

R30B35
University of Maryland Biotechnology Institute
University System of Maryland

Operating Budget Data

(\$ in Thousands)

	<u>FY 02</u> <u>Actual</u>	<u>FY 03</u> <u>Approp</u>	<u>FY 04</u> <u>Allowance</u>	<u>FY 03 - 04</u> <u>Change</u>	<u>FY 03 - 04</u> <u>% Change</u>
General Funds	\$16,468	\$16,580	\$15,518	-\$1,061	-6.4%
FY 2003 Cost Containment	\$0	-\$1,061	\$0	\$1,061	
Adjusted General Funds	\$16,468	\$15,518	\$15,518	\$0	0.0%
Other Unrestricted Funds	\$7,858	\$11,796	\$9,882	-\$1,914	-16.2%
Total Unrestricted Funds	\$24,326	\$27,314	\$25,400	-\$1,914	-7.0%
Restricted Funds	\$16,298	\$17,300	\$17,598	\$298	1.7%
Adjusted Grand Total	\$40,624	\$44,614	\$42,998	-\$1,616	-3.6%

- The fiscal 2003 proposed general fund reduction for the University of Maryland Biotechnology Institute (UMBI) is \$1,061,350, or 6.4%, which is less than the average of 8% due to UMBI's inability to raise tuition revenue.
- The decline in other unrestricted funds is a reduction in the use of fund balance.

Personnel Data

	<u>FY 02</u> <u>Actual</u>	<u>FY 03</u> <u>Working</u>	<u>FY 04</u> <u>Allowance</u>	<u>Change</u>
Regular Positions	351.17	315.63	305.63	-10.00
Contractual FTEs	44.50	65.48	65.48	0.00
Total Personnel	395.67	381.11	371.11	-10.00

Vacancy Data: Regular Positions

Budgeted Turnover: FY 04	19.16	6.27%
Positions Vacant as of 09/31/02	17.00	5.39%

- The fiscal 2003 figure does not reflect the anticipated elimination of 10 regular positions due to cost containment.

Note: Numbers may not sum to total due to rounding.

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Analysis in Brief

Major Trends

Research Indicators Improve: The institution exceeded expectations with increases in extramural research funding and the number of patents issued.

Security Crises Affect K-12 Science and Technology Program: The attacks of September 11, 2001, and the Washington-area sniper shootings kept participation in the institution's K-12 science and technology education program low. The institution does not explain why it also lowered estimates for fiscal 2004.

Issues

A Transparent Budget Structure: Due to the specialized nature of the institution, UMBI funding is budgeted in only one program, Research. Several other budget programs appear to be relevant to UMBI, including Public Service, Institutional Support, and Plant operations and maintenance. Understanding the costs of public service, administration, and facilities is especially important as the State and institutions face budget constraints. **The Department of Legislative Service recommends the addition of budget narrative encouraging the institution to work with the University System of Maryland, the University of Maryland Center for Environmental Science, and the Department of Budget and Management to develop a means for increasing the transparency of expenditures related to administration, plant, and public service in the institution's budget, while minimizing any adverse impact on the institution's indirect cost recovery rate.**

Recommended Actions

1. Adopt committee narrative encouraging the University of Maryland Biotechnology Institute to develop a more transparent budget structure to make clear the cost of administration, public service, and facilities.

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University of Maryland Biotechnology Institute
University System of Maryland

Operating Budget Analysis

Program Description

The University of Maryland Biotechnology Institute (UMBI) aims to establish and nurture internationally recognized biotechnology research programs and to promote biotechnology-related economic development in Maryland. It does this through five interdisciplinary research centers at various locations throughout the State. As shown below, each center has a unique focus:

- **Center for Advanced Research in Biotechnology:** Founded in 1985 to study protein engineering, structure, and function; provides advanced technical capabilities to the biotechnology industry; located in Shady Grove, Montgomery County;
- **Center of Marine Biotechnology:** Founded in 1985; specializes in research in molecular biology, molecular genetics, bioprocess development of aquaculture fisheries, marine microbial products and processes, and marine pollution/environmental remediation; located at the Columbus Center in the City of Baltimore's Inner Harbor;
- **Medical Biotechnology Center:** Founded in 1986 to conduct medical biotechnology research and training; housed within the medical research facility at the University of Maryland Baltimore campus, City of Baltimore.
- **Center for Agricultural Biotechnology:** Founded in 1987 to apply research in molecular biology to fundamental agricultural and environmental problems; located at the University of Maryland, College Park campus, Prince George's County; and
- **Institute of Human Virology (IHV):** Founded in 1996 to combine basic research, epidemiology, clinical research toward the discovery of diagnostics, and therapeutics in human virology; housed within the medical research facility in Baltimore.

