

# **The North Carolina Biotechnology Center**

## **Report to the Joint Legislative Commission on Governmental Operations and the Fiscal Research Division**

### **Contents of report:**

- Prior State fiscal year program activities, objectives, and accomplishments.
- Prior State fiscal year itemized expenses and fund sources.
- Detail schedule of awards

---

Required by Section 14.15.(c) of Session Law 2-11-145

Report Due by September 1, 2012

Report Submitted on August 31, 2012

Delivered (electronically) to the following recipients:

[reports@ncleg.net](mailto:reports@ncleg.net)

[thom.tillis@ncleg.net](mailto:thom.tillis@ncleg.net)

[Kristen.walker@ncleg.net](mailto:Kristen.walker@ncleg.net)

[janet.cowell@nctreasurer.com](mailto:janet.cowell@nctreasurer.com)

[phil.berger@ncleg.net](mailto:phil.berger@ncleg.net)

[markt@ncleg.net](mailto:markt@ncleg.net)

[gkelley@ncdoj.gov](mailto:gkelley@ncdoj.gov)

[ncgagoveops@ncleg.net](mailto:ncgagoveops@ncleg.net)

Submitting entity: The North Carolina Biotechnology Center

## **North Carolina Biotechnology Center 2011-12 Accomplishments**

In the early 1980s, the North Carolina Biotechnology Center began its work to establish the partnerships and for a thriving biotechnology industry. The still-young science promised to help turn around the state's economy, which was losing jobs in its traditional powerhouse sectors of manufacturing and agriculture.

The state's industry now includes more than 500 companies that employ 58,000 people across the state, a strong community centered on the partnerships and strategic activities supported by the Biotechnology Center.

The Biotech Center shores up the path between idea and product by supporting researchers, businesses and educators across the state. That pipeline –from scientific muscle to superior workforce training programs – is the basis of an international recruitment effort with a strong message: join a world leader in biotechnology.

During the 2012 fiscal year, the Biotech Center worked at all points along that pipeline to support job creation in North Carolina.

### **From idea to product**

The Biotech Center primes the pipeline by strengthening university research and supporting economic development activities. Grants provide funds to pay for research equipment used by several researchers, to test new research ideas, to encourage commercialization, and to build statewide biotechnology development capacity.

These proposals are peer-reviewed by scientists outside of North Carolina. The Science and Technology Development Program contacted 719 potential reviewers this year, who helped make the decision to award:

- Five Biotechnology Research Grants totaling \$370,524
- Six Collaborative Funding Grants totaling \$600,000
- Ten Institutional Development Grants totaling \$1,528,372
- Five Multidisciplinary Research Grants totaling \$1,249,383
- Three Regional Development Grants totaling \$160,662

The direct economic impact of these awards includes 29.5 job years funded and more than \$259,820 was allocated for goods and services at N.C. companies.

The unit also worked to expand the web directory of core research facilities to assist researchers in identifying sources of available equipment and facilities for research. The directory now includes more than 61 core facilities across the state.

To take ideas from lab to market, the Biotech Center's Business and Technology Development Program provides a range of funding and services to spur the inception and

growth of North Carolina life sciences companies. The Business Acceleration and Technology Out-Licensing Network (BATON) added 17 new North Carolina biotechnology companies, bringing to a total of 38 the number of start-up companies supported by the program. Three loan programs provide funding for company inception, technology development and corporate growth. During FY 2012, these loan program activities included:

- Two Technology Enhancement Grants totaling
- 12 loans totaling 1.4 million

To date, for every dollar awarded by the Biotechnology Center since inception of the company award programs, recipients have received \$117 in follow-on funding from external sources.

Connection to funding sources and technology partners is an important part of a biotech company's path to success. To develop that path, the business and technology development program led several partnering and VC efforts, including NCBiotech Partnering 2012 at the CED Life Science Conference, which brought together more than 217 participating companies.

### **Commercializing Ideas**

The Centers of Innovation (COI) grant program supports the growth of nascent biotechnology-related industry sectors within North Carolina whose expansion and maturation will add new sources of revenue into the state's economy. The established COIs work to establish public-private partnerships and to align industry need with the required technological innovation that can provide an appropriate solution. These partnerships will better maximize business opportunities within their industry sector.

#### **Phase I Grant**

A \$100,000 award was made to NC Personalized Medicine Coalition – a consortium that is co-led by Duke University and UNC Chapel Hill.

#### **Phase II Entities**

Accomplishments of each of the four Centers of Innovation in Phase II funding are below.

##### **Nanobiotechnology COI –**

- Brought the annual international COMS conference to NC, which had an estimated \$784,000 impact on the Greensboro economy, according to the Greensboro Convention Bureau
- Hosted seven Nano & Bio Roundtables, Bio-On-Tab events, and a Nanotechnology Commercialization Conference during the 2011-2012 with more than 815 total participants.

##### **Advanced Medical Devices COI – ibiliti,**

- Established “launchibiliti” in partnership with the Mission Healthcare System, the Mission Foundation, the Biotechnology Center's Western office and other regional



entities. The program evaluates innovative medical technologies from NC's regional medical centers for commercialization potential leading to new opportunities for companies and jobs.

