



the
 biotech report

The breakthroughs of
Baltimore's research centers find
their way to public market

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State budget for bioscience
grows despite cuts elsewhere

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The pulse of Maryland's
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Bioscience moves from Petri dish to public domain

By Karen Nilkin

Special to The Daily Record

Within the walls of the Baltimore region's biotechnology parks, researchers are developing treatments and early diagnostic tools for cancer, creating vaccines and pioneering products to improve the lives of stroke victims.

The UMB BioPark, Science + Technology Park at Johns Hopkins University, bwtech@UMBC and University of Maryland Biotechnology Institute are all just a few years old and still being built out, but already are producing heady research results and promising products and businesses.

"We have probably close to 100 different technologies, partially licensed in some cases," says Jon Gottlieb, director of technology

transfer and commercialization at the University of Maryland Biotechnology Institute.

For example, scientists at UMBI's Institute of Fluorescence are working on a process that makes it easier to detect biological terrorism, as well as markers for diseases ranging from diabetes to staph infections. The technique involves the amplification of telling fluorescent signatures up to a million times, making it easier to spot tiny traces of molecules that are of interest. "It's a major advancement," notes Gottlieb.

Another UMBI-based project with tremendous lifesaving potential is an oral vaccine for anthrax that only needs to be taken once instead of multiple times like existing vaccines.

The future of bioscience looks bright

The research taking place in the region's bioparks has the power to change people's lives, and certainly to extend them. At the Hopkins Brain Science Institute, a new tenant at the Science + Technology Park at Johns Hopkins, scientists are finding new ways to identify the roles of specific genes in brain cells.

At the Center of Marine Biotechnology at the University of Maryland Biotechnology Institute, a two-megaton marine aquaculture system functions with virtually zero discharge, providing a rich working model for what could eventually be a land-based fish farm, notes Jon Gottlieb, director of technology transfer and commercialization. "You can put it anywhere as long as you have a source of freshwater and electricity," he explains. The project now needs investors and licensing in order to become a commercial enterprise, he says.

At the UMB BioPark, the Institute for Genome Services is working to better understand gene and genome function as it relates to health. And at bwtech@UMBC, tenants include Goddard Earth Science and Technology Center, the Erickson School of Aging Studies and PsychNostics, a company developing a blood test to diagnose attention deficit hyperactivity disorder and bipolar disorder.



Jon Gottlieb, director of technology transfer and commercialization at UMBI, works hard to bring his firm's innovations to the public. "We have probably close to 100 different technologies, partially licensed in some cases," he says.

This vaccine, now at the pre-clinical stage, could eventually benefit from partnerships with companies that do work with the Department of Defense, the National Institutes of Health and other organizations, says Gottlieb.

The research parks have different business models and areas of interest, though all are focused on biology and nurturing new technologies and products.

UMBI is primarily a research institute that develops and then sells or licenses technologies created by University of Maryland faculty. The research and technology community at the University of Maryland Baltimore County, on the other hand, is more of an incubator, spinning companies out once they are ready to stand on their own.

The UMBC research park, known as bwtech@UMBC, tends to "attract life science companies, mostly because we have a lot of wet lab space," says David Fink, the director of entrepreneurial service at bwtech.

One company that grew in the



RICH DENNISON

Dr. Francisco Leon, with Alba Therapeutics, is developing a pill that sufferers of celiac disease — a gluten intolerance which significantly limits diet — could take before eating.

park and recently moved to Dundalk is Profectus BioSciences, which is developing proprietary vaccines. The company recently won a \$21.6 million grant from the National Institutes of Health to develop an HIV preventative and a vaccine. "It's

a very visible and really well-run little company," Fink explains.

The park hosts a program called ACTiVATE, which trains women to "find technologies within the university system in Maryland" and translate them into startup businesses,

Fink said. The program, now in its fifth year, trains about 25 women a year and has led to companies like Encore Path, started by Kris Appel of the 2006 class. She licensed a stroke rehabilitation device from the University of Maryland School of Medicine and is now on the verge of selling her product, called Tailwind, which improves arm movement in stroke patients.