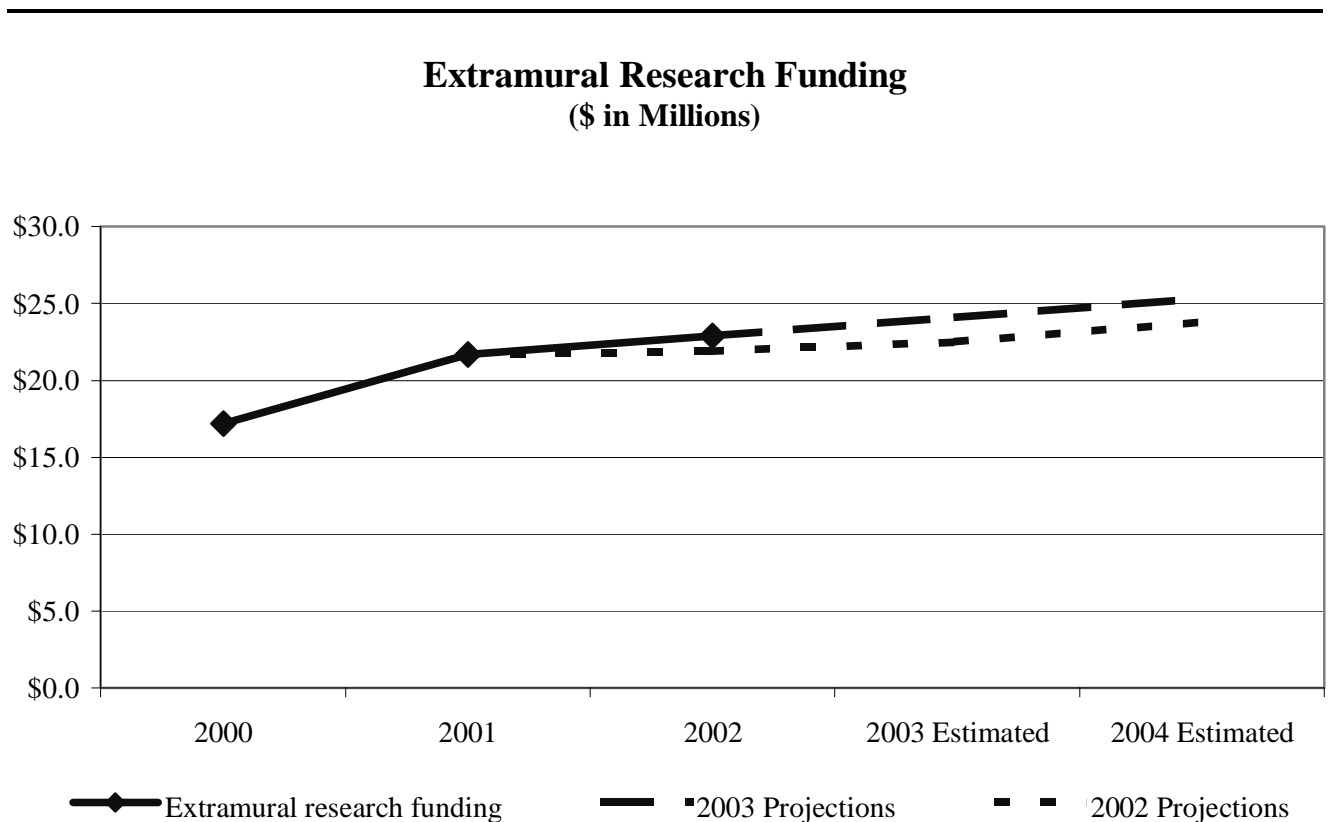
Building on its strength in research and economic development activities, UMBI aims to increase revenues from extramural funding sources.

In addition to its commitment to conducting research and serving as a catalyst for business development of the biotechnology industry in the State, UMBI aims to provide training for the biotechnology workforce and the next generation of scientists, improve access of minorities to bioscience education, and advance public knowledge of biotechnology related issues. Related to this goal, UMBI contributes to the education and training of students at all levels in the life sciences and biotechnology. Programs include hands-on K-16 science and technology education programming for teachers and students, internships, and VIRTUE – a collaborative virtual university program in the marine sciences with universities in Sweden and Norway. UMBI faculty members also teach and advise almost 200 degree-seeking students, postdoctoral trainees, and research trainees each year.

Performance Analysis: Managing for Results

Research is central to the mission of UMBI, and some research measures show marked improvement in fiscal 2002. As shown in **Exhibit 1**, the institution exceeded expectations for extramural research funding by about \$1 million, or 4.5%. It also revised estimates for fiscal 2003 and 2004 in anticipation of continued success. The increase in extramural funding in fiscal 2002 is related to a 17% increase in research proposals submitted by institution faculty and new research partnerships with other universities, such as Duke, Dartmouth, Columbia, and the University of Delaware. The Department of Legislative Services (DLS) commends the institution on establishing a new database system to track progress in seeking extramural funding. It will capture data such as the success rate of proposal submissions and changes in award size.

