTRAMURAL FUNDING: \$16,638

MULTIDISCIPLINARY RESEARCH AWARDS

Investigator/s	Campus	Award	Proposal Title
Ciancio, M. (CHS-DG), Goral, J. (CCOM), Green, J. (CCOM) & Jham, B. (CDMI)	Downers Grove	Multidisciplinary	Effect of Nutritional Factors in a Mouse Model of Head and Neck Squamous Cell Carcinoma: Determination of the Effects of Dietary Fat and Dietary Folate
Elbayoumi, T. (CPG), Janthakahalli Nagaraj, V. (AZCOM) & Rodriguez Sosa, J. (CVM)	Glendale	Multidisciplinary	Genistein-lipidic Nanocarrier Combinations for Abrogation of Cancer Resistance to Various Chemotherapies in Diverse Tumors
Esfandiarei, M. (CHS-GD), Vallejo-Elias, J. (AZCOM) & Mitchell, J. (CDMI)	Glendale	Multidisciplinary	Manipulation of Caveolin-1 Mouse Model of Marfan Syndrome Associated Aneurysm: Effects on Biomechanics, Physiology, and Cell Signaling in the Aortic Wall
Fornaro, M. (CCOM), Kristjansdottir, K. (CHS-DG) & Gasirowski, J. (CHS-DG)	Downers Grove	Multidisciplinary	Biochemically Coated Topographical Substrates to Enhance and Direct Peripheral Nerve Regeneration

TOTAL MULTIDISCIPLINARY INTRAMURAL FUNDING: \$80,000

*The asterisk denotes new material. All material in this report is cumulative from July 1, 2015 through July 31, 2016.

INTRAMURAL FUNDING

ONE HEALTH RESEARCH AWARDS

Investigator/s	Campus	Award	Proposal Title
Al-Nakkash, L. (AZCOM)	Glendale	One Health	Genistein's Mechanism of Action on Both Intestinal Secretion and Overall Phenotype in the <i>ob/ob</i> Mouse Model of Diabetes and Obesity
Chandar, N. (CCOM)	Downers Grove	One Health	Chromatin Regulation is Mediated by Retinoblastoma Protein in Osteoblasts
Edwards, J. (CCOM)	Downers Grove	One Health	Cellular Mechanisms of Cadmium-Induced Hyperglycemia and Hypoinsulinemia
Gulati, A. (CCP) & Fornaro, M. (CCOM)	Downers Grove	One Health	Effect of Endothelin B Receptor Agonist, IRL-1620, for the Treatment of Spinal Cord Injury
Jensen, L. A. (AZCOM)	Glendale	One Health	The Epidemiology of <i>Giardia</i> Genotypes in Dogs and Cats in the Greater Phoenix Area
LePard, K. J. (CCOM)	Downers Grove	One Health	Regulation of Beta Cell GLUT2 by High Fat Diet and Exercise
Mexas, A. (CVM), Rolf, D. (CDMA), Mitchell, J. (CDMA), Robbins, E. (CVM) & Pulido-Hernandez, T. (CDMA)	Glendale	One Health	The Effect of Canine Periodontal Disease and Periodontal Treatment on Systemic Markers of Inflammation
Potter, P. (AZCOM) & Jones, D. (AZCOM)	Glendale	One Health	Muscarinic Receptor Dysfunction in Alzheimer's Disease <i>and</i> Characterization of Muscarinic Receptor Uncoupling in Alzheimer's Disease (shared award)

TOTAL ONE HEALTH INTRAMURAL FUNDING: \$32,000

**TOTAL MWU INTRAMURAL FUNDING AWARDED BY ALL COLLEGES
DURING THIS REPORTING PERIOD: \$470,696**

**These college intramural projects received a One Health Supplementary Award of \$2,000.

FY16, QUARTER #4 REPORT

UNIVERSITY-FUNDED RESEARCH SUPPORT POSITIONS BY CAMPUS**

MWU "HARD MONEY" RESEARCH SUPPORT POSITIONS		
CAMPUS	FTE	TOTAL COMPENSATION FOR REPORTING PERIOD
DOWNERS GROVE, ILLINOIS	27	\$1,693,012
GLENDALE, ARIZONA	26	\$1,457,060
TOTAL	53	\$3,150,072

****THIS INCLUDES FUNDED OR FILLED, TEMPORARY OR PERMANENT POSITIONS. THIS DOES NOT INCLUDE "SOFT MONEY" RESEARCH POSITIONS FUNDED BY GRANTS OR CONTRACTS.**

TOTAL COMPENSATION TO ALL COLLEGES FOR RESEARCH SUPPORT POSITIONS IN THIS REPORTING PERIOD IS \$3,150,072.

