

MARYLAND LIFE SCIENCES
ADVISORY BOARD

ANNUAL STATUS REPORT
Fiscal Year 2012

Economic Development Article, Section 3-205

Submitted by the

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Introduction

Pursuant to § 3–205 of the Maryland Economic Development Article, The Maryland Life Science Advisory Board (LSAB) presents the following report to the Governor and, in accordance with § 2–1246 of the State Government Article, to the General Assembly. The report includes any recommendations from the LSAB and a summary of the activities of the LSAB during the preceding year.

Life Science Advisory Board Background

Governor Martin O'Malley signed into law the creation of the LSAB on May 9, 2007, to assist in maintaining the preeminence of Maryland's life sciences industry. On September 18, 2007, the Governor formally introduced the LSAB's 15 original members at a ceremony held in Annapolis. According to § 3–205 of the Maryland Economic Development Article, the Life Science Advisory Board was established to assist the Department in:

- developing a comprehensive State strategic plan for life sciences;
- promoting life sciences research, development, commercialization, and manufacturing in the State;
- promoting collaboration and coordination among life sciences organizations in the State;
- promoting collaboration and coordination among research institutions of higher education in the State;
- developing a strategy to coordinate State and federal resources to attract private sector investment and job creation in the life sciences;
- developing a strategy to support federal life sciences facilities located in the State, including support for education, transportation, housing, and capital investment needs; and
- making recommendations to address critical needs in the life sciences, including access to venture capital and capital construction funding.

The LSAB's membership includes the Secretary of the Maryland Department of Business and Economic Development (DBED), a representative designated by the Maryland Technology Development Corporation (TEDCO), and 13 members appointed by the Governor to include: three representatives from federal agencies with life science missions, five representatives from biotechnology businesses in Maryland, four representatives from institutions of higher education, and a member of the general public. The 2012 Maryland General Assembly, via chapters 498 and 499, created three additional positions for the LSAB, bringing its membership to a total of 18. A *New Member Orientation Program* has been created to bring the new members up to speed, once they have been officially appointed.

Summary of FY 2012 Activities

The LSAB's initial accomplishment was the creation of *BioMaryland 2020: A Strategic Plan for the Life Sciences in Maryland*. The purpose of that strategic plan was to maximize Maryland's unique life sciences research and development assets, location, and workforce, and to ensure the State's continued global leadership in the biosciences. Currently, 6.5% of the State's GDP (\$17.6 billion) and 6.5% of all jobs in Maryland are related to life sciences. Maryland has over 1,700

establishments involved in life sciences work, the 5th highest concentration in the United States. More than 160,000 jobs in the State are directly and indirectly related to life sciences, generating \$9.6 billion in salaries and providing \$500 million in income and sales tax support annually to the State. This sector directly employs 71,600 persons at an average salary of \$91,100/year (see Appendix A). More than one-third of all of Maryland's job gains during 2002-2010 were in the life sciences sector.

For the past year, the LSAB has actively engaged Maryland's bioscience community in a continuing dialogue about the State's life sciences accomplishments and future directions, and participated in several activities. One its most important efforts involved providing testimony on behalf of maintaining funding for the Maryland Biotechnology Investment Incentive Tax Credit (BIITC) (\$8 million) and the Stem Cell Fund (\$10.4 million); which would have been cut in total from the "Doomsday Budget," as well as an 8% across-the-board cut to the entire State budget – which included TEDCO and many university programs important to the life sciences community in Maryland.

In FY 2012, the LSAB held three meetings. The first meeting was held at Glycomimetics in August 2011. Funding for BioMaryland 2020 Strategic Priorities was discussed. The second meeting, held in October 2011 at the Science and Technology Park at Johns Hopkins, focused on the Workforce and Training Priorities of the BioMaryland 2020 plan. The third meeting was held in May 2012 at the Maryland Biotechnology Center's World Trade Center Baltimore offices. At this meeting, the LSAB focused on a review of MBC's activities since its inception, as well as the accomplishments of its partners. A public information and resource website for all LSAB meeting agendas and documents may be found at www.marylandbiocenter.org.