The UMB BioPark, started in 2004, has been adding a building every two to three years, opening the first one in 2005 and the second in 2008. Most of the tenants are working to create new drugs, but since the process takes so many years, their products are not yet ready for market, notes James Hughes, president of the park and vice president for University of Maryland Baltimore.

One exception is a company

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Bioscience at UMBC

UMBC offers a full array of services for bioscience professionals and their companies. Through graduate courses and certificate programs, staff training programs, and facilities and entrepreneurial support services for emerging companies, UMBC supports and serves the bioscience industry.

bwtech@UMBC is home to 22 life science companies.

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called SNBL, which provides clinical trials for companies that are developing drugs.

The biopark is not an incubator model, so companies don't need to move out as they grow, he said. When the park is built out, it will have more than 1.5 million square feet of space. "The hope is that as a company like SNBL expands, it will be able to stay," he says.

Other companies in the park are at various stages of clinical trials with their products. Alba Therapeutics is working on a pill that people with celiac disease could take before eating a meal. FASgen LLC is working on a way to detect cancer early through blood markers. And a company called Gliknik Inc. is developing a vaccine that would be taken after a cancer or autoimmune disease diagnosis to help fight the disease.

Johns Hopkins University is the No. 3 cancer research center in the world, so it's not surprising that much of the research at the Science +



Dr. Yonathan Zohar extracts fuel-grade methane gas from the waste of fish kept in UMBI's recirculating marine aquaculture system, thereby creating an alternative fuel with zero impact on the environment.

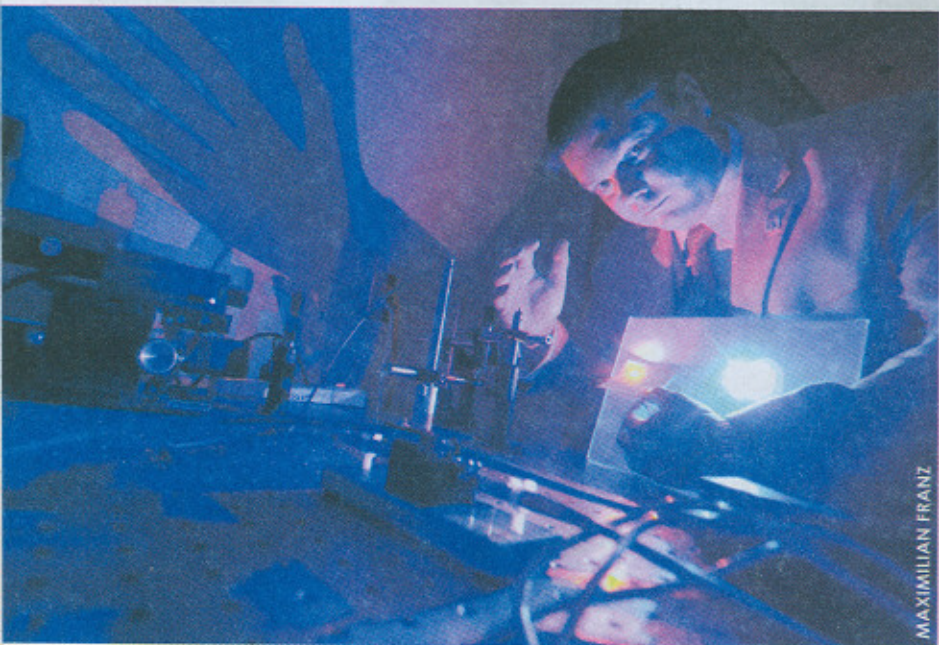
Technology Park at Hopkins centers on cancer diagnosis and treatments, says Michael Rosen, senior vice president for new business development at Forest City Science and

Technology Group.

The research park's first building was completed in April 2008 and now has seven tenants, "all in the bioscience field," he says, including three with an oncology focus. Most are new companies, typically with some connection to Johns Hopkins University. The model is not so much an incubator as an accelerator for companies that already have funding, he said.

