TOP TEN SPONSORS OF RESEARCH, SERVICE, AND TRAINING PROJECTS IN FISCAL YEAR 2008

1.	National Institute of Allergy and Infectious Diseases	$41,717,857
2.	Catholic Relief Services	38,156,002
3.	Maryland Department of Health and Mental Hygiene	34,468,959
4.	National Heart, Lung, and Blood Institute	20,711,146
5.	Centers for Disease Control and Prevention	16,508,777
6.	Maryland Department of Human Resources	12,714,282
7.	National Institute of Mental Health	12,212,035
8.	National Cancer Institute	11,954,886
9.	Baltimore VA Medical Center	11,140,513
10.	National Institute of Diabetes and Digestive and Kidney Diseases	10,286,953

SPONSORED RESEARCH GROWTH BY SCHOOL (FY07 - FY08)

	FY08	FY07	% change
Medicine	$377.2	$343.8	10.0%
Pharmacy	18.6	16.3	14.1
Social Work	12.6	10.2	24.0
Law	11.6	11.6	nc
Nursing	11.2	9.4	19.1
Dental	10.5	12.7	-17.0
Campus Administration	3.7	5.2	-29.0
Graduate School	2.0	1.9	5.3
Overall:	**$447m**	**$411m**	**9.0%**

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BioPark Update 2009

Since last spring, a roof-mounted sign high over busy Martin Luther King Jr. Boulevard has proclaimed the University of Maryland BioPark in big yellow and white neon-lit letters. With two buildings completed and two more under way, the BioPark is currently 20 percent complete, and another 20 percent is under construction.

New tenants and amenities include:


COMING SOON: BUILDING THREE

New construction:
- Maryland Forensic Medical Center
- BioPark Building Three

Building One tenants:
- SNBL Clinical Pharmacology Center, Inc.
- Alba Therapeutics Corp.
- FASgen, Inc.
- Center for Vascular and Inflammatory Diseases
- The Harbor Bank of Maryland

UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE Institute for Genome Sciences — The University of Maryland School of Medicine's new **Institute for Genome Sciences**, led by preeminent microbiologist Claire Fraser-Liggett, PhD

PARAGON BIOSERVICES — **Paragon BioServices, Inc.**—a cell culture-based production and research services company specializing in recombinant protein expression, protein purification, adenovirus production and purification, recombinant vaccines, process development, histology, and immunohistochemistry

GLIKNIK TRULY NOVEL THERAPIES — **Gliknik, Inc.**—an emerging bioscience company based on the research discoveries of Scott Strome, MD, in the University of Maryland School of Medicine, developing a vaccine for head and neck cancer and a blood product replacement based on recombinant proteins

BIOMERE LLC Drug Development Solutions Funding • R&D • Marketing — **Biomere LLC**—a contract research organization that develops and uses proprietary customized animal models to determine the efficacy of new drugs

Westat — **Westat, Inc.**—a contract research organization that conducts studies on health conditions and exposures, medical treatments and outcomes, and behavioral studies related to health risk

MILES & STOCKBRIDGE P.C. — **Miles & Stockbridge P.C.**— a life sciences law practice in the BioPark

UNIVERSITY FITNESS at the BioPark — **University Fitness at the BioPark** is an 8,000-square-foot facility for UMB staff and students and BioPark tenants located on the first floor of BioPark Building Two.

Goodwill Industries of the Chesapeake, Inc. — **Goodwill Boutique** is a first-floor retail tenant in the BioPark garage. This new facility and training center opened in February 2009.

New conference facilities in Building Two, such as the Life Sciences Conference Center and Auditorium, offer tenants and campus users alike much-needed meeting space.