The four major areas of focus in FY 2012 were in line with the four major goals of the strategic plan:

- Increasing Access to Capital
- Ensuring Industry Growth and Competitiveness
- Advancing Global Leadership Role/BioMaryland Branding
- Expanding Workforce Development

I. Increasing Access to Capital

A key priority of the *BioMaryland 2020* Strategic Plan is to increase access to capital. Since FY 2010, the cumulative investment in Maryland's life sciences infrastructure has totaled approximately \$400 million (see Appendix B). In light of the recession, many funding initiatives have been tempered. However, the BIITC, though short of the amount proposed in *BioMaryland 2020*, had been increased from its initial level of \$6 million to \$8 million two years earlier. The "Doomsday Budget" shortfall was resolved in May 2012, so the \$8 million funding level for this program was maintained. The Stem Cell Fund, also at risk in the Doomsday Budget, was maintained. In addition, the new *InvestMaryland* venture program is a strong demonstration of the State's commitment to the growth of this sector. Through this program, Maryland will partner with private venture firms to support business growth for companies which have matured beyond the startup phase.

Biotechnology Investment Incentive Tax Credit Program

One of the most successful programs administered by DBED is the BIITC. Now entering its seventh year, Maryland's BIITC remains the most competitive of its kind in the United States and serves as an exemplary model for angel investment incentives. This program provides income tax credits equal to 50% of an eligible investment up to \$250,000 for investors in qualified seed and early stage Maryland biotechnology companies. To date, \$40 million in tax credits have been awarded, benefitting more than 60 companies Statewide and generating total investment of more than \$80 million in them.

InvestMaryland

InvestMaryland is an innovative program designed to revitalize venture capital funding in Maryland. This unique fund, approved by Maryland lawmakers during the 2011 Maryland General Assembly, will be the largest venture capital investment initiative in the State's history. During the past year, DBED raised the money for this fund through auctioning discounts to insurance companies for pre-paying their taxes. This was an extremely successful effort. The expected raise of \$70 million was exceeded, and \$84 million was actually raised. A portion of this money will fund the new Maryland Venture Fund, and the remainder will be distributed to private venture capital firms for investment in Maryland life science, clean energy and technology companies. Candidates for the new fund's director position were identified and the new director hired. The fund began operations in the fall 2012.

Maryland Biotechnology Center Entrepreneurial Award Development Program

The Maryland Biotechnology Center (MBC) conducted its third year of competitive awards to companies and company/university partnerships leading toward commercialization of new products and services. Ninety applications were received and seven awards were made, totaling \$1.4 million. These awards, which have a maximum of \$200,000, were made in two categories (see Appendix C). *Translational Research* awards are intended to move a company or company-university partnership to the next value inflection point. *Commercialization* awards aim to push a later stage product development to market entry. FY 2012 Award Recipients included: BetaCat, GrayBug, Leukosite, NexImmune, PathSensors, Sanaria, and SuperNova Diagnostics. To date, \$4.5 million dollars have been disbursed to 20 companies under his program.

II. Ensuring Industry Growth and Competitiveness

MBC BioEntrepreneur Development Program

The MBC BioEntrepreneur Development Program provides a wide variety of services to bioscience entrepreneurs to help them establish and/or grow their businesses in Maryland. These include business plan counseling and resource support, identification of capital sources, access to regulatory expertise and intellectual property advice, location assistance, and training support for employees. One of the more popular MBC resources used by bioentrepreneurs is access to industry databases (*Datamonitor*, *Deloitte Recap*, *Discovery Logic's Synapse*, *Frost & Sullivan*, *MedTRACK*, *MedTRACK Venture Finance*) to support product development and marketing efforts. During the past two years, more than 200 company visits have generated thousands of searches on the five databases at MBC's Baltimore or Rockville offices to fortify their business plans. MBC spends approximately \$105,000 per year to make these databases available for companies. This annual investment is leveraged 25x. Had they been purchased directly by the companies the price for the reports downloaded would have exceeded \$3.5 million dollars for just the DataMonitor reports alone. Each company visit to MBC's offices for this database research also enables MBC staff to connect directly with the bioentrepreneur and learn more about his or her company, share additional resource information, and identify other opportunities for MBC to assist with the company's business growth.