One such company is BioMarker Strategies, which is developing new diagnostic tests for cancers that could provide much earlier warning signs. Another company at the park, called IATRICa, is working on cancer treatments and preventions based on technologies developed at Johns Hopkins University.

Rosen says 20 companies are expected to emerge from Johns Hopkins University this year, and "we're hoping to capture some of those." The idea, he explains, is to nurture businesses and create jobs in the Baltimore region — not to mention save lives.



Dr. Chris Geddes, director of the Institute of Fluorescence at UMBI, has developed a process through which fluorescent signatures are amplified millions of times, making it easier to detect biomarkers for anthrax, diabetes and even heart attacks.

Bioparks becoming a fixture of Baltimore

By Mary Medland

Special to The Daily Record

Baltimore's efforts to develop and expand its commitment to biotechnology continue apace at several different sites.

The Science and Technology Park at Johns Hopkins University has more than 60 percent of its first 278,000-square-foot building leased.

"The first phase calls for five buildings, with a total of 1.1 million square feet," says Jack Shannon, president and

CEO of East Baltimore Development Inc., a public-private partnership that is behind the overall 88-acre redevelopment initiative in East Baltimore. "We expect that Phase One will be completed in 2015, and currently we are doing the necessary property acquisitions and site preparation for Phase Two."

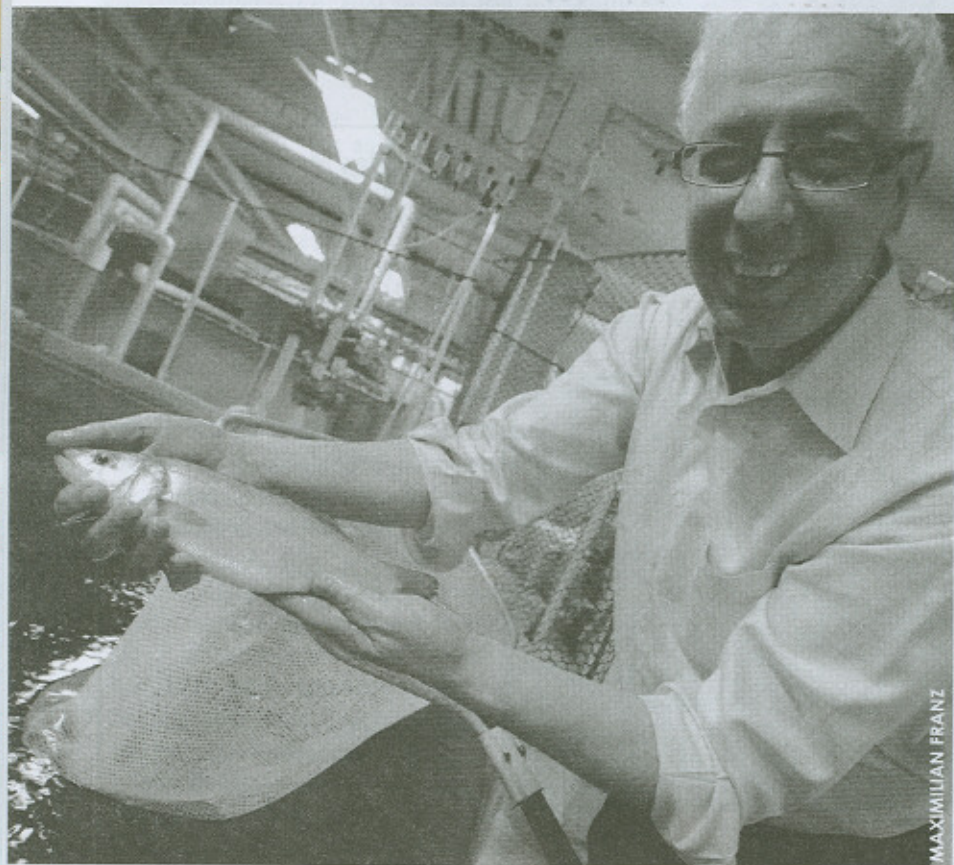
Shannon points out that the park is a mixed-use project with residential housing, retail space, open space and

other community enhancements. "Chapel Green is a Penrose Properties project that includes 63 high-quality, mixed-income rental properties, and we are incorporating a lot of green construction into both our new construction and the buildings we are rehabilitating," he notes. "Furthermore, we are trying to get a new station on MARC's Pennsylvania Station line."