Exhibit 1

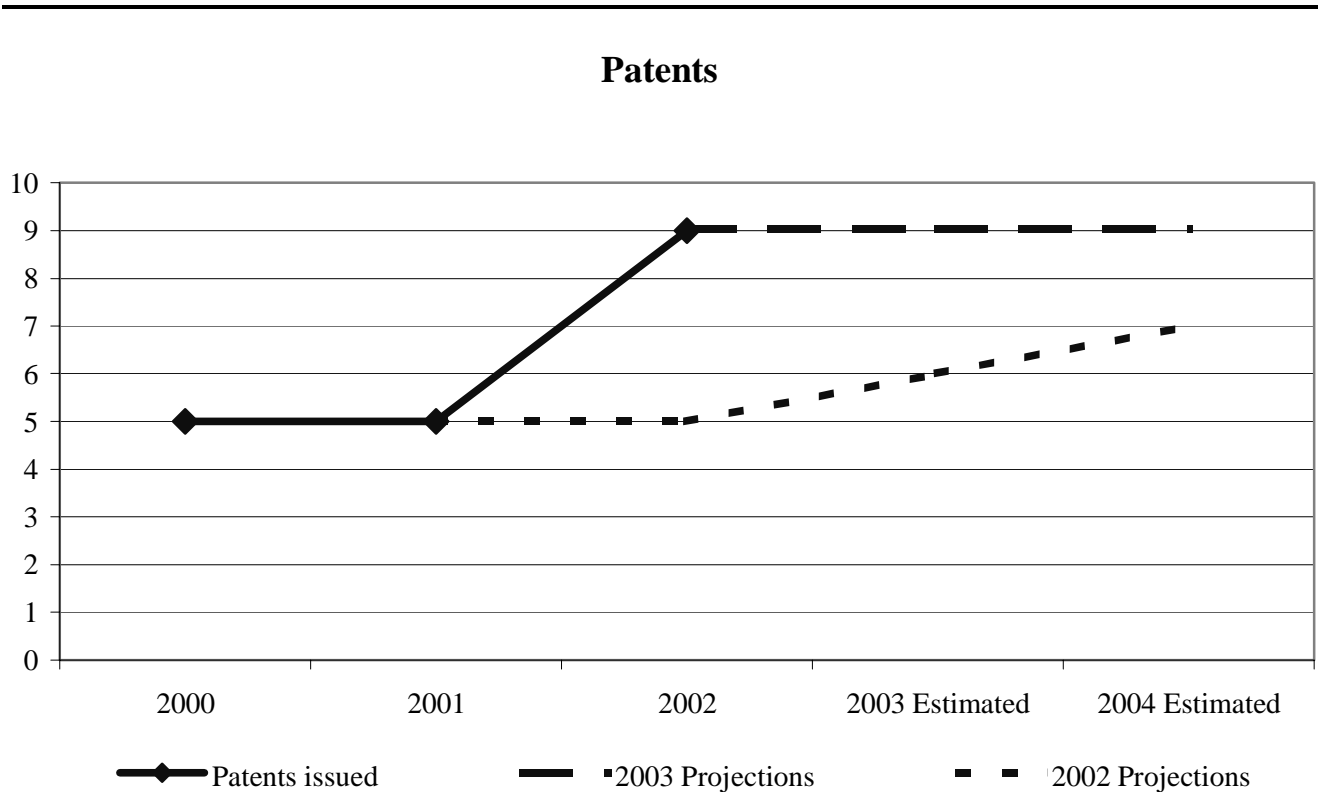


Source: Maryland State Budget, fiscal 2003 and 2004

Another research-related measure showing improvement in fiscal 2002 is the number of patents issued. As shown in **Exhibit 2**, the number of patents issued increased 80%, far exceeding expectations. The institution reports that the number of patents awarded in fiscal 2003 already exceeds the estimate. According to the institution, the increase can be attributed to:

- diligent follow up of patent prosecution by technology transfer office;
- more focused effort to educate faculty scientists about importance of protecting intellectual property;
- selection of appropriate law firms to ensure efficient patent prosecution;
- greater emphasis on collaborative projects among scientists (both within and outside UMBI), thereby increasing potential for new inventions; and
- maturation of more basic research projects to commercialization stages.

