

NORTH CAROLINA: THE STATE OF MINDS



Biotechnology Works in North Carolina

Consider North Carolina

Some of the world's brightest minds work in North Carolina. Talented people with skills in science, technology, business and education think, create and produce here every day. They have made North Carolina one of the world's ideal places for commercial



biotechnology. In fact, North Carolina is home to the nation's third largest biotechnology industry, according to a 2005 report by *Ernst & Young*. More than

45,000 people work at 350-plus life science companies in North Carolina. We would love to have your employees call North Carolina home too. Consider North Carolina's many assets and advantages for biotechnology when your company is looking to relocate or expand:

North Carolina Biotechnology Center

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Post Office Box 13547
Research Triangle Park, NC 27709-3547
919-541-9366
www.ncbiotech.org

North Carolina Department of Commerce

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Raleigh, NC 27699-4301
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- A State That Works for Biotechnology
- A Large and Dynamic Biotechnology Industry
- A Highly Trained Work Force for Biotechnology and Biomanufacturing
- Outstanding Universities and Community Colleges
- A Supporting Infrastructure of Service and Supply Companies
- State Incentives for Biotechnology Companies
- A Great Place to Live, Work and Play

A State That Works for Biotechnology

The State of North Carolina has a long-standing commitment to biotechnology development. In 1984 it created the North Carolina Biotechnology Center, the world's first government-sponsored organization dedicated to developing the biotechnology industry. The Biotechnology Center and the North Carolina Department of Commerce are the state's lead partners in biotechnology development and work in harmony with many partners throughout the state to promote biotechnology research, business, education and job creation.

To help guide North Carolina's future investments in biotechnology development, Governor Mike Easley in 2003 asked the Biotechnology Center to lead the development of a biotechnology strategic plan. *New Jobs Across North Carolina: A Strategic Plan for Growing the Economy Statewide through Biotechnology* includes 54 strategic recommendations for improving biotechnology research, business, education and workforce training. The strategic plan identifies three immediate priorities: attracting and supporting biomanufacturing companies, encouraging company startups, and spreading the benefits of biotechnology to all parts of the state.

www.ncbiotech.org/strategicplan

**The nation's
No. 3 state in
biotechnology
(2005)**

— ERNST & YOUNG



**No. 5 best U.S.
location for
biotechnology**

BUSINESS FACILITIES,
NOVEMBER 2004

A Large and Dynamic Biotechnology Industry

More than 350 biotechnology, pharmaceutical, device, and contract research companies operate in North Carolina, employing 45,000 people statewide.

About one-third of the state's companies are major, multinational biotechnology companies, including Ajinomoto, Biogen Idec, bioMerieux, Diosynth RTP, Eisai, GlaxoSmithKline, Merck & Co., Novo Nordisk Pharmaceutical Industries, Novozymes, and Wyeth Vaccines. The rest are small and medium companies, many of them "home-grown" spin-offs of large companies or university labs.



North Carolina is a worldwide leader in agricultural biotechnology with more than 30 companies employing 2,500 people. Four of the world's largest agricultural chemical companies — BASF,

Bayer CropScience, Monsanto and Syngenta — have biotechnology research and development facilities in the state.

"North Carolina is a nurturing place with organizations like the Council for Entrepreneurial Development and the North Carolina Biotechnology Center. The atmosphere in North Carolina is such that people tend to help one another....We know each other well and can call on each other when times are tough."

— CHRISTY SHAFFER, CEO OF INSPIRE PHARMACEUTICALS

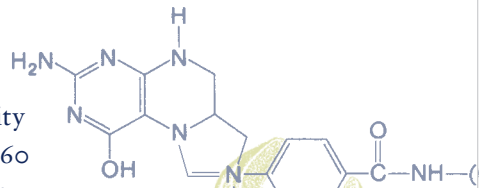
A Highly Trained Work Force for Biotechnology and Biomanufacturing

North Carolina is a national leader in biomanufacturing and pharmaceutical manufacturing. Sixteen companies have biomanufacturing operations in North Carolina, and at least 30 other companies are engaged in related manufacturing of pharmaceuticals, diagnostics and medical devices. These companies employ an estimated 20,000 people. In addition, thousands of North Carolinians work in companies that provide goods and services in support of biomanufacturing and related pharmaceutical manufacturing.

