

Biomolecular Labeling Laboratory Spurs New Research Between NIST, UMD

A new federal lab affiliated with the University of Maryland is expected to be a boon to commercial drug manufacturers, while also sparking fresh collaborations between university researchers and government scientists.

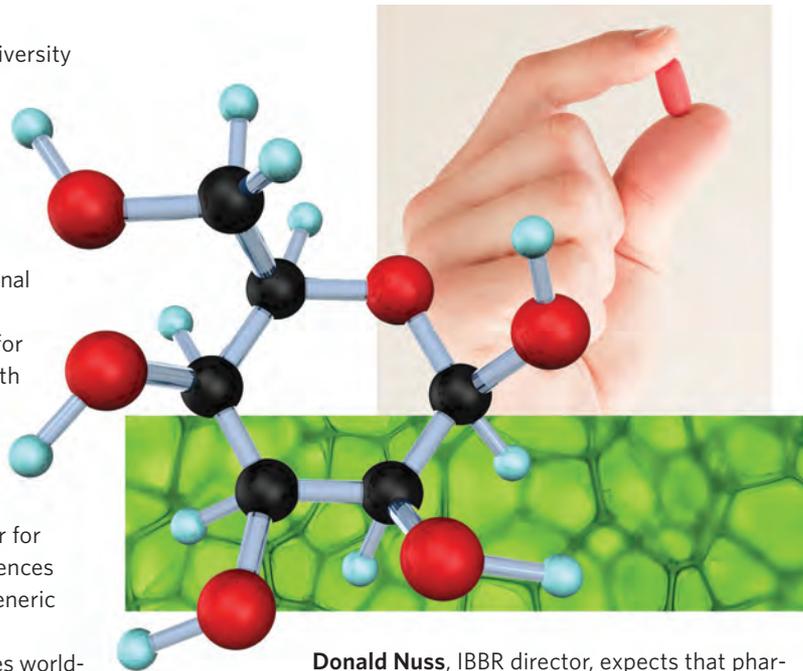
The Biomolecular Labeling Laboratory (BL²), launched in November by the National Institute of Standards and Technology (NIST), features state-of-the-art tools for scientists to “label” large molecules with heavier isotopes and then measure their properties. Lab officials say this could prove invaluable for drug companies looking to evaluate different batches of the same medicine, or for those seeking to compare minute differences between brand-name drugs and their generic counterparts.

“There are only a handful of laboratories worldwide that provide this service,” says **Zvi Kelman**, a NIST biochemist and director of the lab, which is located at the university’s Institute for Bioscience and Biotechnology Research (IBBR) in Rockville, Md.

Kelman, also an adjunct professor in Maryland’s Department of Cell Biology and Molecular Genetics, says the BL² facility is a “perfect match” of scientific resources, smack in the heart of the state’s I-270 biotech corridor.

Lab users can take advantage of its proximity to other NIST/Maryland partnerships involving neutron scattering, used for tracking the molecules once they’re labeled, Kelman says. Other facilities at NIST and the College Park campus offer biophysical and bioanalytical measurement tools like nuclear magnetic resonance or mass spectrometry.

The BL² facility is open to federal or academic researchers or private businesses, based on their application to use it, Kelman says. Applications are peer-reviewed, and are approved on scientific merit and how well they match the NIST mission of advancing bioscience measurements.



Donald Nuss, IBBR director, expects that pharmaceutical companies will be keenly interested in the new lab. Many new drug therapies being developed today are protein-based, Nuss says, meaning that they are genetically engineered and can benefit from the detailed analysis offer at BL². Protein-based drugs have the potential for greater efficacy and fewer side effects than medicines manufactured the traditional way, by using small organic molecules, he says.

Nuss adds that the BL² facility complements IBBR’s mission of integrating research in the biological and quantitative sciences, medicine and engineering to develop team-based approaches in solving contemporary scientific challenges.

Ken Gertz, Maryland’s associate vice president for research development, says the interactions at BL² between academic researchers, government scientists and the pharmaceutical industry could lead to other endeavors.

“We all recognize that new discoveries often come at the intersection of varied research approaches,” he says. “So we’re actively exploring other initiatives involving complex drug therapeutics that would benefit from these types of partnerships.”

Cybersecurity Center Names First Permanent Director

The Maryland Cybersecurity Center, also known as MC², has appointed an expert in software reliability and security as its first permanent director.

Michael Hicks, an associate professor of computer science, is providing senior leadership as the center expands its efforts to address critical vulnerabilities with the nation’s information infrastructure.



Michael Hicks

“We’re delighted that Michael continues to advocate our comprehensive approach to cybersecurity that involves both the human and technical aspects,” says **Patrick O’Shea**, the university’s vice president for research who helped establish MC² last year.

Hicks plans to continue the center’s mission of collaborating with academic, government and private organizations on cybersecurity research and educational initiatives. In the past year, MC² has already partnered with Lockheed Martin, SAIC, Tenable Network Security, Google and the Lincoln Laboratory at the Massachusetts Institute of Technology.