Exhibit 2

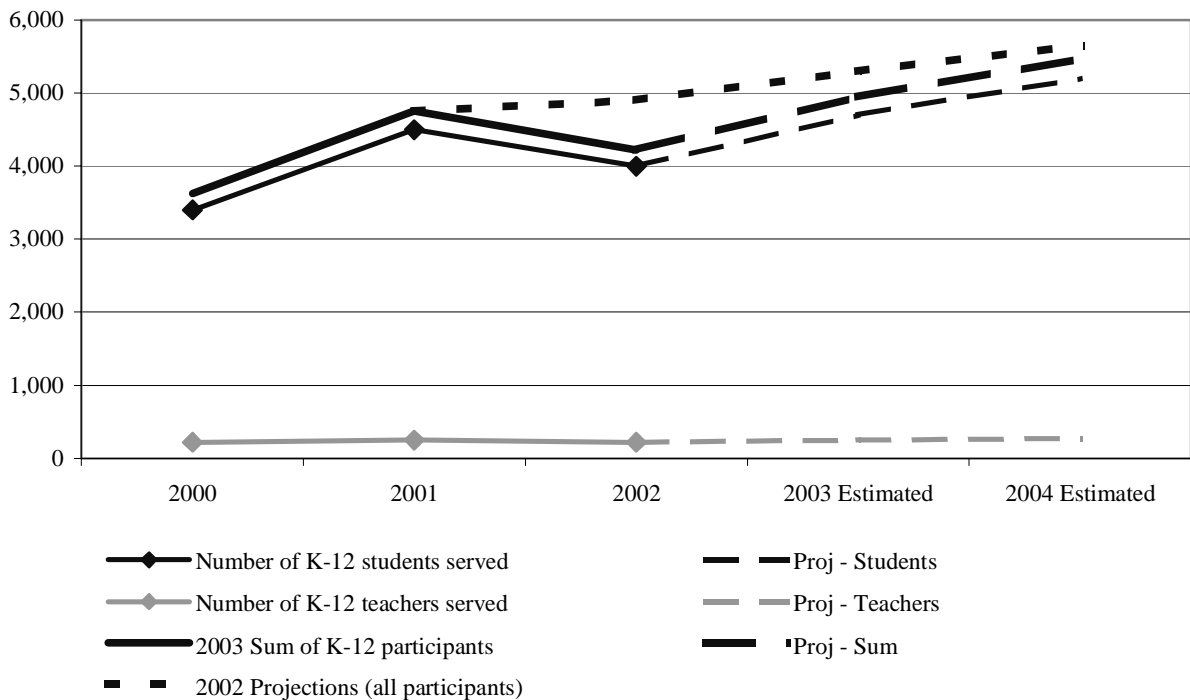


Source: Maryland State Budget, fiscal 2003 and 2004

The institution also has the goal to provide training for the next generation of scientists in biotechnology. Related to this goal, the institution reports the numbers of K-12 students and teachers participating in science and technology education programs. As shown in **Exhibit 3**, the institution did not meet its estimate in fiscal 2002 for the combined number of students and teachers participating, largely due to schools suspending field trips after September 11, 2001. It has also lowered its estimates for serving teachers and students in fiscal 2003 and 2004. In 2003 some decline is attributable to cancelled field trips in fall 2002 due to the Washington-area sniper attacks. **DLS recommends that the president comment on why the institution lowered 2004 estimates for K-12 students and teachers participating in the programs.**

Exhibit 3

**Participation in Science and Technology Education Programs
Estimated Number of K-12 Students and Teachers**



Note: In previous years, the institution has reported participation in science and technology education programs as the combined total of K-12 students and teachers. From this year forward, the measures will be reported separately.