BioPark University of Maryland — *www.umbbiopark.com*

Photographs by: Rich Riggins, Richard Lippenholz, and Stephen Spartana | Produced by the Office of External Affairs, 2009

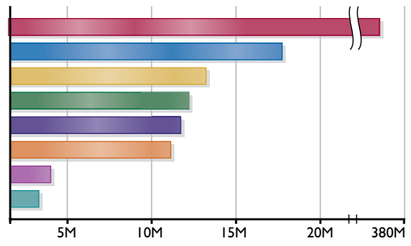
UNIVERSITY OF MARYLAND, BALTIMORE

Research and Development 2008 Annual Report

UMB Experiences Record Growth in Sponsored Projects

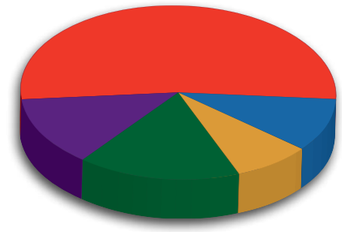
An astounding 9 percent growth in the research enterprise at the University of Maryland, Baltimore was realized in Fiscal Year 2008, with nearly $450 million in extramural funding awarded to campus researchers. Despite increased competition for federal research dollars, grants from the National Institutes of Health rose by 8 percent to $164 million. Catholic Relief Services and the Bill & Melinda Gates Foundation funded two-thirds of the nearly $75 million received from foundations, which is double the level of support from Fiscal Year 2007. Hundreds of corporate-sponsored projects eclipsed prior year funding levels by 44 percent.

EXTRAMURAL FUNDING, FY08



Medicine	$377.2M
Pharmacy	18.6M
Social Work	12.6M
Law	11.6M
Nursing	11.2M
Dental	10.5M
Campus Administration	3.7M
Graduate	2.0M

EXTRAMURAL FUNDING SOURCES, FY08



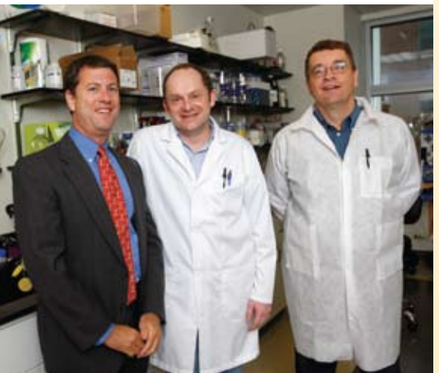
Federal Government	$235M
Foundations	74.6M
State, Local & Foreign Governments	55.7M
Corporations	45.8M
Universities, Hospitals & Other Sources	36.3M

commercial ventures and intellectual property 2008

Entrepreneurial efforts at the University of Maryland, Baltimore (UMB) continue to expand. Technology **licenses and options grew by 35 percent** to 25 agreements in Fiscal Year 2008, and the number of active patents in the UMB portfolio climbed to nearly 1,200 applications and issued patents.

invenio IP

UMB's *www.invenioip.org*, a Web-based portal for posting and marketing technologies available for licensing to global partners, continued its rapid growth. Initially launched in FY07 to promote technologies from University System of Maryland institutions, the Web site has since expanded to include more than 2,600 technology summaries from 21 institutions across the country, including Johns Hopkins University and Georgetown University.



From left: Founder, President, and CEO David Block and research staff members of Gliknik, Inc. , a UMB licensee and BioPark tenant

In FY08, the University's Commercial Ventures Advisory Board was established to bring together key decision-makers from relevant segments of the commercial markets with UMB inventors and their ideas. The advisory board directly encourages and facilitates potential business partnerships by showcasing UMB's most interesting technologies to industry decision-makers.

In order to reflect the diverse mix of UMB's commercial partners, the board consists of entrepreneurs; large-pharmaceutical/biotechnology executives; investors; experts from biotechnology companies including Johnson & Johnson, AstraZeneca, Becton, Dickinson and Co.; leading venture capitalists; and many others.

A profile of FY08's new license agreements include:

Gliknik, Inc., Baltimore, Md.
Scott Strome, MD, professor and chair of the Department of Otorhinolaryngology at the University of Maryland School of Medicine, and David Block, MD, MBA, an experienced Maryland entrepreneur, teamed up to create a new Baltimore-based biotechnology company, Gliknik, Inc. Gliknik licensed UMB's rights in a jointly owned technology, providing the foundation for the company. Together, the parties have received Maryland's Biotechnology Investment Tax Credit and a competitive Maryland Industrial Partnerships grant. Gliknik is creating novel biotechnology drugs for treating autoimmune diseases and cancer through biomimetic structures aimed at correcting malfunctioning immune systems. Gliknik is located at the University of Maryland BioPark.