Having a highly trained work force is essential to growing the biomanufacturing sector, a top priority of the state's biotechnology strategic plan. With \$60 million in funding from Golden LEAF (Long-term Economic Advancement Fund) and \$4.5 million from industry, the North Carolina Biomanufacturing and Pharmaceutical Training Consortium is guiding the development of a new, nationally unique program that will train 2,000 to 3,000 students each year. The Consortium is a partnership of biomanufacturing companies, the UNC System, the Community College System and the Biotechnology Center.

No. 8 state for work force training programs

— EXPANSION MANAGEMENT, AUGUST 2004



North Carolina will lead the nation in percentage growth of new biopharmaceutical jobs by 2014

— MILKEN INSTITUTE, 2004

North Carolina State University in Raleigh is building a Biomanufacturing Training and Education Center (BTEC) scheduled to open in 2007. Plans call for a 100,000-square-foot plant that will provide hands-on experience in a pilot-scale, Good Manufacturing Practices (GMP) environment similar to an industrial setting. North Carolina Central University in Durham is building a Biomanufacturing Research Institute and Technology Enterprise (BRITE) facility to open in 2007. BRITE will include 65,000 square feet of research laboratories and classrooms for research, teaching and training in biotechnology and



biomanufacturing. The North Carolina Community College System has developed BioNetwork, six centers statewide that are training workers in bioprocessing, pharmaceutical production and bioagriculture and will feed students into the BTEC and BRITE programs for additional training.

Outstanding Universities and Community Colleges

Universities and Private Colleges

North Carolina has 50 public and private colleges and universities that drive the life sciences industry in North Carolina. More than 45 life sciences companies currently in business in North Carolina are based on technologies developed in the state's universities. On average, 150 biotechnology-related patents are issued to universities and companies in North Carolina each year. Around 1,100 students graduate with doctorate degrees each year, and more than half of them take diplomas in the biological sciences and related disciplines such as engineering, agriculture, health care, the physical sciences and computer science.

The University of North Carolina (UNC) system is a multi-campus university composed of 16 constituent institutions including flagship schools UNC-Chapel Hill and North Carolina State University. As a source of specialized resources and expertise, highly trained workers and the research that fuels innovation, higher education is a main driver of economic development in

“We spent months looking all over America for the right place to put this company. We met many people and were offered many inducements, but nowhere did we meet the same combination of wisdom, savvy and know-how that we found here in North Carolina.”

— DR. CHIP SCARLETT, CO-FOUNDER OF BIOPRO, NOW DIOSYNTH BIOTECHNOLOGY

University of North Carolina at Chapel Hill is No. 1 among U.S. academic institutions recognized as best places to work for postdocs

— THE SCIENTIST
MAGAZINE, FEBRUARY
2005



**No. 9 state in
the nation in
nanotechnology**

— SMALL TIMES
MAGAZINE, MARCH
2005

North Carolina. With sponsored research grants and contracts of more than \$1 billion, UNC ranks third nationally among university systems.

In addition to the state's public universities, North Carolina has 36 private colleges and universities, including nationally renowned Duke University and Wake Forest University. Duke University Medical Center is one of the largest biomedical research enterprises in the country, with more than \$431 million in sponsored research annually. It is ranked among the top five American medical schools in National Institutes of Health grant funding, with its research funding growing by more than 20 percent in fiscal year 2003 — the highest rate of growth among the nation's 20 top-ranked institutions. Wake Forest is a \$186 million research community, with much of its funding coming from the National Institutes of Health. Wake Forest maintains nationally recognized research centers in cancer, regenerative medicine, drug abuse, human genomics, hypertension and vascular disease, investigative neuroscience, stroke, ultrasound, women's health, and many other disciplines. Wake Forest is a major research center with close to 1,000 research studies and clinical trials under way, offering patients the latest treatment options.



