



Spring 2011

Inquiry, Spring 2011

Office of Vice President for Research

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INQUIRY

OFFICE OF VICE PRESIDENT FOR RESEARCH

WMU MEDICAL SCHOOL NAMES FOUNDING DEAN

Last spring we announced that WMU had begun the accreditation process for its new medical school. Since then, much has happened.

On January 25, Hal Jensen, M.D., MBA was named the founding dean of Western Michigan University's medical school. He began his tenure on March 22, the same date President John Dunn announced in a press conference the anonymous cash gift of \$100 million, the largest single gift given to a Michigan college or university, to fund the private medical school at Western Michigan University.

In May, the School of Medicine established residence in offices located in the Bronson Upjohn Building. Work begins for the first class to open in fall 2013 or fall 2014. For updates or more information, visit www.wmich.edu/medicine.

A MESSAGE FROM THE VICE PRESIDENT FOR RESEARCH

In last year's spring issue of the *Inquiry*, I remarked that "WMU stands at the gateway to another dimension." That certainly continues to hold true now more than ever.

With our dedicated research faculty, the launch of the medical school, and with new staff in our offices, we have transitioned this great University to the next level.

We increased our support for grant seeking by University members through the use of external resources. These include Hanover Research/Grants and Elsevier SciVal Funding to help find resources and produce quality grant proposals.

You will receive the Spring 2011 Western Michigan University Magazine: *Research with an impact*. As you read through the research magazine, I hope you will be impressed, as I am, with the magnitude of what our faculty and staff do each and every day.

Likewise, I hope you will consider the various ways WMU impacts the local community, the State, the nation and the global community.

From tracking global weather pattern changes to helping communities in the midst of political

ELECTRIC-VEHICLE CHARGING STATIONS ON CAMPUS

WMU is already known for its sustainability practices and efforts to go green. With its recent installation of four public electric-vehicle charging stations, the tradition continues.

WMU is the first university in the state to place public charging stations on campus. Three stations are located on main campus (in front of Seibert and two on Stadium Drive near the Physical Plant facility) and one is located at the Parkview campus.

WMU received the electric-vehicle charging stations at no cost from Coulomb Technologies through an equipment grant from the company's ChargePoint America program, which is part of a federal government demonstration project to encourage the use of electric vehicles and hybrids. More information www.wmich.edu/wmu/news/2011/03/064.shtml.

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OVPR MISSION

THE OFFICE OF THE VICE PRESIDENT FOR RESEARCH ADVANCES THE OVERALL RESEARCH AND CREATIVE ACTIVITIES AGENDA OF THE UNIVERSITY, SUPPORTS EXTERNAL FUNDING INITIATIVES, AND OVERSEES COMPLIANCE WITH ALL APPROPRIATE FEDERAL AND STATE REGULATIONS.

WWW.WMICH.EDU/RESEARCH

changes, our faculty researchers are working hard to confront the challenges that face us all. Through it all, we remain committed to educating our students to be engaged in their disciplines in ways that make a difference in the lives of the average family confronting autism or to impact the lives of those grappling with the threat of landmines and tuberculosis.

This is what great institutions of higher learning do: they engage in research that impacts the people around them. As WMU collaborates with major land grant universities to address medical research or to collaborate in the advancement of knowledge generally, our sphere of influence deepens as does the body of science and knowledge.

WMU is a busy University — busy in the art of educating some of the brightest students and advancing research. WMU continues to lead sustainability practices, and we influence other universities with our example.

Enjoy the *Inquiry* as you learn just a fraction of what this office and this great institution does to encourage commercialization and research engagement locally and globally. - Dr. Daniel Litynski

RESEARCH AND CREATIVE ACTIVITIES POSTER DAY APRIL 15

Graduate students and faculty showcased their scholarly work on April 15 in the Fetzer Center as part of the Fifth Annual WMU Research and Creative Activities Poster Day.

Poster presentations ran from 9-11 a.m. At 11 a.m., the 2010 Emerging Scholars – Dr. Bilinda Straight, associate professor of Anthropology and Dr. Yirong Mo, associate professor of Chemistry – gave their keynote addresses.

Lunch followed at noon with an awards presentation from 12:45 to 1 p.m. The awards recognized the outstanding graduate student poster presentations and are sponsored by the Office of the Vice President for Research (OVPR) and the Graduate Student Advisory Committee (GSAC).

The event was sponsored by the Research Policies Council of the Faculty Senate and the GSAC, in collaboration with the Graduate Studies Council and the Office of the Vice President for Research. College sponsors included the CAS, COEHD, CEAS, CFA, and the CHHS.

NEA APPLICATION DEADLINES FOR ARTS PROJECTS

The National Endowment for the Arts has an August 11, 2011 deadline for *Art Works* and a September 1, 2011 deadline for *The Arts in Media*.

