



November 2006

Report No. 06-71

## Florida Has Implemented Promising Biotechnology Initiatives, But Faces Challenges

### *at a glance*

In recent years, Florida has aggressively pursued developing the state's biotechnology industry using a multi-faceted approach. This approach has included recruiting major biotechnology research institutes such as Scripps Florida, the Burnham Institute, and the Torrey Pines Institute, as well as promoting the development of existing biotechnology companies through research and commercialization activities at state research universities and by establishing business incubators.

Florida's initiatives hold great promise and address many of the identified factors that have contributed to successful biotechnology development programs in other states. However, Florida faces some challenges in developing a strong biotechnology industry, including limited early stage capital for new start-up biotechnology companies. The Legislature may wish to consider creating a privately managed early stage capital fund that invests in start-up biotechnology companies similar to those administered by other states. If the Legislature decides to create such a program, it should require the entity administering the program to establish performance measures and standards and routinely provide performance reports.

Further, Florida lacks comprehensive information on the overall costs and effectiveness of its biotechnology initiatives. The Legislature should make Enterprise Florida, Inc., responsible for preparing a statewide performance report on the various initiatives' costs and effectiveness.

### Scope

As requested by the Legislature, OPPAGA reviewed the state's role in supporting economic development through biotechnology research and commercialization programs. Specifically, this report addresses the status of state-supported initiatives for developing its biotechnology industry, challenges faced by the state in developing the industry, and steps the Legislature could consider in addressing these challenges.

### Background

Biotechnology refers to the use of cellular and molecular processes in solving problems and developing products. Advances in biotechnology processes and products have many applications, such as better diagnosing and treating human diseases and improving agricultural crops.

In recent years, Florida has aggressively pursued developing a strong biotechnology industry. This effort is viewed as offering a means to diversify the state's economy, which has been heavily dependent on tourism and service industries, and to create a source of high skill, high wage jobs. Workforce Florida, Inc., estimated that the annual average wage in 2005 for Florida employees in the pharmaceutical and medical manufacturing sector was \$55,501 compared to \$36,069 for other private sector jobs.

## Status of State-Supported Biotechnology Initiatives —

Recent studies of the biotechnology industry and industry experts have identified several factors that are considered key to developing a strong biotechnology industry within a state. These key factors include

- higher education institutions and medical schools with strong research capacities supported by research grants from federal entities;
- research facilities with a successful record of converting biotechnological research into commercial products;
- adequate equipment and facilities, including wet-lab space and specialized equipment;
- workforce initiatives that train employees with the skills and knowledge needed to work in biotechnology companies; and
- ready access to capital, especially in the early stage of business development

In recent years, Florida has implemented several state-supported biotechnology research and commercialization initiatives that address many of these factors. These initiatives include

- recruiting major biotechnology research institutes to the state;
- strengthening university-based biotechnology research and commercialization activities;
- establishing business incubators to support new biotechnology companies in their early development;
- designating biotechnology as a high-impact industry for the state;
- establishing educational programs to provide employees for biotechnology-related businesses; and
- marketing Florida as a hub for life science research and business development. Life sciences include biotechnology, health care, medical devices, and pharmaceuticals.

The status of these initiatives is described below.

### *Recruiting major biotechnology research institutes*

To help spur the development of a strong biotechnology industry, the state has offered substantial financial incentives to established biotechnology research institutes and centers to induce them to locate in Florida.

**Scripps Florida.** In October 2003, the Legislature appropriated \$310 million to be used to pay for scientific equipment and staff salaries for the Scripps Florida Research Institute (Scripps Florida) during its first seven years of operation. Scripps Florida is a branch of the Scripps Research Institute, a non-profit, biomedical research organization headquartered in La Jolla, California. Scripps Florida is to focus on conducting biomedical research to discover treatments for diseases such as AIDS, Alzheimer's disease, cancer, diabetes, hepatitis C, and schizophrenia.

Scripps Florida is currently operating in temporary facilities at Florida Atlantic University's campus in Jupiter, Florida. In May 2006, the county, the state, and Scripps Research Institute approved a proposal to build a permanent facility at a site in Jupiter. The Scripps facility should be ready for occupancy by the first quarter of 2009.