#### **Drug Discovery COI**

- Signed a service contract with the Foundation for Fighting Blindness to assist their efforts in supporting a nascent technology company that is developing a treatment for eye diseases.

#### **Marine Biotechnology COI**

- Hired its first CEO, Deborah Mosca, PhD.,
- Began to integrate marine biotechnology-based research, services, innovations, and entities throughout North Carolina.

### **Agricultural Biotechnology**

With \$70 billion in annual revenues, agriculture is the top sector in North Carolina's economy. By applying the tools of biotechnology to create new crops, find new uses for existing crops and improve tools for agriculture, North Carolina stands to post significant economic gain.

Continuing to implement the vision of the 30 in 10 report, the AgBiotech Group:

- Created, funded and staffed the NC Biotechnology Crop Commercialization Center to develop new or enhanced crops for NC agribusiness
- Extended existing Center educational and research programs toward agricultural biotechnology.
- Supported company growth with the completion of an assessment of the state's ag biotech assets and opportunities, as well as updating the AgBIOCEPS database of the state's existing entrepreneurial companies.
- Made 17 keynote presentations across the U.S. and in Canada
- Began planning for the first statewide AgBiotech Summit in October 2012.

State funding was supplemented by additional grants to achieve these outcomes.

### **Statewide Development**

The preceding programs are designed to grow biotechnology companies in North Carolina from North Carolina research. The Biotech Center also works with statewide partners to bring biotechnology companies to the state, to expand existing capabilities and to capitalize on regional assets. With low business costs and specialized strengths in vaccine and pharmaceutical production, cancer research and medical research, North Carolina has a strong value proposition for companies looking to locate new facilities. The Center's recruitment team continues to work closely with the N.C. Department of Commerce on projects with new potential for job creation and investment.

The regional offices continued to coordinate a number of biotechnology and educational events for their constituents, serving as liaisons to Biotechnology Center programs.

Executive Directors focused on specific activities within five primary goals: Innovation and Emerging Applications; Capital Formation; Workforce Development; Statewide Development; and International Competitiveness.

### **Job Training and Workforce Development**

Companies small and large need a skilled workforce to fill the jobs they create. The Biotech Center's Education and Training Program works with the NCBioImpact partnership – including the UNC System, NC Community College System and industry – to create the best biomanufacturing workforce in the world. This year, NCBiotech issued a new edition of BioWork, our introductory course for process technicians; and provided 526 student manuals to community colleges.

This effort has become a competitive advantage for the state, and is making good on biotech's promise to create jobs for North Carolinians. Recent survey data indicates that pharmaceutical and bioprocess manufacturing companies recruit 90 percent of their new hires from North Carolina.

The Center's Education and Training program works more broadly in science education by awarding grants to schools to teach the science of biotechnology, raise student interest in science careers, and prepare the state's biotechnology workforce. This year the group:

- Awarded \$481,982 in Education Enhancement Grants
- Awarded seven Undergraduate Biotechnology Research Fellowships totaling \$34,450.
- Provided funding for the NC Museum of Natural Sciences to partially equip the genomics and microbiology Investigate Lab, part of the newly opened Nature Research Center.
- Enrolled 138 high school and middle school teachers in 8 professional development workshops during the summer of 2011.
- Enabled 324 teachers to perform hands-on biotechnology in their classrooms with free experiment kits and other lab supplies;
- Provided lab equipment on loan free to 37 teachers.

The Education and Training Program continues to assess workforce needs for the biomanufacturing and nanobiotechnology sectors. The group has also launched a preliminary edition of *The Biotechnology Toolbox*, a new curriculum resource for middle school teachers.

### **Biotech Community**

As the U.S. continues to rebuild from the recent recession, many states look to the biotech sector to add jobs. These jobs pay an average of \$78,000 in North Carolina, so they have a significant ripple effect on the economy. Battelle calculates that the total impact on North Carolina's economy is \$64.6 billion and more than 226,000 jobs. This generates \$1.92 billion in state and local taxes.



NCBiotech has launched several initiatives to remove some of the barriers to finding these high-paying jobs. In addition to providing guidance through meetings with and presentations to students, recent graduates, and experienced life science professionals, NCBiotech staff:

- Launched the NCBiotech Job Network, a networking group focused on mid-career biotech employees.
- Continued the Industrial Fellowship Program, which provides transitional training for Ph.D. scientists moving from academia into industry careers. Five fellowships were awarded this year
- Developed a new internship program that funded seven interns at North Carolina-based life science companies.
- Upgraded the website job board, with a major overhaul planned for FY13.

These job-creation activities are in addition to NCBiotech's regular networking events, which build relationships within and across areas of scientific expertise, roles in business, and positions in public policy. A few examples from this year are:

- 11 Intellectual Exchange Groups, designed to let academic and industrial scientists share ideas. These 67 events that attracted 2881 participants.
- 13 total Regional Exchange Groups, which offer a number of business or scientific networking opportunities in specific regions.
- A variety of business networking and education opportunities, including the Biotech Forum series, the Life Science Business Development Professionals meetings, CED Life Science 2012 and other regular events.
- The North Carolina pavilion at the Biotechnology Industry Organization's annual meeting. Coordinated by the Biotech Center, the pavilion included more than 60 sponsors from across the state.