Syndax Pharmaceuticals, Inc., Waltham, Mass.
Vincent Njar, PhD, and Professor Angela Brodie, PhD, in the School of Medicine's Department of Pharmacology and Experimental Therapeutics developed a therapeutic regimen that shows promise for treatments of cancer, particularly breast and prostate cancer. The technology offers a potential solution to the growing problem of cancers resistant to first-line drug therapies by combining two known types of anti-cancer drugs—a histone deacetylase inhibitor (HDAC inhibitor) and an aromatase inhibitor. The technology is based on the observed synergistic effect of the combination therapy and may provide physicians with a powerful weapon against breast cancer that is resistant to standard therapies. This work has attracted an important ally in Syndax Pharmaceuticals, a biopharmaceutical company that is developing entinostat—an HDAC inhibitor—for cancer therapy. In addition to a commercial agreement with UMB, Syndax established a formal research collaboration to further develop this technology at UMB.

Trillium Therapeutics, Inc., Toronto, Ontario
UMB and Trillium Therapeutics, Inc. (TTI), a privately held biopharmaceutical company, have entered into a licensing agreement to enable TTI to develop a diagnostic test and therapeutic treatment for interstitial cystitis (IC). Susan Keay, MD, PhD, professor in the School of Medicine's Department of Medicine, is a co-inventor of the licensed technology and has spent her career investigating IC, which is a chronic bladder disease causing moderate to severe pelvic pain and urgent, frequent urination. The U.S. Department of Health and Human Services estimates that nearly 1 million people in the U.S. are affected by IC, with women being 10 times more susceptible than men. On track to begin clinical trials at the end of 2008, TTI now plans additional trials for 2009 for the IC therapy, which is based in part on the UMB technology. TTI raised $12 million from its venture partners to continue this groundbreaking work.

Becton, Dickinson and Co., Franklin Lakes, N.J.
Becton, Dickinson and Co. (BD) is a U.S.-based medical technology company that currently markets vesicles expressing high levels of a breast cancer resistance protein (BCRP) to the international scientific community. BD and UMB entered into a license agreement to commercialize BCRP, which was discovered by Douglas Ross, MD, PhD, professor in the School of Medicine's departments of medicine, biochemistry and molecular biology, pathology, and pharmacology and experimental therapeutics and a member of the Marlene and Stewart Greenebaum Cancer Center. BCRP functions as a pump to transport compounds including chemotherapeutic drugs out of a cell, thereby reducing the efficacy of certain cancer therapies. UMB also has licensed the BCRP technology to several entities for its use as a research tool to study mechanisms of drug resistance.

Gov. Martin O'Malley, Mayor Sheila Dixon, Sen. Ben Cardin, Rep. Elijah Cummings, and President David Ramsay celebrate the opening of BioPark Building Two and groundbreaking on BioPark Building Three.

Research Administration Goes Green With Coeus

Electronic Research Administration is in full swing at UMB as ORD "went green" with Coeus software implementation. Coeus is UMB's integrated software solution for grant proposal development, approval routing, system-to-system submission of proposals to *www.grants.gov*, and proposal and award data management. As of Oct. 1, 2008, all proposals for sponsored funding are routed electronically, eliminating the need for multiple copies and routing forms. The effort to get the application rolled out campuswide involved training 400 individuals hands-on and many others training online. More than 300 applications for federal funding have been submitted system-to-system from Coeus directly to *www.grants.gov*. Future plans include data management for subcontracts issued by UMB, roll-out of reporting available through RAVEN, and an interface between Coeus and eUMB Financials. The campuswide Coeus project and steering committees continue to test software updates, strengthen support and training resources, and seek additional ways to integrate Coeus with other enterprise software in support of sponsored project activities at UMB.