Although Scripps Florida has been operating for only a short period of time, it has produced some promising early results. As of June 2006, Scripps Florida reportedly received 22 grants totaling over \$13 million from the federal government and other sources, and created 180 jobs. Stakeholders expect that Scripps Florida will further contribute to the state's economic development as biotechnology companies, technology incubators, and venture capital firms cluster around it in the future.<sup>1</sup>

**Burnham Institute for Medical Research.** In August 2006, the Burnham Institute for Medical Research (Burnham Institute), a private non-profit medical research institute headquartered in La Jolla, California, announced plans to open a research facility in Orlando. The Burnham Institute received \$155 million in state incentive

<sup>1</sup> See OPPAGA report *Scripps Funding Corporation Meets State's Statutory and Contractual Requirements*, [Report No. 06-61](#), September 2006, for a review of the economic impact of the state's expenditures on Scripps Florida.

funds provided through Innovation Incentive Program created by Ch. 2006-55, *Laws of Florida*.

Torrey Pines Institute for Molecular Studies. The Torrey Pines Institute for Molecular Studies is a private non-profit research center dedicated to conducting basic research to advance the understanding of human disease and the improvement of human health. In September 2006, the Torrey Pines Institute announced plans to expand its research operations to the City of Port St. Lucie. The institute received \$32 million in state incentive funds.

### ***State support for Florida's research universities and centers***

In addition to recruiting established biotechnological research institutes, the state is supporting initiatives to develop biotechnology companies through research and commercialization activities at state research universities.

Centers of Excellence. In 2003, the Florida Legislature created three Centers of Excellence to increase technology research at state universities and to help diversify the state's economy by stimulating the high-tech economic job sector. Two of these three centers concentrate on biotechnology related research and technology commercialization activities.<sup>2</sup>

- The Center of Excellence in Biomedical and Marine Biotechnology at Florida Atlantic University works in partnership with industry

<sup>2</sup> The other center of excellence, the Florida Photonics Center of Excellence at the University of Central Florida, conducts research and educational activities on nanophotonics, biophotonics, advanced imaging and 3D displays, and ultra-high bandwidth communications technologies.

to discover, develop, and commercialize new medicines from Florida's natural marine resources. As of September 2006, this center reported receiving \$29.1 million in grant awards and \$150,000 in licensing income since its inception. It also had obtained 23 patents, licensed 23 technologies, and helped create four start-up companies.

- The Center of Excellence for Regenerative Health Biotechnology at the University of Florida conducts research and facilitates clinical studies leading to the commercialization of new medicines. As of June 2006, this center reported receiving \$24.4 million in grant awards since its inception.

Each of these centers was allocated \$10 million in Fiscal Year 2003-04 to support its operations.

University technology transfer offices. Florida's state universities have created technology transfer offices that are responsible for facilitating the commercialization of faculty research, including the research conducted at the centers of excellence. Staff of these offices assist university faculty in disclosing their inventions, assessing the patentability and marketability of the technologies, filing patents, and licensing the technologies to private companies. Licensing of technologies can generate income for both the university and the researchers. Exhibit 1 shows that the number of agreements executed with start-up companies and the number of licenses generating revenue entered into by Florida public and private technology transfer offices has increased over the last five fiscal years.

### **Exhibit 1**

#### **State Universities' Technology Transfer Offices Have Facilitated Commercialization of Technologies<sup>1</sup>**

	2000-01	2001-02	2002-03	2003-04	2004-05
Invention Disclosures	426	441	552	616	687
Patents Issued	119	123	119	127	132
Agreements Executed with Start-Up Companies	18	9	17	31	22
Licenses Generating Revenue	169	197	236	270	321
License Income (in millions)	\$92	\$86	\$57	\$53	\$44

<sup>1</sup> Results include both public universities (Florida A & M University, Florida Atlantic University, Florida Gulf Coast University, Florida International University, Florida State University, University of Central Florida, University of Florida, University of North Florida, University of South Florida, University of West Florida) and private universities (University of Miami and Florida Institute of Technology).

Source: Association of University Technology Managers.

These results are for all technologies licensed by universities and are not limited to the biotechnology area (see Appendix A for available data on university technology transfer activities related to biotechnology). License income has decreased over the years as significant individual license agreements have matured.<sup>3</sup>

### ***Business incubators***

State universities have established business incubators that can support biotechnology companies in their early development. The incubators charge startup companies competitive rents that cover their office space costs, and allow them to share specialized equipment, and wet laboratories.<sup>4</sup> This allows the companies to lower their operating costs and access needed services. The incubators also provide marketing and business development support to these companies.

