

63,000
total workforce

6.6%
job growth 2012-14

600+
*bioscience
companies*

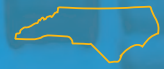
259,963
total jobs

2,000+
support companies

\$2.2 B
*state + local
government revenues*

The General Assembly funded NCBiotech with \$13.6 million in FY 2016

North Carolina: a global life science leader



Build



Partner



Invest



Communicate

A Year of Success



As president and CEO of the North Carolina Biotechnology Center, I have the privilege of supporting a statewide team of professionals in strengthening North Carolina's global life science leadership.

Our mission is to position our state in the best possible way to help feed, fuel and heal our world. Fortunately, that also helps to put North Carolina in an enviable economic position. As outlined in this annual report the life sciences continued driving the upward spiral of high-impact economic growth. The life sciences now generate \$86 billion in economic activity statewide.

We're continuing to build this robust life science community by investing carefully to catalyze innovation and company growth. We also continuously look for ways to develop new and meaningful partnerships that will contribute to that growth. And we strategically communicate our successes and opportunities to interested global audiences.

This report provides a few examples of North Carolina's fascinating life science activities and assets. NCBiotech touched them all, supporting research scientists' best ideas and the startup companies they foster. Helping bring new high-value crops to farmers. Attracting new defense dollars for developing North Carolina inventions. And lending expertise to partnerships attracting new companies from around the world. These and many more stories are told in more depth on our website, ncbiotech.org.

As North Carolinians, we share a rich history of statewide life science commitment and success. It's why we can claim global life science leadership today, and must continue to re-invest to preserve it.

Doug Edgeton

President and CEO | North Carolina Biotechnology Center

\$86B
*total economic
activity*

Life sciences contribute an estimated \$86 billion annually to North Carolina's economy. This analysis of the NCBiotech company directory by TEconomy Partners is based on the number of companies, their activities, their employees, and their employees' activities.

Annual Report 2016

*Our work in technology, company,
regional, and sector development
from July 1, 2015 to June 30, 2016
is chronicled here.*

**North Carolina
Biotechnology Center**

Technology and Company Development

New ideas and their translation to products and services are at the core of technology-based economic development. NCBiotech investments bridge gaps in this pipeline, propelling technology and company development forward. This year, grants and loans totaling \$7,478,637 were awarded.



Loans totaled \$3,674,975

- \$450,000 Company Inception Loans
- \$2,224,975 Small Business Research Loans
- \$1,000,000 Strategic Growth Loans

Grants totaled \$3,803,662

- \$1,204,696 Institutional Development Grants
- \$300,000 Collaborative Funding Grants
- \$1,291,116 Biotechnology Innovation Grants
- \$468,627 Technology Enhancement Grants
- \$86,000 Support Grants
- \$350,000 Center of Innovation Awards (Marine)
- \$103,223 Event and Meeting Grants



Cancer Treatment

Duke University researchers have discovered a promising treatment for glioblastoma, a form of brain cancer that is nearly always fatal. The treatment, a modified poliovirus, has a complex structure and production process. To generate enough of the therapeutic for larger clinical trials, scientists needed new manufacturing methods and sources. A \$43,000-plus Technology Enhancement Grant from NCBiotech helped to fund production development.

The news show *60 Minutes* featured this novel cancer treatment. This technology has since been licensed to ISTARI Oncology, a spinout company, for further development. It's another way that NCBiotech partners to solve specific problems that keep life science innovations moving forward, saving lives.



Locus Biosciences

Locus Biosciences is using cutting-edge gene editing technology to slice a new path into the discovery and development of novel antibiotics.

The Raleigh bioscience spinout of North Carolina State University is using a version of the hot new technology called CRISPR to cut important "transmission lines" in bad bacteria to render them impotent.

The company started in 2015 with the help of a \$75,000 *Company Inception Loan* from NCBiotech. A \$250,000 *Small Business Research Loan* followed in early 2016. The company also completed a \$1.3 million initial round of venture capital investment, and expects to close on a \$30 million Series A round of funding early in 2017.