At the UMB BioPark, Jim Hughes, vice president for research and development, reports that the Board of Public Works just gave a thumbs-up to the Baltimore City Community College's Life Sciences Institute, which will take up the entire second floor, or 38,000 square feet, of the BioPark's second building. "This will make it possible for students to get an A.A. degree for a career in biotechnology," he says. "Typically they will be getting degrees in lab technology and learning the manufacturing practices needed to work for a pharmaceutical company, as well as practical skills to work in a hospital, academic lab or with a private biotechnology company."

Hughes adds that the first building — between 10 and 12 are planned — is completely filled and has about 220 employees. A second building has opened and includes companies such as Biomere, which is expanding from its Massachusetts headquarters, and Paragon Bioservices, which is moving from Hopkins' Bayview facility.

UMBC's Research and Technology Park consists of a research park on the main campus and an incubator and accelerator facility nearby. "The two campuses are only about five minutes away," says Ellen Hemmerly, executive director of the UMBC Research Park



In this recirculating fish tank, Dr. Yonathan Zohar, director of the Center of Marine Biotechnology (COMB) at the University of Maryland Biotechnology Institute, is using beneficial microorganisms to remove chemical waste from the water — just one of many ways COMB is working to protect and replenish Maryland's marine and estuary resources.

MAXIMILIAN FRANZ

"We have numerous collaborations with industry and biotech firms on four campuses."

Gene Levinson
University of Maryland Biotechnology Institute

Corporation. "We have two new buildings at our research park, one of which has 110,000 square feet available for a number of tenants. In December 2008, RMF Engineering took about 30 percent of that space, and we are actively looking for more tenants."

A just-completed 100,000-square-foot building at the research park will see Erickson Retirement Communities moving in its data center, IT group and retirement living television staff.

"We would like to develop a lab building that could accommodate startup and incubator-stage companies that are not ready to sign a five- or 10-year lease with one of the downtown bioparks. What we are trying to do is help them prepare to eventually make that move," Hemmerly says.

UMBI (University of Maryland Biotechnology Institute) is an independent part of the University System of Maryland. "We have numerous collaborations with industry and biotech firms on four campuses," says Gene Levinson, UMBI's director of communications. "In the Columbus Center in downtown Baltimore there is the Center of Marine Biotechnology, and on Lombard Street near the University of Maryland School of Medicine we have our Medical Biotechnology Center."

At the Columbus Center facility, UMBI is focusing on modern biology and biotechnology to study, protect and enhance marine and estuarine resources. "Our researchers are studying aquaculture, fisheries biotechnology, marine functional genomics, natural products and pharmaceuti-

cals, as well as the microbial process," notes Levinson.

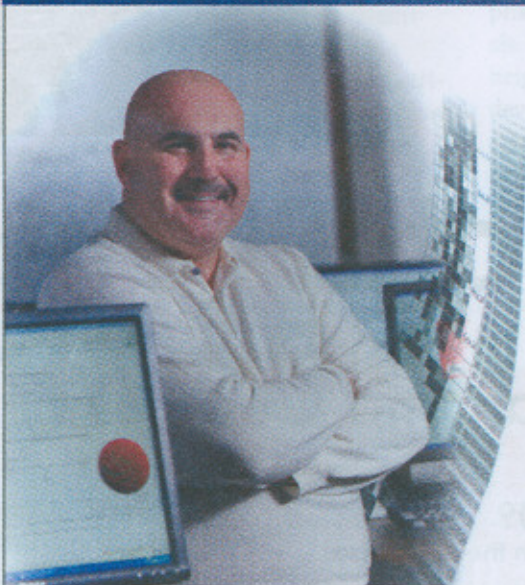
"The Medical Biotechnology Center is

a highly integrated multidisciplinary center that focuses on molecular signaling and biophysics to advance the knowledge in biomedical research and applications by studying the molecular basis for a number of diseases, including heart failure and Alzheimer's disease," he says.