Community Colleges

North Carolina's nationally acclaimed community college system offers customized skills training to new and expanding industries at little or no cost. The system is made up of 59 community colleges, and more than 99 percent of the state's population is within 30 minutes driving distance of a community college campus. The colleges provide focused industrial training, new and expanding industry training, and a variety of industrial certification programs to more than 750,000 students every year.

The Biotechnology Center has worked with industry and the North Carolina Community College System to develop the BioWork[®] course for training entry-level bioprocess technicians in bioprocess, pharmaceutical, and chemical manufacturing. More than a dozen community colleges across the state have Associate of Applied Science degree programs in biotechnology; bioprocess, chemical, and pharmaceutical manufacturing technology; and laboratory technology.

www.ncbionetwork.org



North Carolina is determined to have the world's best-trained work force for biomanufacturing.

The Research Triangle area is No. 1 in "human capital" and "biotech workforce."

— MILKEN INSTITUTE,
2004 BIOTECH INDEX

The Triangle (Raleigh-Durham-Chapel Hill) is No. 3 in the nation among the country's top metro areas in biotechnology (June 2004)

— MILKEN INSTITUTE

A Supporting Infrastructure of Service and Supply Companies

North Carolina has the world's greatest concentration of contract research organizations (CROs) and testing companies, which help biotechnology and pharmaceutical companies get their products to market faster and cheaper. Four of the world's largest CROs and testing companies — LabCorp, Quintiles Transnational, PPD and RTI — are headquartered in the state, and dozens of smaller companies provide analytical, clinical and regulatory services.

In addition, the state has a robust community of companies and non-profit organizations dedicated to providing products and services to the biotechnology industry, including accounting, legal, consulting, financing, staffing, design, construction, engineering, sales and marketing. Among the North Carolina venture capital funds that invest in North Carolina biotech companies are A.M. Pappas & Associates, The Aurora Funds, Hatteras BioCapital and Intersouth Partners.

"We are choosing North Carolina over six other states because of its supporting infrastructure for the biosciences, including the Biotechnology Center, excellent research universities and community colleges, specialized construction and engineering companies, available workers, and extensive workforce training programs, in addition to its high quality of life. None of the other six measured up when all of these factors were considered."

— ANTHONY LAUGHREY, PRESIDENT AND CEO, KBI BIOPHARMA

State Incentives for Biotechnology Companies

North Carolina provides a favorable business climate including a wide array of incentives and financing programs for life science companies.

Job Development Investment Grants — A discretionary incentive that can provide multi-year grants to new and expanding businesses measured against a percentage of withholding taxes paid by new employees. The JDIG program may fund 25 projects per year, up to a total payout of \$15 million per year.

One North Carolina Fund — A discretionary incentive to help recruit and expand high-value jobs. The fund may provide financial assistance to businesses or industries deemed to be vital to a healthy and growing state economy.

William S. Lee Tax Credits — A performance-based, nondiscretionary incentive that may offset up to 50 percent of corporate income and/or franchise taxes.



**No. 1 state for
business locations
and expansions**

— PLANTS SITES
& PARKS, 2004
READERS SURVEY

Revised and Enhanced Research and Development Tax Credit — The enhanced version of this credit rewards companies that perform research and development within the state and provides a special rate for small businesses and those in economically distressed counties. The program also offers a credit

No. 1 state for landing new jobs and investments

— PLANTS SITES
& PARKS, 2004
READERS SURVEY

for research and development conducted at private and public universities in North Carolina to strengthen ties between the universities and the business community.

Increased Qualified Business Investment Tax Credit

— Designed to encourage entrepreneurial investments in cutting-edge small businesses, this tax credit was increased by \$1 million annually to \$7 million, and the sunset clause was extended to January 1, 2008.