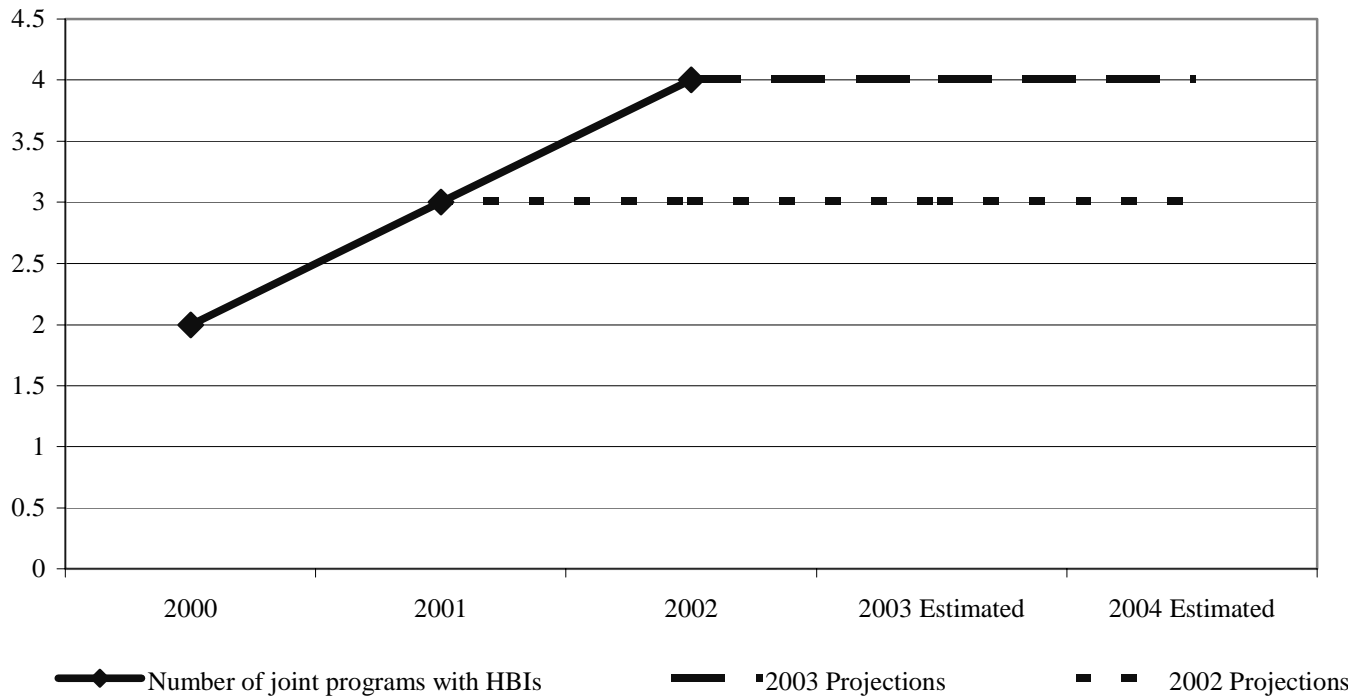
Source: Maryland State Budget, fiscal 2003 and 2004

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Related to its goal of improving access of minorities to bioscience education, the institution conducts joint programs in biotechnology-related fields with Maryland’s historically black institutions. As shown in **Exhibit 4**, in fiscal 2002 UMBI added one more program to three existing ones.

Exhibit 4

Joint Programs with Historically Black Institutions



Source: Maryland State Budget, fiscal 2003 and 2004

Fiscal 2003 Actions

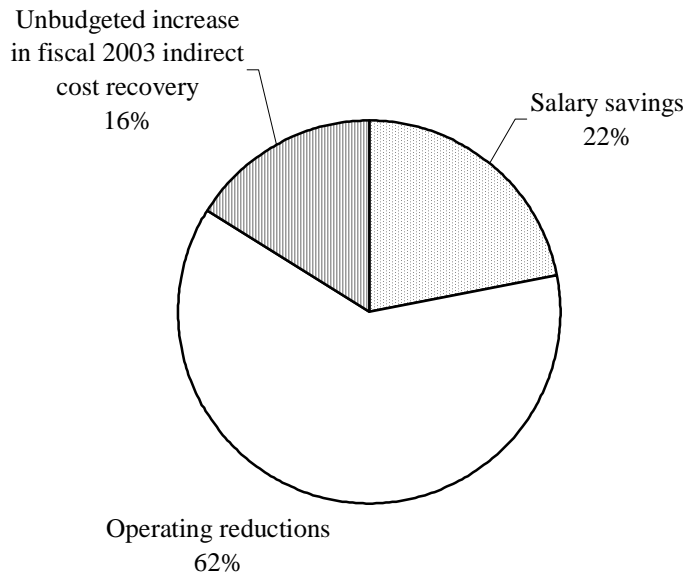
Impact of Cost Containment

Through the combined cost containment proposals of the previous and current administrations, general fund support for UMBI will decline \$1,061,350, or 6.4% in fiscal 2003. The percentage reduction to UMBI is less than the average of 8% for institutions other than the historically black institutions. The Board of Regents allocated smaller reductions to the components of the system that cannot generate tuition and fee revenue.

Exhibit 5 illustrates the contribution of various strategies to address the reduction in general funds in fiscal 2003. The institution will use spending reductions to address 84% of cost containment and additional revenue to address the remaining 16%. Salary savings are the result of turnover and other adjustments. Operating savings include reductions to travel, printing and publication, technology transfer, supplies and materials, and staff development, as well as delaying planned upgrades to information technology infrastructure. Finally, the institution will use \$171,482 of unbudgeted indirect cost recovery revenue.