G1 Therapeutics

Chapel Hill's G1 Therapeutics completed a \$50 million funding round that allows the company to proceed toward commercialization of its cancer therapies.

G1, spun out of the University of North Carolina at Chapel Hill, was bootstrapped with \$500,000 in loans from the North Carolina Biotechnology Center in 2011 and 2012. The company has subsequently repaid the loans.

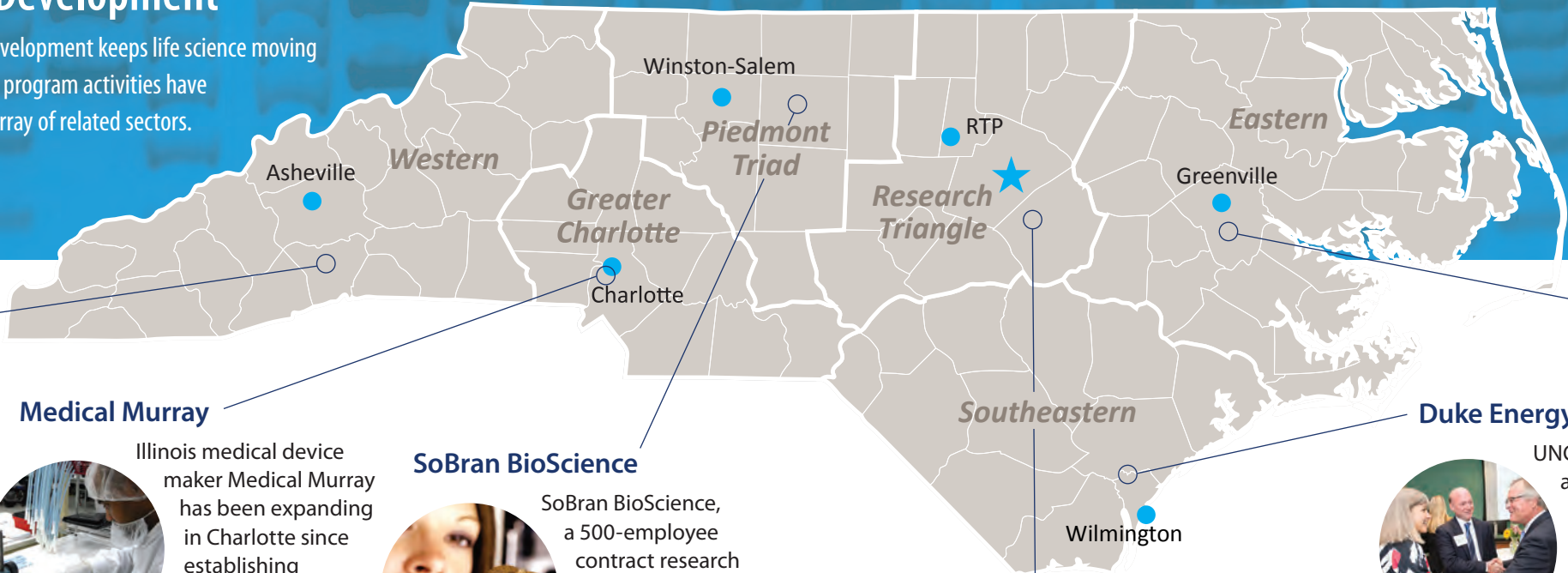
The company is developing an unusual biopharmaceutical shield that protects bone marrow from chemotherapy and radiation damage. It may preserve blood stem cells and protect the immune systems of cancer patients. The technology also holds promise in biodefense applications.

NCBiotech Awarded **\$7.5 Million** in 2016

Statewide and Sector Development

Investment in technology and company development keeps life science moving forward. These investments and NCBiotech program activities have distributed growth statewide and into an array of related sectors.

17
new/expanded
sites since
June 2015



RAUMEDIC



RAUMEDIC, a family-owned German company, opened its \$27 million development and production facility in western North Carolina to make medical and pharmaceutical plastic and rubber components.

The 60,000-square-foot plant, in the Henderson County town of Mills River, is the company's first production facility in the U.S.