Industry Advocacy

In concert with the LSAB, the MBC works to educate business leaders and potential industry partners on the regulatory process, best practices for effective translational research, and other topics helpful to business growth in the life sciences sector. MBC also advocates for policies facilitating commercialization opportunities and other life sciences business development initiatives.

Federal Initiatives

The Food and Drug Administration (FDA) plays a key role in the life sciences at all times, with regulatory practices having a determining effect on the acceptance of new drugs and devices. But this past year, it took on an even bigger role, due to the looming expiration of the FDA User Fee Agreements. These agreements fund a large amount of the FDA, enabling it to accomplish its work in a timely manner. These User Fee Agreements were set to expire in October, which would result in the loss of some 4,000 federal employees at FDA. This would have detrimental effects on the ability of life science companies in Maryland and all around the country to obtain approvals and bring new products to market.

Dr. Judy Britz, Executive Director of the MBC, accompanied Senator Barbara Mikulski to meet with life science companies around Maryland. They met with over 25 companies, and heard a resounding request to reauthorize the Prescription Drug User Fee Act (PDUFA). Senator Mikulski then took the lead to get this important legislation accomplished.

III. Advancing Global Leadership Role/BioMaryland Branding

International Outreach

The BIO 2012 meeting took place in June in Boston. BioMaryland's presence featured a unique pavilion as venue for an unprecedented number of activities showcasing Maryland as a premier location for bioscience research and business growth. MBC, in partnership with fellow lead sponsors at DBED, TCM/MDBio, Montgomery County, MedImmune and HGS helped the State to secure major visibility at this conference once again. The event drew more than 16,000 industry leaders from 49 states and 65 countries, with a record 25,000 + partnering meetings. New in the pavilion this year were special press conferences and panels highlighting technologies, companies and locations from around the state.

Online Marketing

Last fiscal year, MBC and DBED's marketing team launched a new quarterly e-newsletter, *BioPulse*. This publication features CEO and company spotlights and other news about Maryland's life sciences community—including announcements regarding funding, discoveries, expansion and partnership activity, awards, and special events. MBC added social media tools (i.e. Twitter and Facebook) to its web-site and launched its first blog. Archived copies of BioPulse and links to the social media tools are available on MBC's website. The website provides an important link for current information about Maryland's biocompanies and the resources and partnership opportunities available to them. It also enables these companies and resources to be showcased not only locally, but also to those outside the State who may be thinking of starting a company, moving a company, or opening a U.S. headquarters or facility in Maryland. Visits to the MBC site have more than tripled since the site launched in September 2009 to an average of more than 7,000 visitors per month. Since the site launched, it has received more than 147,000 visits from unique visitors from 152 countries. More than half of this traffic (68,000) has occurred during the last 12 months.

IV. Expanding Workforce Development

Although funding for the Workforce Development initiative and bioscience career development activities included in BioMaryland has been limited, MBC has looked for ways to partner with the industry using any and all available resources. In these efforts, MBC is working to re-establish the

Maryland Biotechnology Training Consortium. Additionally, MBC has increased efforts to provide student internships to Maryland bioscience companies. Workforce development and training is an area where Maryland excels. Programs recently developed by Training Consortium members include speed training to address surge requirements and tailored company programs. These and other programs were highlighted at the October 13, 2011 LSAB meeting.

BIO Maryland 2020 - Initial Implementation

In FY2012, the following programs were funded to support the life science sector.