Three university-affiliated business incubators provide support to start-up biotechnology companies.

- The University of Florida's Sid Martin Biotechnology Development Incubator located in the City of Alachua offers occupants wet labs, office space, conference rooms, a pilot fermentation facility, a small animal facility, a climate controlled greenhouse and extensive scientific and business equipment and support services. This incubator reported having 11 tenant companies.
- The University of South Florida's Tampa Bay Technology Incubator located in Tampa serves all types of technology companies. However, it also provides office and laboratory space designed for biotechnology and life sciences research, and offers professional advice to start up companies. This incubator reported having 16 tenant companies, several of which conduct biotechnology research.
- The University of Central Florida has a 70,000 square foot technology incubator located in Orlando that provides a variety of services

including access to university faculty, labs, library, and support organizations. This incubator reported having 46 tenant companies, of which 6 are biomedical companies.

### ***High-impact industry designation***

In 2002, biotechnology was identified as a high impact industry by Enterprise Florida, Inc. Florida law provides for qualified biotechnology companies to take advantage of state incentives such as the Capital Investment Tax Credit and High Impact Performance Incentive Grants.

The Capital Investment Tax Credit is an annual credit provided for up to 20 years against a company's Florida state corporate income tax liability. The credit is equal to 5% of the eligible capital costs generated. In order to qualify for this tax credit, a company must apply to Enterprise Florida, Inc., and be certified by the Governor's Office of Tourism, Trade, and Economic Development (OTTED) prior to the commencement of its operations. It also must create a minimum of 100 jobs and invest at least \$25 million in eligible capital costs during the period from the beginning of construction to the commencement of operations. The annual tax credit may not exceed the following percentages of annual corporate income:

- 100% for a project with a cumulative capital investment of at least \$100 million;
- 75% for a project with a cumulative capital investment of at least \$50 million but less than \$100 million; and
- 50% for a project with a cumulative capital investment of at least \$25 million but less than \$50 million.

As of September 2006, three biotechnology companies had their applications for certification approved by OTTED's director. These companies planned to invest a total of \$207 million in their projects and could potentially receive tax credits in that amount over the next 20 years. However, the actual amount of credits received will depend on the companies' profitability and tax liabilities. The three companies are expected to create at least 575 jobs.

<sup>3</sup> For example, Florida State University had received significant income from its licensing of the cancer-fighting drug Taxol process in prior years. However, the university reported that it received no royalties from Taxol in Fiscal Year 2005-06.

<sup>4</sup> Wet laboratories are laboratories where chemicals or other materials are tested and analyzed. These laboratories have specialized plumbing and ventilation systems.

The High Impact Performance Incentive Grant is a negotiated grant used to attract and grow major high impact facilities. In order to qualify for a grant, an applicant must be recommended by Enterprise Florida, Inc., and approved by OTTED's director. It must also create at least 100 new full-time jobs in Florida in a three-year period and make a cumulative investment of at least \$100 million. If the applicant is a research facility, it must create 75 full-time jobs and make a cumulative investment of \$75 million in order to qualify for the grant. An approved applicant will be awarded 50% of the eligible grant upon commencement of its operations with the balance of the grant awarded once its employment and capital investment goals are met. The amount of the grants can vary depending on the amount of capital invested and number of jobs created by a company. For example, a qualified business making a cumulative investment of \$100 million and creating 100 jobs may be eligible for a total grant of \$1 million to \$2 million while a qualified high impact business making a cumulative investment of \$800 million and creating 800 jobs may be eligible for a qualified high-impact business performance grant of \$10 million to \$12 million.

As of September 2006, no biotechnology companies have received High Impact Performance Incentive Grants.

### ***Workforce training initiatives***

Five community colleges have established biotechnology curriculum programs to train students to work for biotechnology companies.<sup>5</sup> For example, the Santa Fe Community College trains students to perform the duties of a biotechnician, including making chemical reagents, operating scientific equipment, and performing biochemical analyses. Graduates who earn an Associate of Science degree are prepared to seek entry-level employment as biotechnicians. Since 2000, the program has enrolled 166 students, of whom 25 have graduated with an Associate of Science degree in Biotechnology and 54 are currently enrolled in program classes. Graduates have obtained employment at the University of

Florida, Santa Fe Community College, and local biotech companies.