The company plans to have as many as 172 employees working at this U.S. headquarters site within the next several years, at an average annual wage of \$55,000.

Medical Murray



Illinois medical device maker Medical Murray has been expanding in Charlotte since establishing Medical Murray Southeast four years ago.

The family-owned company has more than 100 employees—10 of them in Charlotte—designing, developing, and manufacturing specialized catheters and components for a wide variety of minimally invasive procedures.

It also does contract manufacturing of unique, complex catheter systems, permanent implants and complex components for vascular, urologic and surgical applications.

SoBran BioScience



SoBran BioScience, a 500-employee contract research organization based in Fairfax, Virginia, opened a unique animal research facility in Greensboro.

A coordinated regional effort, which included the NCBiotech Piedmont Triad office, attracted SoBran to North Carolina. Gateway University Research Park provided pastures, and the company works with students at North Carolina Agricultural and Technical State University to support its pre-clinical research studies.

Novo Nordisk



Novo Nordisk Pharmaceutical Industries, based in Denmark, began building a \$1.8 billion production facility for diabetes medicines at its Clayton site. With a footprint of about seven football fields, the expansion is the largest manufacturing investment in North Carolina history. It will create 700 high-paying jobs.

Duke Energy Foundation



UNCW's College of Health and Human Services, in partnership with the Southeastern Office of NCBiotech, received a \$390,000 grant from the Duke Energy Foundation.

The grant is strengthening the region's clinical research workforce and its economic development opportunities. Key components include curriculum enhancements for the UNCW clinical research and statistics programs; a student fellowship program; delivery of continuing education; and a collaborative workspace to help industry employees gain the knowledge and skills to grow the industry.

Patheon/Pitt County Training Center



Patheon, a global pharmaceutical company headquartered in Durham with production facilities in Greenville and High Point, announced plans to add 488 jobs to its sterile-fill facility in Greenville by 2019 as part of a planned \$159 million expansion.

To help prepare those and other workers for the region's expanding life science industry, Pitt Community College is building a 75,000-square-foot, \$16 million science and technology training facility at its Winterville campus. That building, with 10 classrooms, 11 labs, a biotechnology center, a 120-seat auditorium, a STEM learning center and a science tutorial center, will open in 2017.

A full list of statewide and sector activity is online: ncbiotech.org/expansions

Sector Status

New technologies happen where life science and other sectors converge. NCBiotech works to identify and develop emerging life science-related sectors, with emphasis this year in two key areas (right).

Through the Centers of Innovation program, the Marine Bio-Technologies Center of Innovation continues its work with translating technology. It also hosted the international BioMarine Business Convention in partnership with the Southeast Office. The COI program began work in a new sector, precision health, with university, industry and government partners.

Agricultural Biotechnology | At the intersection of the state's traditional and emerging industries sits a cadre of 80 companies, including international agribusiness leaders. The Ag Biotech Initiative extended its showcase of entrepreneurial companies to include the Southeast, welcomed hundreds of professionals to its quarterly forums, and trained teachers who have reached 60,000 students.