“These strategic relationships only help to cement the Maryland Cybersecurity Center as a national leader in this field,” Hicks says.

Assisting Hicks in his leadership role at MC² is **Eric Chapman**, who joined the center in September as its associate director. Chapman has a solid history of working with corporate partners and the federal government, including five years as national security adviser to U.S. Sen. Barbara Mikulski (D-Md.). He will manage the center’s partnerships, public outreach and cybersecurity policy issues.



Eric Chapman

Socio-Environmental Synthesis Center Seeks Faculty Input for Research Proposals, Fellowships

The National Socio-Environmental Synthesis Center (SESYNC) is now open for business.

Funded in part by a \$27.5 million grant from the National Science Foundation, SESYNC is a multidisciplinary effort to address complex problems like clean water, sustainable food production and the interaction between human activity and ecosystems. The center plans an official launch of its Annapolis, Md., facility in January, and senior administrators are already looking for proposals from the Maryland research community.

“We’re seeking particularly creative ideas involving actionable science—new discoveries that can be used by policymakers or that can inform the public,” says **Margaret Palmer**, SESYNC’s executive director.

Palmer says the center’s leadership team is focused on identifying and supporting a series of “thematic

pursuits” related to environmental science and policy. The first, “Ecological Wealth and Changing Human Populations,” will look at the spatial distribution of environmental pressures, which are the conditions that hinder plant life, and how these pressures are affected by population changes.

If a research proposal is accepted, SESYNC will provide on-site workspace in Annapolis, travel funding, computational support for data acquisition and synthesis and the opportunity to interact with SESYNC research affiliates.

Researchers may also be interested in the Maryland Fellows program, says **Amanda Grimes**, the center’s director of administration and external affairs. The program offers University System of Maryland faculty the opportunity to work at SESYNC during a sabbatical from their home institution.

For more information on research opportunities at SESYNC, visit www.sesync.org.



We introduce you to new faculty and research scientists in the Maryland research community.



Sacoby Wilson is an assistant professor of environmental health. His research focuses on environmental justice and health disparities, the built environment and air pollution.



Jian-Jian Ren is a professor of mathematics. She specializes in statistical methods and modeling, as well as probability and survival analysis, particularly as it relates to biomedical research.



L. Jen Shaffer is an assistant professor of anthropology. Her research examines the reciprocal relationship between African savanna landscapes and their indigenous populations.



Mikhail Dolbilov is an assistant professor of history. He examines the interconnections between state reforms and symbolic representations of the imperial Russian autocracy.



Shannon Jette is an assistant professor of kinesiology. She studies the socio-cultural influences on physical activity, health and the female body.

Council to Enhance UMD Environmental Research

A multidisciplinary group of researchers will begin work next semester to coordinate the university's expanding role in addressing global environmental issues, including climate change.

The Council on the Environment, chaired by noted UMD climate expert **Antonio Busalacchi**, was established to serve in an advisory role for campus-wide research, education, outreach and economic development related to the environment.



Antonio Busalacchi

"We have tremendous talent in the natural, physical and social sciences, and want to nurture the cross-disciplinary partnerships in place while accelerating our efforts to establish new ones," says Busalacchi, a professor of atmospheric and oceanic science and director of the university's Earth System Science Interdisciplinary Center.

Busalacchi is meeting with deans across campus to help determine who will serve on the

council, which will report to the vice president for research and the provost's office.

A key goal of the new council, says **Patrick O'Shea**, vice president for research, is to increase the university's collaborations with many of the nearby federal agencies involved in climate and environmental research.

"This region has perhaps the greatest concentration of earth scientists anywhere," O'Shea says. "We want to seize that opportunity and bring in other partners, including corporate interests, to address some of these large-scale environmental challenges."



FACULTY AWARDS & HONORS



DAVID BARBE, director of the Maryland Technology Enterprise Institute, was recently honored at the White House for his longtime promotion of entrepreneurship and innovation. Barbe was recognized in November as a "Champion of Change," acknowledging his role in helping create high-quality jobs in the United States.



JEFFREY HERF, professor of history, has received the German Studies Association's 2011 Sybil Halpern Milton Prize, given for the best book on Holocaust studies published within the past two years. Herf's tome, *Nazi Propaganda for the Arab World*, examines the Third Reich's efforts to diffuse its ideology to North Africa and the Middle East during World War II.



C. D. "DAN" MOTE, JR., former university president and now the Regents Professor and the Glenn L. Martin Professor of Engineering, received the American Society of Mechanical Engineers Medal, the organization's highest honor. Mote was lauded for his research on the dynamics of flexible moving structures involving specialized circular and band saws. He was also noted for his leadership role in higher education.

Annual Luncheon Recognizes UMD Research Leaders



More than 200 faculty and administrators gathered in the Riggs Alumni Center in October to give accolades to colleagues who have made significant research contributions in the past year. The 13th annual Research Leaders Luncheon, hosted by the Division of Research, featured brief remarks from University President Wallace Loh (left).



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Office of the Vice President for Research

2133 Lee Building
University of Maryland
College Park, MD 20742-5121
www.umresearch.umd.edu

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