FY 2012

- \$3.5 million: Maryland Biotechnology Center
- \$8 million: Biotechnology Investment Incentive Tax Credit Program
- \$6 million: Research and Development Tax Credit Program
- \$1.2 million: Maryland Venture Fund
- \$12.4 million: Maryland Stem Cell Research Fund
- \$3.3 million: TEDCO Budget (technology transfer and commercialization programs within)
- \$1.5 million MIPS program at University of Maryland is now included in TEDCO budget
- \$84 million Invest Maryland auction (March 2012); All Technologies/3 years

Summary

With the strategy set forth by the LSAB, and supported by MBC, the State is uniquely positioned to leverage its bioscience research, location and workforce assets, in a way that will continue to benefit not only Maryland residents but the global community. MBC performs vital roles as a central information portal, industry advocate, resource provider and catalyst for the development and growth of Maryland's bioscience industry. With the majority of Maryland's recent job gains housed in this sector, and the employee tax support bioscience jobs provide the State, it is clear this industry is vital to Maryland. Maryland's bioscience industry has a critical role feeding, fueling, and healing the world. MBC's ability to support the continued growth of this vibrant industry will establish Maryland's place globally to accomplish the business of BIO.

Appendix A

Table 1: MD's 71,618 life sciences jobs are in the private sector, federal government and academic institutions

Maryland Life Sciences Jobs, Wages and Salaries			
Group	Jobs	Aggregate Wages & Salaries	Average Annual Salary
Private Sector	33,602	\$3,058,887,640	\$91,034
Federal Government	29,777	\$2,772,774,686	\$93,118
Academic	8,240	\$692,744,795	\$84,074
Total	71,618	\$6,524,407,122	\$91,100
Source: DBED analysis on data from the Maryland Department of Labor, Licensing and Regulation and Bureau of Labor Statistics. Published in <i>Life Sciences Maryland: the Jobs Analysis & Economic Impact Report 2011</i>			

Table 2: MD's private sector life sciences jobs are found largely in research, testing and medical laboratories

Maryland Private Life Sciences Jobs, Salaries and Facilities 2010				
Subsector	Employment		Facilities or Establishments	Average Annual Salary
	Jobs	Share		
Agricultural Feedstock and Chemicals	256	0.8%	22	\$63,780
Drugs and Pharmaceuticals	6,574	19.6%	65	\$102,084
Medical Devices and Equipment	1,962	5.8%	86	\$67,612
Research, Testing and Medical Laboratories	24,810	73.8%	1,579	\$90,239
Total	33,602	100%	1,752	\$91,034
Source: DBED analysis on data from the Maryland Department of Labor, Licensing and Regulation and Bureau of Labor Statistics. <i>Life Sciences Maryland: the Jobs Analysis & Economic Impact Report 2011</i>				

Appendix B

2011 Life Sciences Advisory Board Members

Chair: Mr. H. Thomas Watkins, *CEO, Human Genome Sciences, Inc.*

Standing: Mr. Christian S. Johansson, *Secretary, Maryland Department of Business and Economic Development (DBED)*

Mr. Rob Rosenbaum, *President and Executive Director, Maryland Technology Development Corporation (TEDCO)*

Appointed: Dr. Patrick G. O'Shea, *Interim Vice President for Research, University of Maryland, College Park*

Ms. Francesca Cook, *Vice President of Policy and Government Affairs, Pharmathene, Inc.*

Dr. Stephen Desiderio, *Director, Institute for Cell Engineering,*

Open position, *US Army Medical Research Institute of Infectious Diseases (USAMRIID) Johns Hopkins School of Medicine*

Mr. David Iannucci, *Assistant Deputy Chief Administrative Officer, Prince George's County Government*

Ms. Rachel King, *Chief Executive Officer, Glycomimetics, Inc.*

Dr. Nina Lamba, *President, CCL Biomedical, Inc.*

Dr. Jay A. Perman, M.D., *President, University of Maryland, Baltimore*

Dr. Hercules Pinkney, *President Emeritus, Montgomery College*

Dr. Mark Rohrbaugh, *Director, Office of Technology Transfer*

Mr. David W. Smith, *Business Director, Lonza Walkersville, Inc.*

Dr. Janet Woodcock, *Director, Center for Drug Evaluation and Research, Food and Drug Administration*