### ***Marketing activities***

Enterprise Florida, Inc., the state's economic development organization, has implemented several efforts to market Florida as a life science hub, including

- promoting the state in print and radio media;
- using direct mail and e-marketing campaigns to contact 50,000 life sciences companies;
- promoting the state at national and international biotechnology-related conferences; and
- co-sponsoring in-state biotechnology meetings and conferences.

Enterprise Florida, Inc., reported that its marketing program has generated 392 life science company leads since January 2004. It also contends that the marketing programs have improved Florida's image as a state that strongly supports its life sciences sector.

### ***Initiatives enacted by the 2006 Legislature expand state-supported biotechnology initiatives***

The 2006 Legislature passed several laws that created new initiatives or expanded existing programs to help develop Florida's biotechnology industry.

The 21st Century Technology, Research, and Scholarship Enhancement Act, Ch. 2006-58, *Laws of Florida*, created the 21st Century World Class Scholars Program to provide state matching funds to attract principal researchers or investigators who have high academic credentials and demonstrated competence to Florida's research universities or centers. The law appropriated \$20 million to this program.

The act also allowed for the creation or expansion of centers of excellence that foster and promote the research required to develop commercially-promising, advanced, and innovative science and technology and to transfer those discoveries to commercial sectors. Applicants for these centers may include state universities; private universities; the Moffitt Cancer Center; the Florida Institute for Human and Machine Cognition; and any community college, training center or other public

<sup>5</sup> The five community colleges that offer biotechnology curriculum are Edison College, Florida Community College at Jacksonville, Palm Beach Community College, Santa Fe Community College, and Tallahassee Community College.



or private research center in the state that coordinates with a state university. The law appropriated \$30 million to this program.

Finally, the act created the State University System Research and Economic Development Investment Program to provide matching funds to eligible institutions to construct and acquire research facilities and specialized equipment to support research and foster economic development. The law appropriated \$45 million to this program. The Board of Governors of the State University System approved these funds to Florida State University, University of Florida, and the University of South Florida on September 21, 2006.

The 2006 Legislature also created the Innovation Incentive Program (Ch. 2006-55, *Laws of Florida*) to provide resources for significant economic development projects. These projects could include the location or expansion of research and development entities and innovation businesses in Florida. The Legislature appropriated \$200 million from the General Revenue Fund to the Economic Development Trust Fund within the Office of Tourism, Trade, and Economic Development (OTTED) for the Innovation Incentive Program in Fiscal Year 2006-07. The Burnham Institute for Medical Research will receive \$155 million from this program as an incentive for opening a research facility in Orlando, and the Torrey Pines Institute for Molecular Studies will receive \$24.7 million. As a result, approximately \$20 million will be available to provide incentives to other entities under this program.

## Florida Faces Challenges in Developing Its Biotechnology Industry —

Florida's state-supported biotechnology initiatives hold great promise. However, the state faces some critical challenges, most notably,

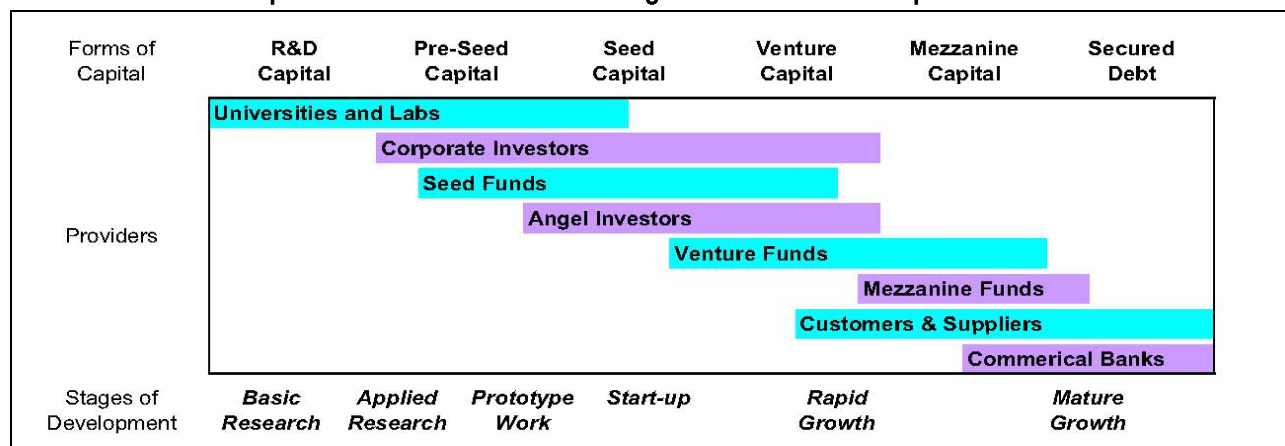
- addressing the lack of early stage capital for new start-up biotechnology companies and
- maintaining a long-term commitment to developing a strong biotechnology industry.