Industrial Revenue Bonds — To assist new and expanding manufacturing projects

Community Development Block Grants — A federally assisted program to finance projects tied to specific companies and jobs and to assist communities in economic and downtown development

Industrial Development Fund — State grants and loans to assist projects sponsored by local governments in the more economically distressed counties

N.C. Department of Transportation Highway improvements and rail assistance

Grant and Loan Programs — Financing provided to small companies by the North Carolina Biotechnology Center.

SBIR/STTR Program — Reimburses qualified firms for a portion of the costs of preparing and submitting Phase I proposals for the federal Small Business Innovation Research Program and Small Business Technology Transfer Program. Also awards matching funds to firms that have received a SBIR or STTR Phase I award. Sponsored by the North Carolina Board of Science and Technology.



Golden LEAF (Long-term Economic Advancement Foundation) — A portion of the funds North Carolina received from the federal tobacco settlement is invested in strategic economic development projects in the state, including biotechnology initiatives.

Business Services — The North Carolina Department of Commerce provides statewide business assistance through its Business ServiCenter, existing industry field services, export business development and tourism marketing. The University of North Carolina System's 17 Small Business and Technology Development Centers provide technical assistance to small and startup businesses throughout the state. The Biotechnology Center's Business and Technology Development Program helps North Carolina biotechnology companies with financing; technology assessment, development and transfer; business planning; networking opportunities; venture capital; marketing strategies; strategic partnerships; site locations; and professional referrals. The Council for Entrepreneurial Development provides an interactive forum for entrepreneurs, investors, service professionals, academicians, researchers and public policy makers who combine their energies to create an environment where entrepreneurship can flourish.



No. 1 state business climate for three straight years (2001-2003)

— SITE SELECTION
MAGAZINE

“Merck is proud to announce the selection of Durham as the location for its new vaccine manufacturing facility. . . . We appreciate the strong support that state and local officials have provided in helping us bring this new manufacturing facility to North Carolina.”

— RAY GILMARTIN, FORMER CHAIRMAN, PRESIDENT AND CEO OF MERCK

North Carolina has the lowest cost of doing business of any of the nation's leading biotechnology states.

— MILKEN INSTITUTE,
2005 COST OF DOING
BUSINESS INDEX

A Great Place to Live, Work and Play

North Carolina has everything you could ask for in a place to live, work and play: low cost of living and operating a business, good schools and health care, a mild climate, and a wide variety of outdoor recreation.

Homes in North Carolina's metropolitan areas are considerably less expensive than those in other biotech clusters, according to the National Association of Realtors. Raleigh/Durham is one of the nation's least expensive metro areas for operating a biotechnology facility, according to a study by John Boyd in the February 2005 issue of *Genetic Engineering News*.

North Carolina has 2,158 public schools and 93 charter schools. The state has been recognized as a pioneer in early-childhood efforts, thanks to Smart Start, the TEACH program and the *More at Four* program.

North Carolina ranks in the top six in the nation in the college-going rate for high school seniors. Through support from the Gates Foundation, the state is focused on redesigning high schools by partnering with employers and higher



education to better prepare students for 21st century skills, including biotechnology. In 2005 the North Carolina General Assembly approved a state-run lottery to provide greater funding for public education.

www.ncpublicschools.org

North Carolina has a Sunbelt climate with four distinct seasons and mild winters. With 300 miles of beautiful beaches, 29 state parks, 400-plus golf courses, and Great Smoky Mountains National Park, North Carolina is an outdoor paradise.