Each offer grant amounts between \$10K-\$100K and \$10K-\$200K respectively. Go to nea.gov/grants/apply/artsed.html for more information and instructions on the application process.

MESSAGE FROM IP AND COMMERCIALIZATION DIRECTOR

As we start to head toward the close of the fiscal year, I am very pleased to report that we appear to be having another very strong year for producing and commercializing new technologies from WMU research. We have recently funded two very strong projects through the WMURF Technology Development (TD) Fund, one of which had direct involvement and interest from a furniture manufacturing company in Grand Rapids. This marks the first time for our relatively new Fund to have had direct sponsorship by a corporation.

We are currently on pace to have one of our best years for producing new technologies, which includes items such as a potential treatment for glaucoma, a method for producing biodiesel from waste grease, and components for a microfluidic device to detect chemicals in the environment.

We also have several items that are currently being reviewed for commercial use (licensing) by companies in industries such as health assessment and management, data management, and RFID manufacturing.

- Dr. Michael Sharer

SUPPORT FOR FACULTY SCHOLARS AWARDS— 2010-2011

Eight faculty were awarded SFSAs in September. The awards ranged from \$1000-\$2000. Recipients were: Drs. **Prina Ari-Gur**, Mechanical And Aeronautical Engineering; **Blain Auer**, Comparative Religion; **Jay Berkow**, Theatre; **Anthony Ellis**, English; **Damodar Golhar**, Management; **Sally Hadden**, History; **Natalio Ohanna**, Spanish; **Kapseong Ro**, Mechanical and Aeronautical Engineering.

Recipients of the SFSA in January include 25 faculty members. They are: Drs. **Massood Atashbar**, Electrical and Computer Engineering; **Jody Brylinsky**, Health, Physical Education and Recreation; **Christine Byrd-Jacobs**, Biological Sciences; **Martha Cuncell-Vargas**, Music; **David Curwen**, Dance ; **Cat Crotchett**, Art; **Jon Davis**, Mathematics; **Diane Durette**, Occupational Therapy; **Liang Dong**, Electrical and Computer Engineering; **Claudia Fajardo-Hansford**, Mechanical and Aeronautical Engineering; **Sharon Garber**, Dance; **Sandra Glista**, Speech Pathology and Audiology; **Pavel Ikononov**, Industrial and Manufacturing Engineering; **Cynthia-Klekar**, English; **Tom Knific**, Music; **Mahendra Lawoti**, Political Science; **Irma Lopez**, Spanish; **Nichole Maury**, Art; **Timothy McGrew**, Philosophy; **Matthew Mingus**, School of Public Affairs and Administration; **Judy Moonert**, Music; **James Palmitessa**, History; **Doris Ravotas**, Blindness and Low Vision Studies; **Elke Schoffers**, Chemistry; and **Megan Slayter**, Dance. The awards ranged from approximately \$1000 - \$2000.

TECHNOLOGY DEVELOPMENT FUND 2011 AWARD WINNERS

The Technology Development Fund is an internal grant program to provide funding to further develop faculty inventions. As such, it represents the significant investment WMU has made to enhance the impact of WMU's research through commercialization.

The WMU IP Management and Commercialization Faculty Advisory Committee (IPMCC), after reviewing proposal submissions, awarded two proposals for 2011.

Dr. **Roman Rabiej**, professor in Civil and Construction Engineering, will receive funds for his proposal, *Eve Coffee Table*.

Dr. **Massood Atashbar**, associate professor in Electrical and Computer Engineering, will receive funds for his proposal, *Development of novel microfluidic flow cell for various toxic bio/chemical species*.