Exhibit 5

Fiscal 2003 Cost Containment Measures
\$1,061,350



Source: University of Maryland Biotechnology Institute

Governor's Proposed Budget

The allowance for fiscal 2004 continues fiscal 2003 levels of general fund support, providing no increase in general funds. (See **Exhibit 6.**)

The allowance does not assume growth in other unrestricted funds, as this institution anticipates using budget amendments as necessary to increase appropriations during the year. The allowance does assume a 1.7% increase in each source of restricted funds, including federal, private, and State and local grants and contracts.

Exhibit 6

**Governor's Proposed Budget
University of Maryland Biotechnology Institute
(\$ in Thousands)**

	<u>FY 02</u> <u>Actual</u>	<u>FY 03</u> <u>Approp</u>	<u>FY 04</u> <u>Allowance</u>	<u>FY 03 - 04</u> <u>Change</u>	<u>FY 03 - 04</u> <u>% Change</u>
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Adjusted General Funds	\$16,468	\$15,518	\$15,518	\$0	0.0%
Other Unrestricted Funds	\$7,858	\$11,796	\$9,882	-\$1,914	-16.2%
Total Unrestricted Funds	\$24,326	\$27,314	\$25,400	-\$1,914	-7.0%
Restricted Funds	\$16,298	\$17,300	\$17,598	\$298	1.7%
Adjusted Grand Total	\$40,624	\$44,614	\$42,998	-\$1,616	-3.6%

Where It Goes:

Personnel Expenses

Personnel savings	-\$948
Employee and retiree health insurance.....	970

Other Changes

Fiscal 2003 spending is understated because unbudgeted indirect cost recovery is not included	171
Contractual services savings	-1,140
Utilities savings	-528
Instructional supplies and equipment.....	-76
Office, building, and administrative supplies	-59
Travel.....	-5

Total	-\$1,616
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Note: Numbers may not sum to total due to rounding.

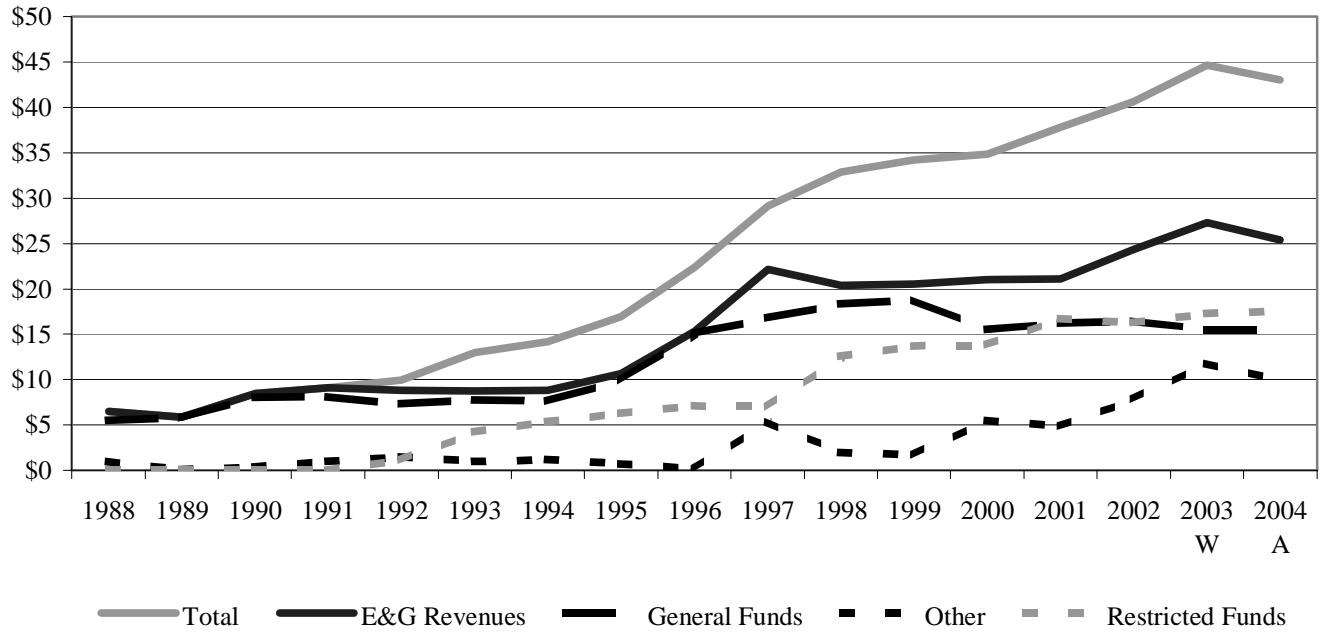
Unrestricted and Restricted Revenues

Exhibit 7 shows the unrestricted and restricted revenues of UMBI. As a research institution, UMBI does not operate auxiliary enterprises, so all its unrestricted funds are Education and General (E&G) funds. E&G funds can be used to examine the primary, mission-related, operating revenues of an institution, excluding restricted funds over which the institution has little or no discretion. As shown in Exhibit 7, the unrestricted fund revenues at UMBI have increased but not steadily over time. Until 1997, general fund support provided almost all unrestricted funds at the institution. The marked increase in general funds in 1996 and marked decrease in fiscal 2000 are related to the provision and later discontinuation of start-up funds for IHV. Without that factor, the general fund support trend would appear smoother. General fund support has increased an average of 4.8% per year since 1990. Other unrestricted funds have increased since 1997. Much of the fluctuation in other unrestricted funds is due to transfers to and from fund balance.