The Biotech Center continues to welcome approximately 30,000 guests each year to its Hamner Conference Center. Events range from client presentations to board meetings to trade shows.

Information is key for this community, and the Biotechnology Center's Library and Information Services group provide information on all facets of commercial biotechnology to staff and external customers. The library fills about 150 research requests each year, including providing research for economic development and marketing projects. Metrics for the Biotech Center's funding programs and the state's bioscience industry come from the library each year, and the research staff continues several programs to link small companies with high-cost market research at reduced prices.

## **Looking to the Future**

In the coming year, the Biotechnology Center will maintain and expand the programs mentioned here, but will also be creating new programs in anticipation of new needs. An internal group, dubbed the Strategic Opportunities Group, investigates these opportunities to create jobs, increase funding or raise visibility for North Carolina when they arise. Current initiatives of this group include North Carolina's participation in the 2012 Mid-Atlantic Bio conference, exploration of the biodefense sector, modeling economic growth, and creation of an investment book detailing North Carolina technologies.

For the results of these initiatives and the most up-to-date information on the Biotech Center, please visit our Web site, [www.ncbiotech.org](http://www.ncbiotech.org).

# North Carolina Biotechnology Center

## Report of Fund Sources and Expenses

### Fiscal Year Ending June 30, 2012

---

#### Fund Sources:

Unrestricted Revenues	
State Appropriation	\$17,551,710
Hamner Conference Center	211,706
Other, net	404,128
Restricted Revenues	
Grants	150,000
Contributions	<u>1,032,177</u>
Total Revenues	<u>\$19,349,721</u>

#### Expenditures:

Science & Technology Development	\$ 4,094,316
Centers of Innovation	1,680,000
Statewide Development	1,643,326
Business & Technology Development	416,464
Education & Training	609,512
Hamner Conference Center	766,556
Library & Information Services	722,679
AgBiotech Initiatives	210,554
Other Programs	1,078,927
Program Management	5,557,712
General & Administrative	<u>2,930,181</u>
Total Expenditures	<u>\$19,710,227</u>

---

**Note:** Figures above are on an accrual basis. The final quarterly report filed with the Department of Commerce is on a cash basis. This schedule will reconcile to our audited financial statements as of June 30, 2012.



# North Carolina Biotechnology Center

## Awards - Fiscal Year 2012 - Summary by Program

July 1, 2011 - June 30, 2012

Program Category Program Area	Record Count	Original Award Amount	Percent of Total
<b><u>Business Financing</u></b>			
COMPANY INCEPTION LOAN	5	\$150,000	1.73%
INDUSTRIAL FELLOWSHIP PROGRAM	10	\$452,800	5.24%
INDUSTRIAL INTERN PROGRAM	7	\$21,000	0.24%
SMALL BUSINESS RESEARCH LOAN	5	\$795,051	9.19%
STRATEGIC GROWTH LOAN	2	\$500,000	5.78%
<i>Total Business Financing</i>	29	\$1,918,851	22.19%
<b><u>Education Support</u></b>			
EDUCATION & TRAINING WORKSHOP	7	\$141,514	1.64%
EDUCATION ENHANCEMENT GRANT	11	\$481,982	5.57%
<i>Total Education Support</i>	18	\$623,496	7.21%
<b><u>Event Support</u></b>			
BIOTECHNOLOGY EVENT SPONSORSHIP	23	\$34,824	0.40%
BIOTECHNOLOGY MEETING GRANT	11	\$47,500	0.55%
<i>Total Event Support</i>	34	\$82,324	0.95%
<b><u>Research and Equipment Support</u></b>			
BIOTECHNOLOGY RESEARCH GRANT	5	\$370,524	4.28%
COLLABORATIVE FUNDING GRANT	6	\$600,000	6.94%
INSTITUTIONAL DEVELOPMENT GRANT	10	\$1,528,372	17.67%
MULTIDISCIPLINARY RESEARCH GRANT	5	\$1,249,383	14.45%
TECHNOLOGY ENHANCEMENT GRANT	2	\$100,000	1.16%
UNDERGRADUATE BIOTECHNOLOGY RESEARCH FELLOWSHIP	7	\$34,450	0.40%
<i>Total Research and Equipment Support</i>	35	\$3,882,729	44.90%
<b><u>Sector and Region Support</u></b>			
CENTERS OF INNOVATION	3	\$1,580,000	18.27%
CENTERS OF INNOVATION PLANNING GRANT	1	\$100,000	1.16%
ECONOMIC DEVELOPMENT AWARD	2	\$200,000	2.31%
PRESIDENTIAL INITIATIVE AWARD	2	\$100,000	1.16%
REGIONAL DEVELOPMENT GRANT	3	\$160,662	1.86%
<i>Total Sector and Region Support</i>	11	\$2,140,662	24.75%
<b>Grand Totals (127 items)</b>	<b>127</b>	<b>\$8,648,062</b>	<b>100.00%</b>