www.visitnc.com

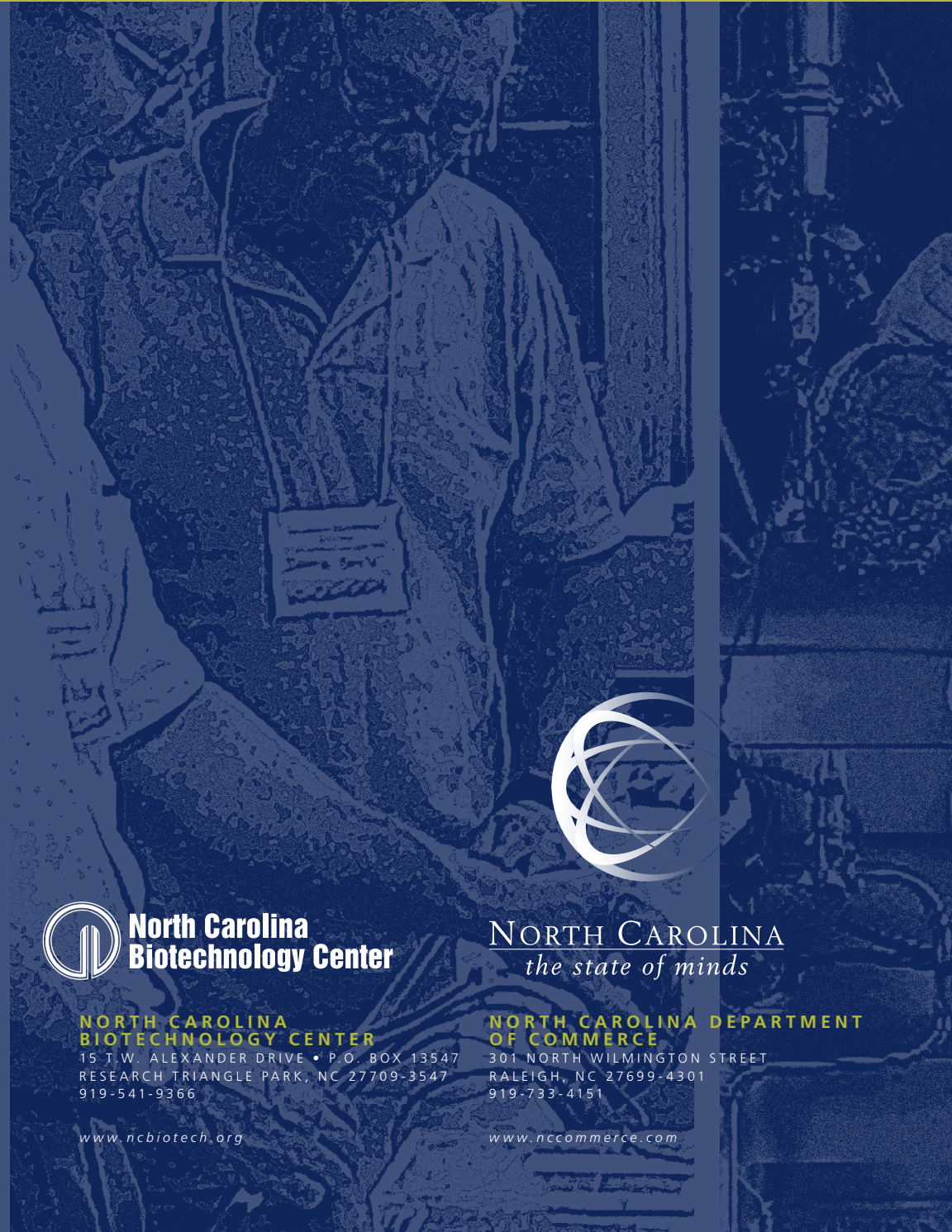
North Carolina is a popular place to live and work. It's the ninth fastest-growing state in the country.

— U.S. CENSUS

North Carolina Firsts

- The University of North Carolina was the first public university in the United States to open its doors in 1795.
- The Wright brothers achieved the first successful powered airplane flight in 1903 near Kitty Hawk.
- The North Carolina School of Science and Mathematics, opened in 1980, is the country's first residential high school for outstanding math and science students.
- The North Carolina Biotechnology Center was established in 1984 as the world's first government-sponsored initiative in biotechnology.
- The first state art museum in the country is located in Raleigh.
- North Carolina was the first state to deploy high-speed computing capabilities (OC-3) to every county in 1994.





**North Carolina
Biotechnology Center**

**NORTH CAROLINA
BIOTECHNOLOGY CENTER**

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