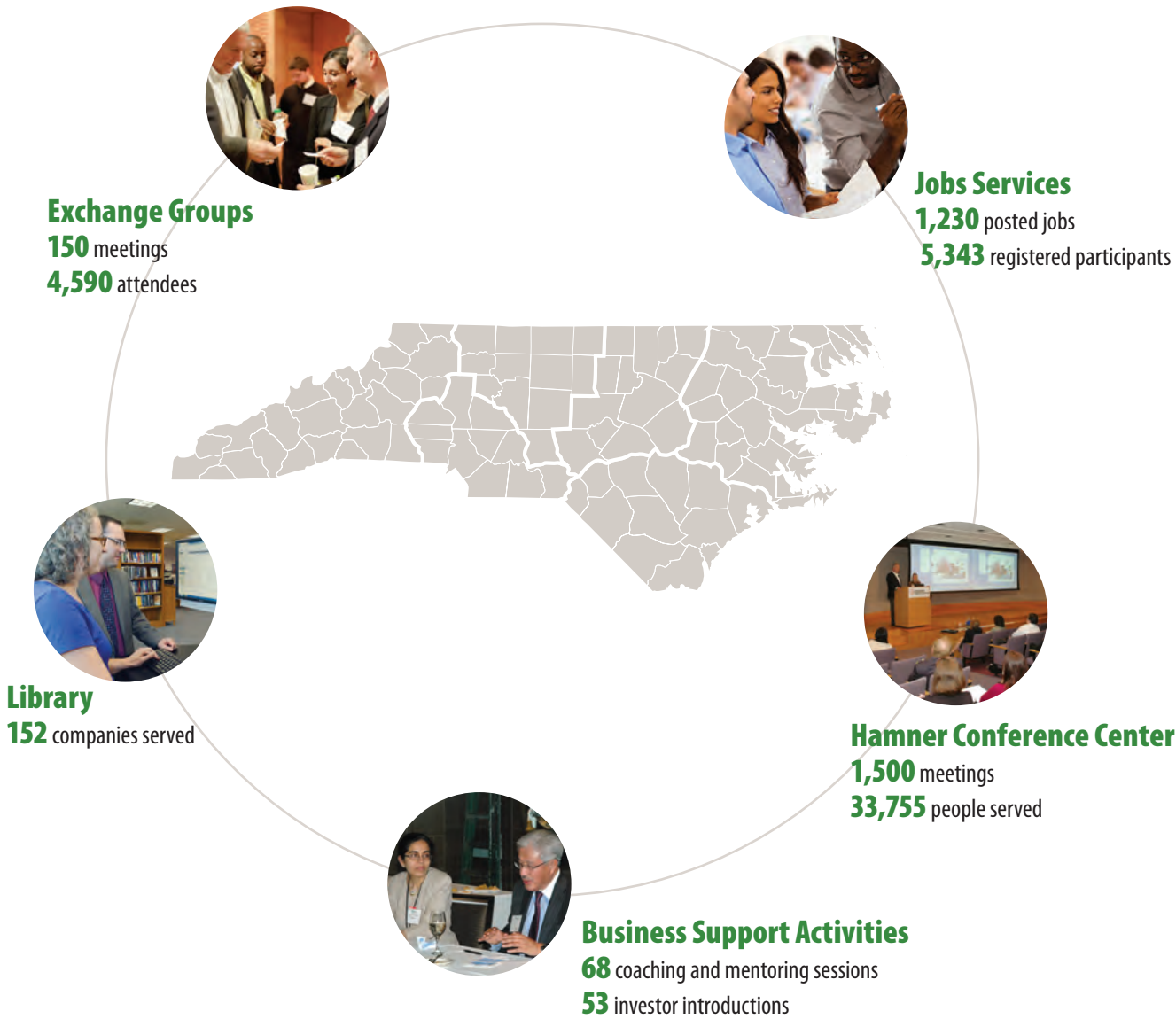


Bio Defense | NCBiotech takes a broad view of this sector, working to bring more military, defense and homeland security funding to the state's companies and universities investigating how to protect our soldiers and food supply. In addition to investing \$375,000 of loans in defense technologies (included in loans, page 2), the initiative brought a life science perspective to several military business and warfighter events.



NCBiotech: Building a Life Science Ecosystem

A true life science ecosystem relies on a strong community, which in turn requires more than just dollars to thrive. NCBiotech implements a wide range of activities designed to strengthen the ecosystem that moves life sciences forward. Here are a few examples and outcomes.



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Frank Grainger Fair Products, Inc.	John Skvarla State of North Carolina	
Kristen Heath Heath Contract Consulting	Steve Troxler North Carolina Department of Agriculture and Consumer Services	
Undi Hoffler, Ph.D. North Carolina Central University		

Financial Data

Revenues	
State of North Carolina	\$13,600,338
Leveraged state funding	\$1,287,745
Asset redeployment	\$2,085,784
Total revenues	\$16,973,867
Expenses	
Technology development	\$4,151,811
Company development	\$4,911,293
Regional development	\$975,109
Sector development	\$1,922,303
Program services	\$1,918,122
Operations	\$2,747,676
Total expenses	\$16,973,867

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