### *Florida lacks early stage capital for start-up biotechnology companies*

A major concern facing start-up biotechnology companies in Florida is obtaining capital to support their initial operations. Such funding helps companies to conduct initial proof of concept activities and demonstrate that products are feasible. Exhibit 2 shows the different forms of capital needed at various stages of biotechnology product development and commercialization.

Start-up companies in Florida have historically had difficulty in attracting early stage capital. For example, according to a report by PricewaterhouseCoopers, seed and start-up capital investments obtained by Florida companies totaled \$6 million in 2005, which represented only 0.7% of the amount invested nationally.

**Exhibit 2**  
**Different Forms of Capital Are Needed at Various Stages of Product Development**



Source: National Association of Seed and Venture Funds.

In contrast, seed and start-up capital obtained by companies in California and Massachusetts represented 29.5% and 6.6% of the amount invested nationally, respectively.

To help address this concern, Enterprise Florida, Inc., has established a pilot program to help start-up companies increase their chances of receiving federal Small Business Innovation Research and Small Business Technology Transfer grants that are designed to help companies develop and commercialize their products. Enterprise Florida, Inc., is providing grants in amounts up to \$2,500 to incubator clients and university licensees to fund proposal development. Enterprise Florida, Inc., reports awarding grants to nine companies since the pilot program's inception in November 2005. Three of the nine grants were awarded to biotechnology-related companies.

Other states have implemented various programs specifically designed to help provide early stage capital to start-up companies as described below.

- Investing in individual companies. For example, Maryland's Enterprise Fund provides direct investments to "early-stage" technology-driven businesses in the state.
- Investing in privately managed, geographically restricted funds. For example, Ohio has established a program that provides funds to investment firms that invest in in-state companies.
- Offering state tax credit incentives for private investment in start-up companies. For example, Wisconsin's Angel Investment Tax Credit Program allows angel investors and angel investor networks that invest in qualified new business ventures to claim state income tax credits on such investments.<sup>6</sup>
- Establishing a fund to assist public and private universities and research institutions to help researchers further develop their discoveries into marketable products. For example, Michigan's Wayne State University's Invention

<sup>6</sup> Angel investors are affluent individuals who provide capital for business start-ups, usually in exchange for an equity stake. Networks of angel investors have been established in several areas in Florida to provide seed and early stage capital. The amount of investment in the early stage ranges from \$500,000 to \$2 million, which is lower than typical venture capital companies investments of \$5 million to \$7 million.

Development Fund provides grants from \$5,000 to \$15,000 to researchers.

A May 2006 report by the National Association of Seed and Venture Funds found that successful state government-operated or state-sponsored funds generally have the characteristics discussed below.<sup>7</sup>

- State leaders took the initiative to establish the program and helped set a long-term direction.
- Investment managers made day-to-day decisions with a strong understanding of the business and venture capital community.
- Sufficient funds were provided to make a difference in providing early-stage capital to start-up companies.
- Performance measures and realistic standards for evaluating the program's effectiveness were established and results routinely reported to policymakers.

The Legislature may wish to consider creating a privately managed early stage capital fund that invests in start-up biotechnology companies in Florida. The fund could be designed to provide early stage funding directly to start-up biotechnology companies or invest directly in a fund of funds that would target investments to such companies.

By targeting investments to in-state companies, this fund would avoid concerns that arose regarding previous state programs.<sup>8</sup> In 1995, Enterprise Florida, Inc., created the Cypress Equity Fund which was designed as a "fund of funds" to invest in national private venture capital funds that, in turn, would invest in companies with high growth potential. However, a 1998 OPPAGA report concluded that this fund had not contributed to improving Florida businesses' access to capital because its investments were not targeted in-state.