Three additional appointments *(pending)*

FY 2012 Calendar of Activities for the Life Science Advisory Board

All meeting agendas, presentations, minutes, and public comments can be found on the LSAB website: www.marylandbiocenter.org

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|-------------------------|--|
| August 10, 2011 | <i>Meeting of the LSAB</i>
Glycomimetics
401 Professional Drive, Suite 250
Gaithersburg, MD |
| October 13, 2011 | <i>Meeting of the LSAB</i>
Science and Technology Park at Johns Hopkins
Rangos Bldg. 855 N. Wolfe Street
Baltimore, MD |
| May 2, 2012 | <i>Meeting of the LSAB</i>
Maryland Biotechnology Center
MD Department of Business & Economic Development
World Trade Center Baltimore |

Appendix C– BIO 2020 Strategic Plan Funding: 2010-2012

Investments in Maryland's Life Sciences Infrastructure (000)				
Program	2010	2011	2012	Total
Venture Capital Development				
Enterprise Investment Fund	0.95	0.55	1.20	2.70
InvestMaryland	0.00	0.00	11.65	11.65
MEDAAF	1.25	0.50		1.75
MIDFA		0.15		0.15
Sunny Day Fund				
Tax Credits				
Maryland Biotech Investment Incentive Tax Credit Program	6.00	8.00	8.00	22.00
R&D Tax Credit Program	6.00	6.00	6.00	18.00
Research and Development				
Center for Biosystems Research - UMCP			1.70	1.70
Institute for Bioscience and Biotechnology Research (IBBR)- UMCP, UMB			6.00	6.00
Maryland Stem Cell Research Fund	12.35	10.40	12.40	35.15
MIPS Operating Budget (UMCP)	0.39			0.39
MIPS Research Grants	2.52	4.20	(*TEDCO)	6.72
Nanotechnology Initiatives	0.33	0.00		0.33
University of Maryland Biotechnology Institute	46.96			46.96
Technology Transfer and Commercialization				
Biotech TechStart (TEDCO)	0.09			0.09
Maryland Biotechnology Center	4.69	3.79	3.63	12.11
Tech Transfer at USM			4.50	4.50
TEDCO Funding (includes technology transfer, commercialization funds, and MIPS)	3.39	3.46	*3.27	10.12
University Technology Development Fund (TEDCO)	0.34	0.20		0.54
Miscellaneous				
Partnership for Workforce Quality	0.49	0.07		0.57
Project Lead the Way			0.90	0.90
Programs Subtotal	85.75	37.32	59.25	182.31
Capital Projects				
Cecil CC Sciences Lab			2.15	2.15
College of Notre Dame of MD New Pharmacy School	3.50	0.00	0.00	3.50
Coppin State University Science & Technology Center	9.75	6.50		16.25
East Baltimore Biotechnology Park	5.00	5.00	2.50	12.50
Forensic Medical Center @ UMD BioPark	2.85			2.85
Frederick Community College Science/ Tech Hall	0.00	0.46	4.65	5.11
Greater Washington Life Sciences Fund	6.00			6.00
Howard CC Health Sciences Building	2.00	9.47	9.47	20.94
Howard CC Science, Engineering, and Technology Building	0.00	0.00	2.97	2.97
Montgomery College Rockville Science Center	1.01	4.24	6.21	11.46
Montgomery College/ Germantown Bioscience Education Center	16.10	16.10	0.00	32.20
Prince George's Community College Center for Health Studies	18.06	6.51		24.57
UMB Health Sciences Research Facility	0.00	0.00	4.00	4.00
UMB School of Pharmacy	13.70	2.61	0.00	16.31
UMBC Center of Marine Biology	0.00	0.00	0.21	0.21
UMCP Physical Sciences Complex	4.62	41.10	30.10	75.82
University Capital Projects Subtotal	68.74	85.49	62.24	216.46
All Capital Projects Subtotal	82.58	91.99	62.24	236.81
Totals	168.33	129.30	121.49	419.12