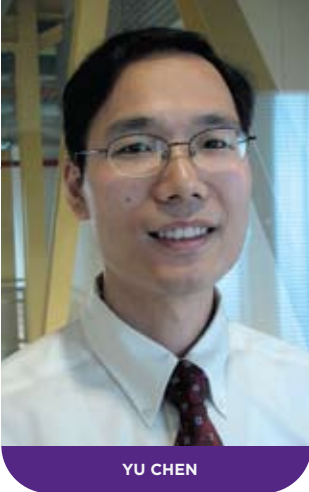


**KOFINAS, PAYNE  
INTERVIEWED  
FOR PBS' NIGHTLY  
BUSINESS REPORT**

Professor and Graduate Program Director **Peter Kofinas** and Professor **Gregory Payne**, Director of UMBI's Center for Biosystems Research and Graduate Program in Bioengineering affiliate faculty member, were recently interviewed for an episode of PBS' *Nightly Business Report*. Correspondent Dana Greenspon visited the Kim Building's Functional Macromolecular Laboratory and other campus destinations to learn how nanotechnology could impact food science, technology, and packaging.

One of Payne's goals is to provide supermarkets and wholesalers with handheld devices capable of detecting pathogens, allergens or toxins in food. "A grocer needs to make a decision on whether to accept a load of produce," he explains. "He can't wait while he sends a sample to a lab, and the test can't be expensive." Payne and his team are designing biosensors that use DNA, proteins, and antibodies to detect problems by reacting to specific contaminants in food. The challenge lies in integrating these organic sensors with microelectronic devices capable of communicating with them, then recording and analyzing the data provided.

Kofinas is taking a different approach to a very similar problem: He uses molecularly imprinted polymers (MIPs)—tiny, gel-like molds into which only a specific target molecule will fit—to capture viruses or other substances. Food packaging, Kofinas explains, could be coated in a thin layer of polymer containing nanoscale cavities designed to recognize a specific food-borne pathogen such as *E. coli*. The packaging could be further designed to respond to the sensing of the target with a chemical reaction to change its color as a warning to store managers and consumers.



YU CHEN

**FACULTY RECEIVE  
CROSS-DISCIPLINARY  
SEED GRANTS**

Three faculty members are co-PIs on projects awarded seed grants of up to \$75K through a joint initiative between the University of Maryland College Park (UMCP) and the University

of Maryland Baltimore (UMB). The initiative's goals are to prepare teams of investigators crossing campuses and disciplines to submit research proposals to the National Institutes of Health's (NIH) extramural program, which targets teams of scientists, engineers, and clinicians who address specific health issues. Teams were required to include at least one co-PI from each campus.

Assistant Professor **Adam Hsieh's** team received a grant for its proposal, "G610C Mice: An OI Model for Phenotype Variation," which seeks to examine how the knock-in of a gene mutation in mice influences the development of a disease called osteogenesis imperfecta (OI), which leads to brittle bones. Hsieh's co-PIs are Assistant Professor **Daniel McBride** and Professor **Alan R. Shuldiner**, M.D., both from the Department of Medicine, Division of Endocrinology, Diabetes and Nutrition, at the UMB School of Medicine.

Professor **Peter Kofinas'** group's proposal, "Molecular Imprinted Polymer Coatings to Enhance the Biocompatibility of Artificial Lungs," describes the development of an artificial pump lung capable of providing oxygen and carbon dioxide exchange for patients with compromised lung function. His co-PIs are Professor **Bartley P. Griffith**, M.D. and Dr. **Trevor Snyder**, both from the UMB School of Medicine's Department of Surgery.

Assistant Professor **Sameer Shah** and co-PI Professor **Robert J. Bloch's** (Department of Physiology, UMB School of Medicine) proposal, "Contributions of Intermediate Filaments to Skeletal Muscle Myopathy," addresses hypotheses regarding the roles of structural proteins called intermediate filaments in the stability and function of skeletal muscle.

**inBRIEF**

**ADDITIONAL \$1.8M FOR CANCER  
TREATMENT PROJECT**

A TEAM OF MARYLAND RESEARCHERS INCLUDING PROFESSOR EMERITUS **THOMAS MCAVOY** (CHEMICAL AND BIOMOLECULAR ENGINEERING, INSTITUTE FOR SYSTEMS RESEARCH, AND GRADUATE PROGRAM IN BIOENGINEERING) HAS RECEIVED A \$1.8 MILLION GRANT FROM THE NATIONAL INSTITUTES OF HEALTH TO CONTINUE WORK ON THE DEVELOPMENT OF A REAL-TIME TUMOR MOTION COMPENSATION SYSTEM USING A TREATMENT COUCH THAT WILL ENSURE ACCURATE DELIVERY OF RADIATION WITHOUT INCREASING PATIENT DISCOMFORT, TREATMENT TIME AND COST, OR BIOLOGICAL EFFECTIVENESS.

SINCE FIRST REPORTED IN OUR LAST ISSUE, THE PROJECT HAS GAINED MOMENTUM AND POTENTIAL. IN ADDITION TO THE SUBSTANTIALLY INCREASED FUNDING THE TEAM HAS PUBLISHED 2 PAPERS ABOUT THEIR RESEARCH AND FILED A PATENT APPLICATION FOR THE SYSTEM THAT HAS GENERATED LICENSING INTEREST IN INDUSTRY.

**ALSO IN THE NEWS...**

**ASSISTANT PROFESSOR JOHN FISHER** HAS GARNERED THE ONLY MARYLAND STEM CELL RESEARCH FUND GRANT FOR RESEARCH ON THE COLLEGE PARK CAMPUS FOR HIS WORK ON REGENERATING HUMAN FACIAL BONE.

FISHER HAS ALSO BEEN NAMED CO-EDITOR FOR THE NEWLY-LAUNCHED *TISSUE ENGINEERING, PART B* JOURNAL.

**PROFESSOR & CHAIR WILLIAM BENTLEY** WAS ELECTED TO THE AMERICAN ACADEMY OF MICROBIOLOGY (AAM), PART OF THE AMERICAN SOCIETY FOR MICROBIOLOGY (ASM), THE OLDEST AND LARGEST LIFE SCIENCES MEMBERSHIP ORGANIZATION IN THE WORLD.

**PROFESSOR AND GRADUATE PROGRAM DIRECTOR PETER KOFINAS** WAS INVITED TO SPEAK AT THE NATIONAL ACADEMY OF SCIENCE'S BOARD ON AGRICULTURE AND NATURAL RESOURCES. KOFINAS DISCUSSED HOW NANOTECHNOLOGY CAN IMPROVE LIFE AND INCREASE PRODUCTION FOR SUBSISTENCE FARMERS BY FILTERING WATER, DIAGNOSING CROP DISEASES, AND PROVIDING FLEXIBLE BATTERIES TO POWER EQUIPMENT IN REMOTE AREAS.