In addition, the Legislature may wish to consider establishing an "early seed gap" fund for universities to help researchers further develop their discoveries.

<sup>7</sup> See *Seed and Venture Capital State Experiences and Options*, The National Association of Seed and Venture Funds, May 2006.

<sup>8</sup> See *Review of the Enterprise Florida, Inc. Capital Development Board's Cypress Equity Fund*, [OPPAGA Report No. 98-33](#), December 1998.

If it decided to create such programs, the Legislature should

- specify clear investment goals for the programs;
- identify an entity to administer the programs;
- require the entity to establish performance measures and standards subject to the Legislature's approval;
- require the entity to routinely provide the Legislature with performance reports; and
- provide for a review of the entity by an independent third-party.

***The state will need to maintain a long-term commitment to developing a strong biotechnology industry***

Developing a biotechnology industry can take a long period of time. The nation's most successful biotechnology centers, including those located in San Diego, California, and Boston, Massachusetts, developed over a 20-year period. Additionally, the path from biotechnology research to successful commercial development also is generally lengthy and uncertain. It is estimated that it can up to 12 years to bring a new drug to the marketplace and that only 1 in 1,000 patented biotechnology innovations are successfully commercialized. (See Exhibit 3.)

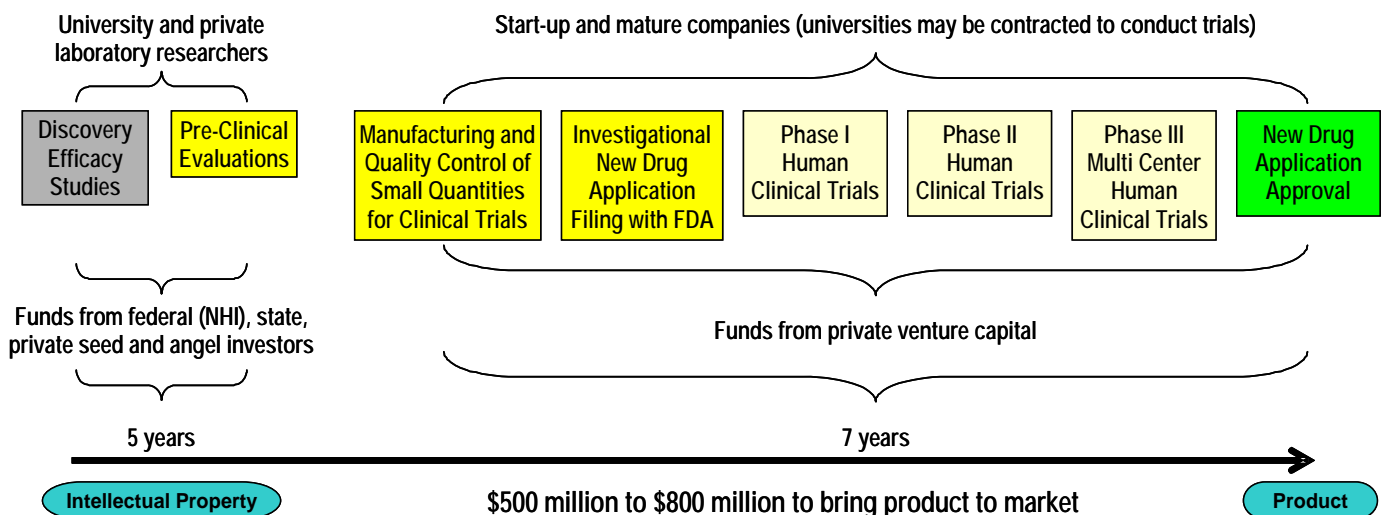
Florida's initiatives have been implemented for only a few years. Consequently, it will be several years before the initiatives' success in helping develop a biotechnology industry can be fully evaluated. The Legislature also will need to recognize that developing a biotechnology industry is a risky endeavor and that the long-term success of the state's initiatives is not guaranteed. The state will need to develop a critical mass of companies, have sufficient early-stage and venture capital investment to support new and existing companies, and provide students with the needed skills to work in biotechnology companies.

Since it will take a long-term commitment to reach the state's goal of becoming a leader in the biotechnology industry, it will be important for the state to be able to assess progress over time and maintain good centralized analysis and reporting on interim results.