Restricted funds attributable to research grants and contracts are important revenues to the institution. The institution had virtually no restricted fund revenue prior to 1993. After a large increase in restricted fund revenue in fiscal 1997, restricted funds have grown steadily. On average, restricted funds have grown 13.8% per year since fiscal 1993.

Exhibit 7

Unrestricted and Restricted Funds
(\$ in Millions)



W - Working appropriation adjusted for cost containment.
A - Allowance.

Source: Maryland State Budgets, fiscal 1990 through 2004; University System of Maryland

Issues

1. A Transparent Budget Structure

Due to the specialized nature of the institution, UMBI funding is budgeted in only one program, Research. Its expenditures and employees, regardless of their function, are considered part of the Research program.

Several other budget programs appear to be relevant to UMBI. For example, the institution has made a commitment to its K-12 science and technology education programs. They are outreach and education programs and do not further research. In another institution, they might be in the Public Service program. Second, the institution has five research centers across the State. The operation and maintenance of UMBI's laboratories and other facilities would fall under the Plant program at any other institution. Finally, the institution has leadership, administrative, and fiscal staff. At any other institution, that general administration activity would be considered Institutional Support.

Classifying positions and expenditures related to public service, administration, and facilities as research obscures the institution's true overhead costs, prevents a thorough examination of the institution's budget, and may skew systemwide analyses. The implications of the State's investment in facilities, such as the new building for the Center for Advanced Research in Biotechnology at Shady Grove, and the challenge of providing operating support to open new buildings would be more apparent if the institution used the Plant budget program. Understanding the costs of public service, administration, and facilities is especially important as the State and institutions face budget constraints.

In some cases, an exclusively Research program budget provides an advantage in the negotiation of indirect cost recovery rates on federal grants. According to the institution, this consideration is less important for UMBI as its indirect cost recovery rates are generally linked to those of the University of Maryland, Baltimore or the University of Maryland, College Park.

DLS recommends the addition of budget narrative encouraging the institution to work with the University System of Maryland, the University of Maryland Center for Environmental Science, and the Department of Budget and Management to develop a means for increasing the transparency of expenditures related to administration, plant, and public service in the institution's budget, while minimizing any adverse impact on the institution's indirect cost recovery rate.

Recommended Actions

1. Adopt the following narrative:

Institution Budget Structure: Due to the specialized nature of the institution, the University of Maryland Biotechnology Institute (UMBI) funding is budgeted in only one program, Research. Several other budget programs appear to be relevant to UMBI, including Public Service, Plant, and Institutional Support. Understanding the costs of public service, facilities, and administration is especially important as the State and institutions face budget constraints; however, using all relevant budget programs may reduce the basis of the institution's current indirect cost recovery rate. The committees encourage the institution to work with the University System of Maryland, the University of Maryland Center for Environmental Science, and the Department of Budget and Management to develop a means for increasing the transparency of expenditures related to administration, plant, and public service in the institution's budget, while minimizing any adverse impact on the institution's indirect cost recovery rate.

Current and Prior Year Budgets

Current and Prior Year Budgets University of Maryland Biotechnology Institute (\$ in Thousands)

	<u>General Fund</u>	<u>Other Unrestricted Fund</u>	<u>Total Unrestricted Fund</u>	<u>Restricted Fund</u>	<u>Total</u>
Fiscal 2002					
Legislative Appropriation	\$16,705	\$5,733	\$22,438	\$15,042	\$37,481
Deficiency Appropriation	0	0	0	0	0
Budget Amendments	0	3,803	3,803	2,258	6,061
Reversions and Cancellations	-237	-1,679	-1,916	-1,002	-2,918
Actual Expenditures	\$16,468	\$7,858	\$24,326	\$16,298	\$40,624
Fiscal 2003					
Legislative Appropriation	\$16,580	\$7,129	\$23,709	\$17,300	\$41,009
Budget Amendments	0	4,667	4,667	0	4,667
Cost Containment	-1,061		-1,061		-1,061
Working Appropriation	\$15,518	\$11,796	\$27,314	\$17,300	\$44,614

Note: Numbers may not sum to total due to rounding.