UNIVERSITY-FUNDED CAPITAL RESEARCH EQUIPMENT

Another manner in which MWU supports research is through consideration and funding of capital research equipment requests submitted by departments. For Fiscal Year 2015, MWU has spent \$1,344,373 on capital equipment purchases for research purposes across both campuses.

UNIVERSITY-FUNDED PER DIEM CHARGES

A way in which MWU supports research is through the waiving of animal per diem charges for those seeking extramural funding. During the current reporting period, MWU waived \$116,978 in animal per diem charges across both campuses.

UNIVERSITY-FUNDED RECAPTURED SALARIES AS "ADDITIONAL COMPENSATION"

Finally, another way that MWU supports research is through offering additional pay to faculty who receive grants which support "hard money" salary positions. When grant funds are exhausted the additional pay is eliminated. From July 2015 through May 2016, MWU paid out \$64,265 as "Additional Compensation" to faculty Principal Investigators on grants. This payment is available to all faculty who receive extramural funding for their research, subject to the ORSP's *Recaptured Salaries on Grants* policy.

FY16, QUARTER #4 REPORT

UNIVERSITY-FUNDED STUDENT SUPPORT BY CAMPUS DURING REPORTING PERIOD

RESEARCH SUPPORT FOR STUDENTS IN DOWNERS GROVE, ILLINOIS		
ACTIVITY	NUMBER OF AWARDS	TOTAL FUNDING
RESEARCH POSTER PRINTING	218	\$8,913
TRAVEL TO PRESENT RESEARCH	30	\$14,891
FELLOWSHIPS [#]	44	\$194,880
TOTAL FUNDING IN SUPPORT OF STUDENT RESEARCH ACTIVITIES IN ILLINOIS		\$218,684

RESEARCH SUPPORT FOR STUDENTS IN GLENDALE, ARIZONA		
ACTIVITY	NUMBER OF AWARDS	TOTAL FUNDING
RESEARCH POSTER PRINTING	121	\$7,006
TRAVEL TO PRESENT RESEARCH	9	\$4,475
FELLOWSHIPS [#]	39	\$180,960
TOTAL FUNDING IN SUPPORT OF STUDENT RESEARCH ACTIVITIES IN ARIZONA		\$192,441

[#] Includes fellowships awarded in FY16, even though some payments are made in FY17.

ONE HEALTH STUDENT RESEARCH AWARDS

Investigator/s	Campus	Award	Proposal Title
Fornaro, M. (CCOM), Paus, B. (2nd Year CCOM Student) & Zurney, A. (2nd Year CCOM Student)	Downers Grove	One Health	Pharmacological Treatment to Re-network Neuronal Connection in the Spinal Cord After Traumatic Lesion by Endogenous Stem Cells Niche in Adult Mice
Jordan, M. (CPG), Bae, J. (2nd Year CPG Student), Dorman, M. (2nd Year CPG Student), Hymes, M. (2nd Year CVM Student), Pennington, J. (2nd Year CPG Student) & Slinker, H. (2nd Year CPG Student)	Glendale	One Health	Extemporaneous Compounding of Veterinary Drug Products in the State of Arizona: Practices and Beliefs of Veterinarians
Wong, V. (CVM) & Frohlich, M. (2nd Year CVM Student)	Glendale	One Health	The Epidemiology of <i>Giardia</i> Genotypes in Stray Dogs and Cats in the Greater Phoenix Area

TOTAL ONE HEALTH STUDENT RESEARCH FUNDING: \$7,500

**TOTAL FUNDING IN SUPPORT OF STUDENT RESEARCH ACTIVITIES
ACROSS BOTH CAMPUSES IS \$418,625**

THE ORSP WEBSITE CAN BE FOUND AT: <http://www.midwestern.edu/orsp.html>