***The state needs to improve its system for evaluating and reporting results of biotechnology initiatives***

In recent years, the state has made a considerable investment in developing a strong biotechnology industry. Consequently, it is important that policymakers be provided with comprehensive information on the overall costs and effectiveness of the state's various initiatives.

**Exhibit 3  
Commercialization of Biotechnology Products Is Costly and Time Consuming**



Source: OPPAGA.



Many state government entities and universities prepare reports that include information on the biotechnology industry and the results of some individual initiatives. For example,

- university technology transfer offices prepare reports that include information such as the number of patents issued, licenses granted, and license income received;
- the Agency for Workforce Innovation compiles and reports employment and wage information for specific industries, including the biotechnology industry;
- the Scripps Florida Funding Corporation submits an annual report to the Legislature and the Governor that provide information on Scripps Florida's performance; the corporation's 2005 annual report addressed Scripps Florida's performance during that year in creating jobs, obtaining research grants from the federal government or other sources, obtaining patents, and executing licensing agreements;<sup>9</sup> and
- the Florida Technology, Research, and Scholarship Board, in cooperation with the Board of Governors of the State University System, is required to issue a annual report by December 31 each year of the activities conducted on the World Class Scholars and Centers of Excellence Programs.

However, performance information for all the state-supported initiatives is not compiled into a comprehensive statewide report. As a result, it is difficult for the Legislature to assess the extent to which the various initiatives are collectively contributing to the state's overall goal of creating a strong biotechnology industry.

To improve accountability for the performance of state-supported biotechnology initiatives, we recommend that the Legislature direct any state agency, educational or research institution, and any other entity that receives state funds for biotechnology research and commercialization activities to report annually on various measures.

<sup>9</sup> See *Scripps Funding Corporation Meets Statutory and Contractual Requirements*, OPPAGA Report No. 06-61, September 2006, for information on the corporation's monitoring of Scripps Florida's performance.

Such measures could include:

- the amount of state funds received;
- the amount of other funds received, including federal research grants and industry funds;
- the number of inventions disclosed from the research conducted;
- the number of patents issued;
- the amount of license income received by state universities for biotechnology products generated;
- the number of start-up companies created;
- the number of companies in incubators;
- the number of jobs and average wages; and
- the amount of seed and venture capital invested in start-ups and spin-outs

These reports should be provided to the appropriate overseeing entities and to Enterprise Florida, Inc. To provide a more comprehensive overview of the state's biotechnology initiatives, Enterprise Florida, Inc., should prepare a statewide report that incorporates these reports and other information. This report should be provided as part of Enterprise Florida, Inc.'s annual strategic plan update to the Governor and Legislature. Enterprise Florida, Inc.'s report should focus on long-term trends rather than annual results.

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## Appendix A

# State Universities' Technology Transfer Offices Activities for Biotechnology <sup>1, 2</sup>

University	Invention Disclosures				Patents Issued				Agreements Executed with Start-up Companies			
	2001-02	2002-03	2003-04	2004-05	2001-02	2002-03	2003-04	2004-05	2001-02	2002-03	2003-04	2004-05
Florida Agricultural and Mechanical University	11	16	32	22	1	2	4	11	0	0	0	0
Florida Atlantic University	4	4	10	12	10	11	15	14	1	1	1	0
Florida Gulf Coast University <sup>3</sup>	0	0	0	1	0	0	0	0	0	0	0	0
Florida Institute of Technology <sup>4</sup>	0	0	0	2	0	0	2	2	0	0	0	1
Florida International University	0	1	2	4	1	0	0	0	0	0	0	0
Florida State University	8	23	26	15	11	13	17	14	0	0	0	1
University of Central Florida	7	2	5	23	0	1	10	4	1	0	0	0
University of Florida	<sup>5</sup>	<sup>5</sup>	<sup>5</sup>	77	<sup>5</sup>	<sup>5</sup>	<sup>5</sup>	71	<sup>5</sup>	<sup>5</sup>	<sup>5</sup>	14
University of Miami <sup>4</sup>	48	50	32	44	2	7	9	4	0	0	0	0
University of North Florida	0	0	0	0	0	0	0	0	0	0	0	0
University of South Florida	<sup>5</sup>	<sup>5</sup>	<sup>5</sup>	<sup>5</sup>	<sup>5</sup>	18	16	11	<sup>5</sup>	0	3	4
TOTAL	78	96	107	200	25	52	73	131	2	1	4	20

<sup>1</sup> Figures in the exhibit are as reported by the universities and may represent estimates.