UNDERGRADUATE RESEARCH EXCELLENCE AWARD RECIPIENTS

Award recipients are: **Lusanni Acosta**, civil engineering, received a grant to study "Numerical Seismic Response Evaluation of Wood Frames" with faculty mentor Dr. Xiaoyun Shao. **Ahmed Sami Albaghly**, mechanical engineering, received a grant to study "Magnetic Nanoparticle based Targeted Drug delivery system simulation and design" with faculty mentor Dr. Muralidhar Ghantasala. **Abdullah Radhi Alghulam**, mechanical engineering, received a grant to study "Magnetic Nanoparticle based Targeted Drug delivery system simulation and design" with faculty mentor Dr. Muralidhar Ghantasala. **Katherine Ballman**, physics, received a grant to study "Fusion in White Dwarfs and Neutron Stars" with faculty mentor Dr. Michael Famiano. **Kelley Becker**, chemistry, received a grant to study "Optimization of Lewis Base Conversion of Triglycerides to Methyl Esters" with faculty mentor Dr. Steve Bertman. **Ryan Berndt**, engineering graphics and design technology, received a grant to study "Makerbot Additive Manufacturing Machine" with faculty mentor Dr. Jorge Rodriguez. **Ryan Bezemek**, engineering graphics and design technology, received a grant to study "Desktop Additive Manufacturing" with faculty mentor Dr. Jorge Rodriguez. **Alexander Buist**, mechanical engineering, received a grant to study "Hybrid Hydrogen Fuel Cell Power-Train Development" with faculty mentor Dr. Bade Shrestha. **Anthony Butchko**, engineering graphics and design technology, received a grant to study "Desktop Additive Manufacturing" with faculty mentor Dr. Jorge Rodriguez. **Alejandro Carrasco**, mechanical engineering major, received a grant to study "Synthesis and Characterization of Photocatalyst for Environmental Clean Up" with faculty mentor Dr. Pnina Ari-Gur. **Allyson Doyle**, speech pathology, received a grant to study "Student Research Associate--Test of Integrated Language and Literacy Skills Validation Study" with faculty mentor Dr. Nikola Wolf Nelson. **Andrew Gronau**, manufacturing engineering technology, received a grant to study

"Programming and fixture design of a Fanue weld robot" with faculty mentor Dr. Pavel Ikononov. **Ben Himebaugh**, manufacturing engineering technology, received a grant to study "Programming and fixture design of a Fanue weld robot" with faculty mentor Dr. Pavel Ikononov. **Cody Kammeraad**, mechanical engineering, received a grant to study "Hybrid Hydrogen Fuel Cell Power-Train Development" with faculty mentor Dr. Bade Shrestha. **Ibraheem Mohammed Kaseb**, mechanical engineering, received a grant to study "Magnetic Nanoparticle based Targeted Drug delivery system simulation and design" with faculty mentor Dr. Muralidhar Ghantasala. **Casey Kick**, chemical and paper engineering major, received a grant to study "Enhancing Algae Absorption onto Pulp Fibers" with faculty mentor Dr. Raja Aravamuthan. **Adrian Sargent**, manufacturing engineering technology, received a grant to study "Programming and fixture design of a Fanue weld robot" with faculty mentor Dr. Pavel Ikononov. **John Sendor**, civil engineering, received a grant to study "Experimental Seismic Response Evaluation of Wood Frames" with faculty mentor Dr. Xiaoyun Shao. **Foo Kok Seong**, mechanical engineering, received a grant to study "Design and Testing of Pem Fuel Cell" with faculty mentor Dr. Bade Shrestha. **Ewing Shan Hong Tiong**, mechanical engineering, received a grant to study "Design and Testing of Pem Fuel Cell" with faculty mentor Dr. Bade Shrestha. **Abrian Yen-Yue Tok**, mechanical engineering, received a grant to study "Design and Testing of Pem Fuel Cell" with faculty mentor Dr. Bade Shrestha. **Sean Lwe Leslie Weera**, mechanical engineering, received a grant to study "Design and Testing of Pem Fuel Cell" with faculty mentor Dr. Bade Shrestha. **Francisco Yapor**, aeronautical engineering, received a grant to study "Synthesis and Characterization of Photocatalyst for Environmental Clean Up" with faculty mentor Dr. Pnina Ari-Gu.

RESEARCH AWARDS AND SUBMISSIONS

Since July 1, 2010, submissions at WMU have totaled 195. A full listing of awards and the proposal project is available online at the OVPR homepage.

Granting agencies vary from corporations and foundations to federal funding agencies like the National Science Foundation and the U.S. Department of Education. Other funding sources include the Association of Performing Arts and Office of Naval Research.

Awards are updated regularly and listed on the website with a brief description of project.

INDIRECT COSTS (F&A) IMPORTANT TO UNIVERSITY

Facilities and Administration costs (F&A), or indirect costs, are funds beyond the direct costs of your project. These funds help the University to defray some of the costs associated with the support for the grant/sponsored project.

As you work on your grants, the staff at OVPR encourages you to think about your needs and the costs of your research. We also remind you that WMU's rate for F&A is 49% of the direct costs. *It is University policy that submitted grants must request the full rate.* Any exceptions to the 49% F&A rate needs to be approved by the VP for Research. Situations that qualify as exceptions are detailed online.

The F&A is negotiated and set every 5 years.

NEW RESEARCH OFFICERS, RESEARCH CONTRACTS ADMINISTRATOR, AND RESEARCH COMPLIANCE COORDINATOR ADDED TO OVPR STAFF

Our staff is growing to serve the University community with its research needs. Julia Mays joins the OVPR staff as the new Coordinator of Research Compliance and Kathy Purnell as the Research Contracts Administrator.