Fiscal 2002

In fiscal 2002 UMBI expended \$3.1 million more than its legislative appropriation. The institute added about \$6 million to its spending authority through budget amendments. Budget amendments added unrestricted funds from carry forward from previous years (\$3.2 million), indirect cost recovery (\$500,000), and educational activities. The unrestricted fund budget was reduced by \$237,248 in general funds due to cost containment and hiring freeze savings. Other unrestricted fund cancellations reflect approximately \$365,000 from start-up faculty packages, approximately \$250,000 due to lower than expected educational activities revenue, and \$1.1 million due to delays in starting new research initiatives. (UMBI is concerned with the uncertainty of State general fund support in fiscal 2003 and 2004.)

Budget amendments added restricted funds from contracts and grants. UMBI canceled approximately \$1 million in restricted funds due to slower than anticipated contract and grant activity in the beginning of the fiscal year.

Fiscal 2003

In fiscal 2003 the institution experienced a general fund reduction of almost \$1.1 million due to cost containment. It has increased other unrestricted funds by \$4.7 million through budget amendment. The increase is due to increased indirect cost recovery (\$1.6 million) and the use of fund balance related to faculty start-up packages (\$3.1 million).

Object/Fund Difference Report
USM - University of Maryland Biotechnology Institute

<u>Object/Fund</u>	<u>FY 02 Actual</u>	<u>FY 03 Working Appropriation</u>	<u>FY 04 Allowance</u>	<u>FY 03 - FY04 Amount Change</u>	<u>Percent Change</u>
Positions					
01 Regular	351.17	315.63	305.63	-10.00	-3.2%
02 Contractual	44.50	65.48	65.48	0	0%
Total Positions	395.67	381.11	371.11	-10.00	-2.6%
Objects					
01 Salaries and Wages	\$ 23,113,385	\$ 23,844,318	\$ 23,634,554	-\$ 209,764	-0.9%
02 Technical & Spec Fees	312,444	232,710	232,710	0	0%
03 Communication	471,741	439,810	342,409	-97,401	-22.1%
04 Travel	469,838	629,252	598,500	-30,752	-4.9%
06 Fuel & Utilities	1,461,425	1,608,900	1,537,863	-71,037	-4.4%
07 Motor Vehicles	108,963	10,192	6,593	-3,599	-35.3%
08 Contractual Services	6,538,328	10,715,964	8,710,064	-2,005,900	-18.7%
09 Supplies & Materials	5,527,432	5,962,121	5,741,812	-220,309	-3.7%
10 Equip - Replacement	0	223,520	223,520	0	0%
11 Equip - Additional	1,675,490	1,219,780	1,163,847	-55,933	-4.6%
12 Grants, Subsidies, Contr	589,494	266,900	264,400	-2,500	-0.9%
13 Fixed Charges	315,503	521,917	542,066	20,149	3.9%
14 Land & Structures	39,720	0	0	0	0.0%
Total Objects	\$ 40,623,763	\$ 45,675,384	\$ 42,998,338	-\$ 2,677,046	-5.9%
Funds					
40 Unrestricted Fund	\$ 24,325,665	\$ 28,375,384	\$ 25,400,038	-\$ 2,975,346	-10.5%
43 Restricted Fund	16,298,098	17,300,000	17,598,300	298,300	1.7%
Total Funds	\$ 40,623,763	\$ 45,675,384	\$ 42,998,338	-\$ 2,677,046	-5.9%

Note: Fiscal 2003 appropriations and fiscal 2004 allowance do not include cost containment and contingent reductions.

Fiscal Summary
USM - University of Maryland Biotechnology Institute

<u>Unit/Program</u>	<u>FY 02 Actual</u>	<u>FY 03 Legislative Appropriation</u>	<u>FY 03 Working Appropriation</u>	<u>FY 02 - 03 % Change</u>	<u>FY 04 Allowance</u>	<u>FY 03 - 04 % Change</u>
02 Research	\$ 40,623,763	\$ 41,008,781	\$ 45,675,384	12.4%	\$ 42,998,338	-5.9%
Total Expenditures	\$ 40,623,763	\$ 41,008,781	\$ 45,675,384	12.4%	\$ 42,998,338	-5.9%
Unrestricted Fund	\$ 24,325,665	\$ 23,708,781	\$ 28,375,384	16.6%	\$ 25,400,038	-10.5%
Restricted Fund	16,298,098	17,300,000	17,300,000	6.1%	17,598,300	1.7%
Total Appropriations	\$ 40,623,763	\$ 41,008,781	\$ 45,675,384	12.4%	\$ 42,998,338	-5.9%

Note: Fiscal 2003 appropriations and fiscal 2004 allowance do not include cost containment and contingent reductions.