<sup>2</sup> For purposes of this exhibit, biotechnology was defined as the use of cellular and molecular processes in solving problems and developing products.

<sup>3</sup> Florida Gulf Coast University does not have a technology transfer office. The Office of Research and Sponsored Programs currently handles any related technology transfer activity.

<sup>4</sup> The University of Miami and the Florida Institute of Technology are private universities.

<sup>5</sup> Information not provided.

Source: University Technology Transfer Offices.

	Licenses Generating Revenue				License Income				Operating Budget 2006-07	Staffing 2006-07	
University	2001-02	2002-03	2003-04	2004-05	2001-02	2002-03	2003-04	2004-05		Full- Time	Part- Time
Florida Agricultural and Mechanical University	0	0	0	0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 442,357	3	2
Florida Atlantic University	2	2	1	0	51,250	117,250	5,000	0	<sup>5</sup>	5	5
Florida Gulf Coast University <sup>3</sup>	0	0	0	0	0	0	0	0	<sup>5</sup>	5	5
Florida Institute of Technology <sup>4</sup>	1	1	1	0	0	25,000	12,500	0	18,000	0	1
Florida International University	<sup>2</sup>	1	0	1	<sup>5</sup>	4,167	<sup>5</sup>	30,000	<sup>5</sup>	5	5
Florida State University	3	2	2	3	50,896,411	23,244,677	13,683,153	1,570,090	799,000	5	1
University of Central Florida	1	0	0	1	0	0	0	10,000	1,141,813	2.5	4
University of Florida	<sup>5</sup>	<sup>5</sup>	<sup>5</sup>	81	<sup>5</sup>	<sup>5</sup>	<sup>5</sup>	404,709	<sup>5</sup>	19	0
University of Miami <sup>4</sup>	11	19	21	25	283,837	241,853	203,101	635,133	<sup>5</sup>	6	1
University of North Florida	0	0	0	0	0	0	0	0		0	1
University of South Florida	<sup>5</sup>	<sup>5</sup>	<sup>5</sup>	<sup>5</sup>	<sup>5</sup>	1,234,271	1,467,820	1,548,818	581,383	8	0
<b>TOTAL</b>	<b>18</b>	<b>25</b>	<b>25</b>	<b>111</b>	<b>\$51,231,498</b>	<b>\$24,867,218</b>	<b>\$15,371,574</b>	<b>\$4,198,750</b>	<b>\$3,022,553</b>	<b>43.5</b>	<b>10</b>

<sup>1</sup> Figures in the exhibit are as reported by the universities and may represent estimates.

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<sup>5</sup> Information not provided.

Source: University Technology Transfer Offices.

## Appendix B

eflorida.com



November 27, 2006

Gary R. VanLandingham  
Director  
Office of Program Policy Analysis and Government Accountability  
111 West Madison Street  
Room 312 Claude Pepper Building  
Tallahassee, Florida 32399-1475

Dear Mr. VanLandingham:

Thank you for the opportunity to review and respond to your charge to Enterprise Florida in your biotechnology report. In this charge, you request that Enterprise Florida prepare periodic statewide performance reports on state supported life sciences initiatives to help monitor the state's return on that investment over the long term.

Enterprise Florida is happy to provide such a report if the legislature so requests. We believe that two sources of information will be critical to provide meaningful reports. First, if state supported life science initiatives are asked to report on selected outcome measures as outlined in your draft study, Enterprise Florida will have the base information that will be needed to prepare a meaningful summary report of performance measures. We should stress that the availability of this standardized base information will be key for the achievement of the spirit and intent of your recommendation. Second, we will then be able to complement this aggregation with additional innovation measures (licenses, patents, venture capital funds invested in Florida) as available from other sources. Hopefully, over the long term, this collective base of information can help track life sciences performance measures and provide useful information to the legislature on the return on life sciences investments.

Sincerely,

A handwritten signature in black ink, appearing to read 'Howard Haug'.

Howard Haug, SVP Administration and CFO for  
John Adams, Jr.  
President and CEO

Cc: Michele R. Miller, Enterprise Florida  
Larry Novey, OPPAGA



Governor Jeb Bush, Chairman • Susan Story, Vice Chairman • John A. Adams, Jr., President & CEO

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