Mays holds a B.S. in healthcare administration and worked as the coordinator of an institutional review board for a hospital, Julia brings a breadth of experience and knowledge to WMU as the coordinator of research compliance. Her expertise is in building relationships between the researchers and the federal, state, and local regulators involved in the research process.

Purnell brings a diverse set of skills to OVPR as its new research contracts administrator. Her academic administration work, in addition to her recent position at WMU as the University Service Learning Coordinator, includes five years experience in fundraising and faculty and graduate student advising and program development at the University of Chicago. She also has experience with external funding and special projects. Kathy's work background also includes serving as a faculty member in political sci-

ences and as an attorney working in the area of immigration and human rights law.

Three new research and program officers (RPO) join Gina Betcher and Kim Squiers as research and program officers. The new RPOs include Allison Green, Sarah Pratt, and Christine Scheller.

Green has a background in contracts administration and recently worked as an independent contractor, project manager, and entrepreneur. Pratt joins OVPR as a research specialist for a graduate research lab at the University of Wisconsin, with experience in proposal development and submission to state and federal agencies.

Scheller returns to WMU, previously serving as the business manager for the vice president of student affairs. With experience in non-profit and grant writing, Christine brings some great skills to OVPR as a research and program officer.

WMU GETS \$400,000 FOR COLON CANCER RESEARCH

The National Cancer Institute within the National Institutes of Health has awarded a three-year \$400,000 grant to Western Michigan University to develop a new, cutting-edge treatment for colorectal cancer using viruses to attack cancer cells without harming normal cells.

The grant, to Dr. Karim Essani, a WMU virologist and professor of biological sciences, will fund the Experimental Oncolytic Virotherapy Project. The new virotherapy, as opposed to chemotherapy and other conventional cancer treatments, holds great promise in that it could prove more effective in treating colon cancer and not harm healthy cells, thus avoiding nausea and other undesirable side effects common with other treatments.

"This is not a new idea, but it has generated new interest in the last 10 years," Essani says. "What we're doing is really in the beginning, experimental stage."

The idea actually goes back decades to a case in which a person with cancer contracted rabies. When the rabies vaccine was administered, the cancer miraculously disappeared.

Viruses are very specific in the cells they attack. They often differentiate between species of animals and even the type of cells within that species. So theoretically, a virus could be developed to attack specific cancer cells and leave other cells untouched.

Some research is already under way into using viruses to attack a number of different human tumors, Essani says. His project will take a rare,

nonfatal African virus known as the tanapox virus, which infects monkeys and humans, and use it to treat colon cancer. Colon cancer is a particularly troubling and potentially deadly cancer for which conventional treatment is not always effective and causes unwanted side effects.

"We thought if we could take this virus and modify it in such a way that it will only infect and destroy human colorectal cancer cells and not normal cells, then that would be really outstanding," Essani says.

The viral cancer therapy would work something like penicillin, Essani says. Penicillin targets bacterial cells, but does not harm normal human cells. An oncolytic virus, in a similar manner, only infects and destroys cancer cells without harming healthy human cells.

"Unfortunately, it has been very difficult to find such targets in cancer," Essani says. "The reason for this is because it's very difficult to differentiate between a normal cell and a cancer cell at the molecular level."

Essani and his team of three students plan to take human colorectal cancer cells and transplant them onto nude mice—specially bred laboratory mice that do not mount a rejection response because they have an inhibited immune system. The team then will treat the nude mice with tanapox virus mutants they have genetically designed to see if they can kill the human cancer cells. If that goes well, they will try it on monkeys

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OVPR Research Officer Constituent Areas

Sarah Pratt: CAS (Biology, Chemistry, Psychology, Math, Statistics, Geosciences, Geography, Physics), Mallinson Institute for Science Education, Environmental Studies.

Kim Squiers: CHHS, CDS, Unified Clinic, Aviation

Gina Betcher: Evaluation CentCAS (Office of the Dean and Humanities), Sociology, HCOB, TGC, International Studies, HIGE, LHC, Humanities Center, Evaluation Center.

Allison Green: CEAS, FRACASF Internal Funding

Christine Allred-Scheller: COEHD, CFA, Humanities Center, Miller Auditorium

A complete list of constituency areas will be posted online at www.wmich.edu/research.

and finally humans.

The tanapox virus is ideal because it is confined to equatorial Africa and people outside that region have no immunity to it. If people were immune to the virus, it could not replicate itself and attack the cancer cells. Additionally, it only causes a mild, transitory, febrile illness in humans, which is self-limiting.

Chemotherapy and radiation both are used to fight colon cancer. But both are not always effective and may be accompanied by some serious side effects, including nausea, diarrhea and suppression of the immune system. In addition, cancer cells can become resistant to chemotherapy drugs.

"With viruses, we do not expect to see any of this," Essani says.

Source: *University Relations*