The remaining UMBI campuses include the Center for Biosystems Research at College Park and the Center for Advanced Research in Biotechnology in Rockville.

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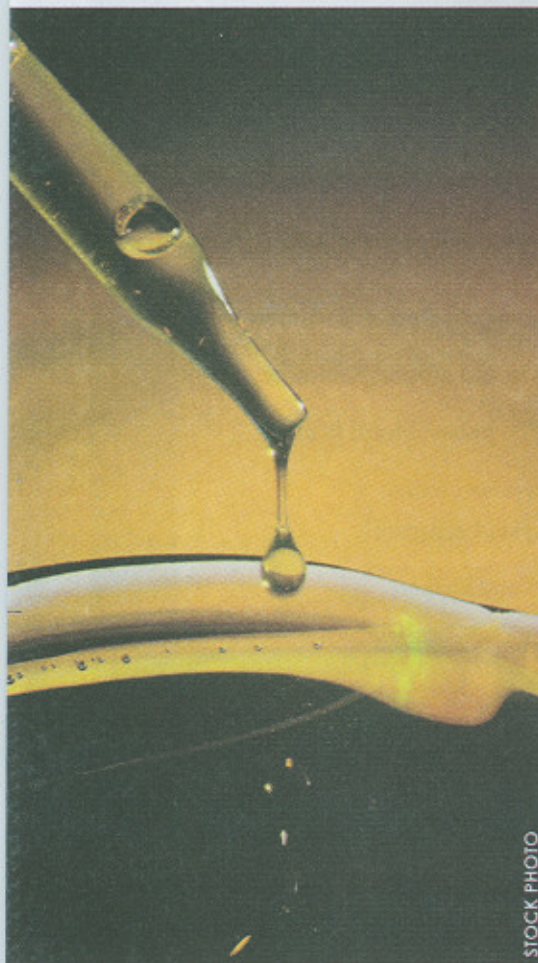
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GBC seeks nominations for 2009 Bioscience Awards



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The Greater Baltimore Committee is seeking nominations for its 2009 Bioscience Awards. The fourth annual awards event, which will recognize outstanding achievements in Maryland's bioscience industry, will be held on Thursday, March 12, 2009 at the Renaissance Baltimore Harborplace Hotel.

"It's important to recognize our growing bioscience industry that will play a major role in the state's economic future," says Donald C. Fry, president and CEO of the Greater Baltimore Committee. "Bioscience companies in Maryland are doing some amazing things and demonstrating that they are leaders in their field."

The four award categories are: Entrepreneurial, Best New Product or Progress, Leadership in Bioscience and President's Award. Nominators are asked to submit documentation and narratives that fulfill several criteria and then to add other suitable supporting evidence. Self-nominations are accepted and encouraged.

The deadline for nominations is March 2, 2009.

Judges for the awards are: Scott Allocco, president, BioMarker Strategies; Judy Britz, principal, Britz Consulting; David J. Fink, Ph.D., biotech entrepreneur-in-residence, techcenter@UMBC; Elizabeth Good Mazhari, director, Strategic Investments, University of Maryland, Baltimore; Mark E. Rapson, CPA, shareholder and board member, Katz Abosch; Howard S. Schwartz, partner, DLA Piper; and Paul Silber, Ph.D., biotechnology investor.

Program sponsor for the event is DLA Piper. Patron sponsor is Katz Abosch. Media sponsor is The Daily Record.

For more information on nominating a company or individual, go to the GBC's Web site, www.gbc.org, or contact Lisbeth Pettengill, 410-727-2820 or lisbethp@gbc.org.



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